

Laughter

A SCIENTIFIC
INVESTIGATION

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VIKING

Natural History of Laughter

From philosophers we have learned a lesson about laughter that they did not intend to teach—namely, that intellectual prowess, however formidable, is limited in what it can tell us about this tantalizing behavior. To learn more about laughter we must stop talking about it and start listening to the ultimate experts, laughing people. This chapter traces the first steps in a 10-year search to understand what laughter is, when we do it, and what it means. These early investigations were an improvisational scramble because there were few precedents about how to study ongoing laughter in everyday life. Most previous research about “laughter” did not, in fact, concern the act of laughter, and was conducted in laboratories or used paper and pencil tests. My adoption of a naturalistic, descriptive tactic was the basis for all that follows, including the discovery of several new phenomena of laughter. As we will see, careful

observations of ongoing behavior can lead to startling and often counterintuitive insights into the nature and neurological control of laughter. But the wisdom of this approach was not obvious at the outset. Learning how to learn about laughter held lessons of its own.¹

"Making tiger soup is easy. First you get a tiger," goes a popular joke. My first efforts to find laughter to study were rather like making tiger soup. With naive enthusiasm, I set out to find laughter, the essential ingredient. But for something so apparently robust and common, laughter proved surprisingly fragile and illusive. Bring laughter under scrutiny, and it vanishes.

I began with the assumption that the best way to obtain laughter for study was to invite individuals or small groups of two or three people into my laboratory and entertain them with audio and video recordings of comedy performances. My subjects would surely surrender to the comic powers of a Rodney Dangerfield or a Joan Rivers. If not, then George Carlin's classic "Seven Dirty Words" routine, the *Broadcast Bloopers* album, or some of the very funny early episodes of *Saturday Night Live* would certainly turn the trick. But nothing seemed to work. My comic virtuosi elicited only a few grudging chuckles from the lab-bound subjects. I was surrounded by laughing people who would go stone sober when brought into the laboratory.

What seemed like a "can't-fail" project was failing. This was a humbling experience, for obtaining a sample of laughter does not qualify as what many people would consider rocket science. At this point, I learned two lessons. First, any research dealing with the perverse social tendencies of human beings is rocket science. Second, *the subject is always right*. These "lessons" should be elevated in status to "principles," ranking with other universal truths like, "There's no such thing as a free lunch," and "If anything can go wrong, it will go wrong."

¹Hard-won insights about where to find laughter and how to increase laughter in your life are provided in the Appendix.

My failure to elicit laughter in viewers of comedy performances was actually a success in disguise. By not laughing, my subjects were announcing that laughter is a social behavior that virtually disappears in isolated people being scrutinized in a laboratory setting. Henceforth, I would get out of the laboratory and let laughing people in public places tell me what is important about laughter through their normal behavior. Although this approach seems obvious in retrospect, hardly anyone in the long history of laughter studies ever observed laughing people in the field.

In the spirit of Jane Goodall heading out to Gombe Stream Preserve to study chimpanzees, three undergraduate assistants and I set forth on an urban safari to study humans in their natural habitat of shopping malls, city sidewalks, and the university student union. We were surprised how much could be learned by simply listening to people speak and laugh. What began as a last-ditch effort to rescue a foundering project led to exciting and unanticipated discoveries.

ANATOMY OF THE LAUGH EPISODE

Our approach to studying laughter was straightforward. We eavesdropped on the conversations of anonymous laughing people in public places. No one seemed aware of our interest, although a large and aggressive woman at a local mall once accused me of being a store detective. The challenge was in making sense of what we were hearing. At first, the "blah-blah-blah-ha-ha-ha-blah-blah" of conversational laughter sounded like a foreign language, lacking structure and meaning. Several weeks of trial and error were required to discover what now seems obvious.

Imagine yourself at a large, successful party with plenty of good food, good drink, and good companionship. It's a noisy affair, buzzing with simultaneous conversations and punctuated with laughter. John is relating a not very entertaining story, but is rewarded in his efforts by the hearty laughter of an attentive group of three or four. Jennifer chimes in with her own comments, but with less effect—her giggles are accompanied by reserved nods and

smiles, but no laughs. Variations of this social give-and-take are repeated many times during the evening. But who actually is laughing and why? Is there order in this apparent chaos of chatter and laughter? The challenge here is to parse the stream of conversation and laughter into manageable, quantifiable units.

The first advance in understanding conversational laughter was in conceiving the *laugh episode*. A laugh episode consists of the comment immediately preceding laughter, and all laughter occurring within one second after the onset of the first laughter. Two laugh episodes were just described in the party scenario. In one, John spoke and his audience laughed. In the other, Jennifer both spoke and laughed, but her audience remained silent.

The second advance was in distinguishing between *speaker* and *audience laughter*. In conversation, the speaker is the person talking, and the audience is the person or persons being addressed. Audience laughter has been the almost exclusive concern of previous researchers, while speaker laughter has gone largely unrecognized. At first, I, too, neglected speaker laughter. Consider the above example in which Jennifer the speaker laughed, while her audience did not. When observing who laughed in response to speaker comments, I was bothered by the fact that the speaker often laughed and was, in fact, sometimes the only person who laughed—a complication that was creating chaos in my scoring system. I then realized, however, that the speaker was part of the social unit and had to be included in any analysis. My slowness to appreciate the speaker's laughter was attributable to the pervasive and inappropriate model of stand-up comedy in laughter research, in which a usually nonlaughing (dead-pan) comedian tells jokes to a receptively laughing audience.

The third advance in understanding laughter was in recognizing *gender differences* in laugh patterns. Gender is a fact of any human interaction, and recognizing gender differences is essential to understanding patterns in conversational laughter.

The strategy for studying conversational laughter was now taking shape. When laughter occurred, we would record (1) who laughed: the speaker (S), audience (A), or both; (2) the gender of speaker and

audience, and (3) the prelaugh comment. For example, if John the male speaker (S_m) told a story to Jennifer his female audience (A_f), and both laughed within one second, a circle would be drawn around both speaker and audience, ($S_m A_f$), denoting that they both laughed. If Jennifer commented that John had onion dip on his tie, and Jennifer but not John laughed, ($S_f A_m$) would be recorded, signifying that only the female speaker laughed. To simplify our analysis, we examined the smallest possible social group, the dyad, which consists of only two people.

The fruit of our yearlong eavesdropping mission was 1,200 laugh episodes that were sorted by speaker and audience, gender, and prelaugh comment. These hard data forced me to attend to new laugh phenomena, and prompted my reluctant metamorphosis from neuroscientist into social psychologist.

GENDER IN LAUGHING, SPEAKING, AND LISTENING

There are no gender-free human encounters. When someone laughs, someone else is usually present, and the gender of that person must be taken into account to understand the social dynamics of laughter. Linguist Deborah Tannen pointed out the significance of gender differences in conversational styles in her best-selling book *You Just Don't Understand*. The gender differences in laughter may be even greater, the evidence for which we will now consider. (The percentages in the table on page 28 do not add up to 100 percent because either the speaker, the audience, or both may laugh during a given episode.)

While tabulating the data, I found that speakers laughed more than their audiences. Nothing in the audience-oriented literature about laughter or humor suggested such a result. When I totaled speaker (S) and audience (A) laughter across all four possible gender combinations, speakers were found to laugh 46 percent more than their audiences. The effect was even more striking when gender was considered. The speaker/audience difference was greatest when females were conversing with males ($S_f A_m$), a condition in which fe-

Dyad	Episodes	Percentage Laughter	
		Speaker	Audience
$S_m A_m$	275	75.6%	60.0%
$S_f A_f$	502	86.0%	49.8%
$S_m A_f$	238	66.0%	71.0%
$S_f A_m$	185	88.1%	38.9%
overall	1200	79.8%	54.7%

males produced 126 percent more laughter than their male audiences.

When a female colleague first saw these results showing the high levels of female speaker laughter, her response was, "Oh, my God, the stereotype of the giggling female has been confirmed." Another female colleague put a different spin on these data, noting that "when dealing with males, there is so much more to laugh at," an argument weakened by the finding that female speakers laugh only slightly less at other females than at males. Female speakers are enthusiastic laughers whoever their audience may be. Male speakers are pickier, laughing more when conversing with their male friends than with an audience of females. The least amount of speaker laughter occurred when males were conversing with females—this $S_m A_f$ grouping was the only one of the four gender categories having less speaker than audience laughter. As audiences, both males and females were more selective in whom they laughed at or with than they were as speakers—neither males nor females laughed as much at female as male speakers. In summary, *females are the leading laughers, but males are the best laugh getters.*

The male superiority in laugh-getting develops early in life. In England, Hugh Foot and Anthony Chapman observed that among children viewing cartoons, girls laughed more often with boys than with girls, and girls reciprocated boys' laughter more often than boys reciprocated girls' laughter.

The gender pattern of everyday laughter also suggests why there are more male than female comedians. Sexism and bias in show

business may not be the only explanation, for comics Rosie O'Donnell and Phyllis Diller may actually have to work harder for their laughs than Rodney Dangerfield or Jerry Seinfeld. As a male, Rodney Dangerfield gets more respect than he claims. The high proportion of male comics may also be related to the number of trainees in the pipeline. Males engage in more laugh-evoking activity than females, a pattern that may be universal. In a cross-cultural study of children's humor in Belgium, the United States, and Hong Kong, males were the principal instigators of humor, and this tendency was already present by six years of age, when joking first appears. Think back to your own childhood days and recall who was your class clown—most likely it was a male.

While males are the leading jokesters, and females are the leading laughers and consumers of humor, what is actually being communicated in their noisy displays? Might laughter be performed by a subservient individual, most often a female, as a vocal display of compliance, subordination, or solidarity with a more dominant group member? Insights about the social role of laughter can be gleaned from laugh patterns of people holding different social rank within a group.

In a rare and enlightening naturalistic study, sociologist Rose Coser found a strong relation between humor production, the target of humor, and the professional status among staff at a psychiatric hospital. (The analysis focused on laughter that was a response to an anecdote or other "intended provocation.") During staff meetings, the senior staff (psychiatrists) most often made junior staff (residents) the target of their witticisms. The junior staff did not reciprocate, most often targeting instead patients or themselves, a pattern also typical of the lower-ranking paramedical staff (psychologists, social workers, sociologists). Not once did the junior staff target a senior staff member present at a meeting. Consistent with this finding of *downward humor*, the paramedical staff never made any member of the psychiatric staff (senior or junior) the butt of their humor. Humor apparently had high social costs only senior staff could afford. The average witticisms per staff member were 7.5 for senior staff,

5.5 for junior staff, and only 0.7 for the lowly paramedicals. These values are especially striking because junior staff did most of the talking at meetings. Also notable was the male contribution of 96 percent (!) of witticisms, despite substantial female representation in all staff ranks. Although wit was costly, laughter was cheap—women, for example, seldom joked but were enthusiastic laughers.

Are these laugh patterns stable over time and social circumstance? For example, is a person's laugh pattern fixed, or is it conditional, so that it changes with promotions or demotions in social rank? It is likely that a person assumes a variety of state-specific laugh patterns, adopting the one most appropriate for a particular social situation (e.g., with professional colleagues, friends, children). A stern boss may be a barrel of laughs when cavorting with old school chums.

Laughter's role as a signal of dominance or subservience can be tested by observing whether male underlings switch to a more typically female laugh style when conversing with female bosses (e.g., laughing a lot as both speaker and audience). Another approach would be to contrast the laugh behavior of such powerful women as Hillary Clinton and Margaret Thatcher with that of their male subordinates. A change in power status probably brings a shift in laugh pattern.

Ethnological studies document the flexibility and strategic use of laughter. In southern India, men belonging to a lower caste giggle when addressing those of a higher caste. Other aspects of "self-humbling" are well developed among Tamil villagers of low caste (Harjan), but are exercised only when dealing with powerful persons of higher caste. When dealing with a landlord, for example, a Harjan may giggle, speak with unfinished sentences, mumble, appear generally dim-witted, and when walking, shuffle along. Yet this same Harjan may suddenly become shrewd and articulate when dealing with less powerful people.

Similar self-effacing behavior, including buffoonery, is practiced by the Bahutu in the presence of their caste superiors in Central Africa. And the women of many societies worldwide exhibit various

forms of "self-humbling" in the presence of men (i.e., lowered eyes, shy or embarrassed silence). The "prosodic" (nonlinguistic sonic quality) of speech also bears social status information about the speaker and audience. Men and women of the Tzeltal (Mexico) and Tamil use high-pitched/falsetto voices to convey self-humbling. Presumably, the high-pitched voice shows deference and is less threatening because it is characteristic of women and children. Among the rural Tamil, male and female Harjan (low-caste) speakers address high-caste powerful persons with thin, high-pitched voices. A higher pitch is also used within the caste to show deference or power asymmetries, as when a daughter is making a request of her father.

Let us now return to our friends at the party and continue the exploration of laughter in organizational politics. Consider Jennifer, a woman of high intelligence and good judgment, who giggles a lot as speaker and audience. Will she unfairly be passed over for a management position in her company because of her ubiquitous laughter, a decision her detractors may falsely attribute to her lack of leadership skills? Ironically, neither Jennifer nor her detractors would recognize the role that laughter might play in her evaluation. Does her giggly laughter disqualify her from positions of authority? Or would Jennifer's promotion to a management position bring with it a change to more role-specific laughter? I predict that Jennifer's laugh pattern would shift to match her new, more responsible position even though she would be unaware of the transformation.

Evaluate your own experience with organizational laughter. Is sharing laughter with subordinates incompatible with positions of authority? Have you ever encountered a leader of high authority who has a giggle? How many really funny generals are there? Would such a person be considered a "serious" or "formidable" member of an organization? How many presidents open their State of the Union speeches with one-liners, in the manner of banquet speakers on the rubber chicken circuit? Someone who laughs a lot, and unconditionally, may be called a "ditz," or a "good ol' boy," but seldom "boss," or "president." The late American legislator Morris Udall recognized this issue when he titled his autobiography *Too Funny to Be*

President. John F. Kennedy was unusual among U.S. presidents in having both a presence of command and an excellent sense of humor.

IN SEARCH OF LAUGHTER AND HUMOR REQUESTS IN THE PERSONALS

Given the differences in male and female laugh patterns, is laughter a factor in human meeting, matching, and mating? Can we learn to laugh our way to social and sexual success? These possibilities are particularly intriguing, because we have little awareness or conscious control of our laughter. My exploration of the sexual politics of laughter uses a technique even less exotic than field trips to the local mall—these data were ready-made and published in the personal ads of newspapers.

HEALTHY, HAPPY, wholesome, sexy, funny, smart, playful, spiritual, pretty, blond 5'7"/132 ISO same qualities in tall, dark hunk, 45+.

SAN DIEGO UNION-TRIBUNE

SINGLE white professional male, 6'1" 200 lbs., blue-eyed blond, enjoys all sports, outdoors, movies, laughter, ISO attractive, athletic SWF 21-26, with good sense of humor.

CHICAGO TRIBUNE

What do men and women want in a lover or life partner? Is sense of humor and funniness part of this human equation? Many of us value friends who have a lighthearted view of life and avoid those who radiate a dark aura of pessimism and depression. But do we consciously seek out partners who love to laugh and make us laugh? Personal ads deserve careful consideration because a lot of thought probably goes into their composition. After all, the seekers had better be careful about what they ask for, because they might get it. And

what is being sought in this catalogue of human desire? A few people have simple generic needs ("male," "female"), but most are more specific about age, height, body build ("fit," "hard body," "proportionate," "full-bodied"), marital status, personality, sexual orientation, religion, drinking, drugs, smoking, and race. (One discriminating person sought a partner who was "ebola free.")

Social scientists have identified consistent trends in this human marketplace. Men more often *seek* physical attractiveness and *offer* financial resources than women. Conversely, women are more likely than men to *offer* attractiveness and *seek* financial resources. Males and females show a clear and convenient complementarity in what is being offered and sought, a necessary condition for successful deal making. Economists will find a lot to like here. Another trend in the ads may not surprise females who are presumably more perceptive in such matters—more males than females focus on physical characteristics (e.g., height, weight, age, eye and hair color), whereas more females consider personality and psychological traits (e.g., intelligence, sensitivity, caring, spirituality, maturity). Among advertisers mentioning age, males more often seek younger partners and females older ones.

But what is the currency of laughter in the human marketplace of personal ads? To find out, I perused 3,745 ads placed by heterosexual males and females in eight major, mainstream, geographically dispersed American newspapers on Sunday, April 28, 1996. A single date was examined to avoid repeated ads. The papers were the *Baltimore Sun*, *Boston Globe*, *Chicago Tribune*, *Cleveland Plain Dealer*, *Houston Chronicle*, *Miami Herald*, *San Diego Union-Tribune*, and *Washington Post*. Overall, men took out 23 percent more ads than women (2,065 versus 1,680), but the proportion ranged from the *Houston Chronicle* with 21 percent more female ads to the *Cleveland Plain Dealer* with 28 percent more male ads. (Homosexual males and females were not considered, because they contributed a relatively small number of ads and deserve a separate study of their own.)

Laughter or laughter-related behavior (e.g., "humorous," "sense of

humor," "funny," "witty") was mentioned in about one-eighth of the total ads (13 percent, or 478 of 3,745). Ads seeking or offering "fun" or "having fun" were not counted because such general descriptors may not involve laughter. Females were much more likely (62 percent more) than males to mention laughter in ads, a reflection of women's greater relative concern with personality and psychological traits. The plot thickens when laugh citations were divided into *seek* and *offer* categories for males and females. Advertisers were considered to seek laughter in a desired partner if they requested either laughter itself ("I loves to laugh," etc.) or laugh-producing behavior ("sense of humor," "funny," etc.). The advertisers were considered to offer laughter if they either mentioned their own tendency to laugh, sense of humor, or appreciation of laughter, even someone else's.

The evidence is clear: *Women seek men who make them laugh, and men are anxious to comply with this request.* Women sought laughter (13 percent) more than twice as often as they offered it (5.7 percent). In contrast, men offered laughter (6.5 percent) about a third more than they sought it (4.9 percent). The most common form of bartered laughter was "sense of humor." Men offered it and women sought it, although not in identical proportions. The complementarity of male and female laughter requests is striking because laughter is under minimal conscious control and neither sex may be aware of the gender differences in laughter. Both sexes unknowingly comply with the demands of their instinctive script.

What is the nature of the laughter offered by men and sought by women? As we have seen, observations of actual behavior indicate that men laugh much less than the women with whom they are conversing. But laughless males are an unlikely concern of women who are really requesting men who make *them* laugh. And the men who offer laughter aim to stimulate it in their female partner, not to laugh themselves. These men may revel in the chuckles of a female companion, a measure of her pleasure and recognition of his acceptance and status. Such "funny" men are likely to pass the female laugh test whether they actually laugh or not. Given the previously considered

relation between laughter and social status, the desire by women for men who make them laugh may be a veiled request for dominant males. Men who pass the audition for dominance are acknowledged with women's laughter. However, women may reward dominance more than men reward submission—men are less likely to seek laughter in their personal ads than women.

Laughter-seeking by women was reported by Karl Grammar and Irenäus Eibl-Eibesfeldt in a study of spontaneous conversations between mixed-sex pairs of young German adults who were meeting for the first time. The more a woman laughed aloud during these encounters, the greater was her self-reported interest in seeing the man again. The man's own laughter did not indicate interest in the woman, but he was interested in meeting a woman who laughed heartily in his presence. (Simultaneous male and female laughter did, however, predict mutual interest.)

Imagine a conversing couple standing close and gazing intently into each other's eyes, with the man's indistinct "mumble-mumble-mumble" repeatedly punctuated by the bright sound of female laughter, and a lot of shared laughter. My data suggest a positive prognosis for this relationship. The prospects are less favorable for a relationship featuring a lot of unreciprocated male laughter—the couple may be standing farther apart, and the female may be glancing around, signaling lack of interest in her companion, providing an invitation for outsiders to join them.

In the above scenarios, *the laughter of the female, not the male, is the critical positive index of a healthy relationship.* Guys can laugh or not, but it's best that their woman is getting her yuks in. Pop diva Cyndi Lauper advanced this hypothesis in her perceptive song "Girls Just Want to Have Fun." But on the basis of evidence stated earlier, Madonna deserves an equal hearing for her "Material Girl" hypothesis. Who is right? Probably both. Current research of the personal ads suggests that a woman will most enjoy the company of a man who loves laughter (at least that of his girlfriend), has a good job, and some ready cash in his pocket.

LAUGHTER PUNCTUATES SPEECH

Our lives are filled with a torrent of words that are punctuated by brilliant eruptions of laughter. Amazingly, we somehow make sense of this word salad and speak, laugh, and listen at just the right time. This triumph is all the more remarkable given the biological equipment at our disposal. Those viewing humans as the masterwork of creation should consider our jury-rigged contraption for speech, no part of which evolved expressly in the service of speech. A bioengineer conceiving such a device would be sent back to the drawing board, or out the door.

Consider the facts: We eat, drink, breathe, belch, vomit, and talk through the same orifice, a plumber's nightmare with sharp teeth at one end. Is this any way to design an organism? We must stop breathing to swallow—or suffer severe consequences. (Babies can simultaneously breathe and nurse during the early months of life.) Likewise, breathing must cease when we speak. And we must choose whether we would rather speak or eat. The only way we are able to live with such an inefficient mechanism is through an ingenious time-sharing program. We reflexively stop breathing when we swallow and rarely breathe in mid-sentence.

Like much in nature, we get by not because of superior organ craftsmanship (Mother Nature is a notoriously sloppy workperson), or elegance of design (remember the troublesome wisdom teeth and the vestigial appendix), but through some resourceful biologic innovations, this time involving the neurological wetware of our central nervous system. Our brain choreographs this complicated ballet of breathing/eating/drinking/talking so well that we are scarcely ever aware of it—a triumph of biologic error control.

Here we examine the temporal patterning of laughing and talking by observing the placement of laughter in the speech stream. Because the neurological processes that produce laughter and speech converge on a single mechanism of vocalization, a study of vocal behavior reveals how we deal with this confluence of potentially conflicting vocal acts. Does laughter or speech win this competition for

vocal dominance? Is laughter randomly inserted into speech, or is laughter inserted only at phrase breaks or pauses in speech, which would suggest evidence of speech dominance? And if there is a lawful, nonrandom relation between laughter and speech, what is its organizing principle? *Laughspeak*, a form of blended, laughing speech that communicates emotional tone, is qualitatively different from the classical ha-ha-type laughter considered here and was excluded from this analysis.

The inquiry into the relationship between laughter and speech is based upon the same file of 1,200 laugh episodes that was considered in a previous study, except the focus here is upon the placement of laughter in the prelaugh comment. Of particular interest is whether laughter interrupts the phrase structure of speech. The results are gratifyingly clear.

During conversation, laughter by speakers almost always follows complete statements or questions. Laughter is *not* randomly scattered throughout the speech stream. Speaker laughter interrupted phrases in only 8 (0.1 percent) of 1,200 laugh episodes. Thus, a speaker may say, "You are going where? . . . ha-ha," but rarely "You are going . . . ha-ha . . . where?" This strong and orderly relationship between laughter and speech is akin to punctuation in written communication and is termed the *punctuation effect*.

Speech has a clear priority in gaining and maintaining use of the single vocalization channel because it's seldom interrupted by laughter. Although people may recall instances when they or others "break up" in laughter, and have difficulty finishing jokes or stories, such interruptions are actually quite rare. We should avoid making exceptions the rule, a common tendency that thwarts the discovery of basic mechanisms and principles.

The occurrence of speaker laughter at the end of phrases indicates that a lawful and probably neurologically based process governs the placement of laughter in speech. The temporal segregation of laughter and speech is evidence that different brain regions are involved in the expression of cognitively oriented speech and the more primitive, emotion-laden vocalization of laughter. (Additional

neurological evidence for this division of labor is presented in Chapter 8.) During conversation, we switch back-and-forth between the speech and laughter modes. During speech, the dominant speech-producing region inhibits that producing laughter. If laughter is triggered during speech, its expression must await the passing of phrase-sized chunks of speech-related inhibition.

The punctuation effect holds for the audience as well as for the speaker, a surprising result because the audience could laugh at any time without speech-related competition for their vocalization channel. No audience interruptions of speaker phrases were observed in our 1,200 laugh episodes. It's unclear whether the punctuation of speech by audience laughter is cued directly by the speaker (e.g., a postphrase pause, gesture, or laughter), or by a brain mechanism similar to that proposed for the speaker that maintains the dominance of language (this time perceived, not spoken) over laughter. *The brains of speaker and audience are locked into a dual-processing mode.* (Further evidence of the synchronization of the brains and behavior of speakers and audiences comes from the remarkable phenomenon of contagious laughter considered in Chapter 7.)

Given laughter's punctuation of speech, it's logical to ask what kind of punctuation laughter represents—a period, a question mark, an exclamation, or something else. Although the imposition of specific punctuation on the rich, multimodal conversational flow is necessarily subjective and may attribute more formal structure to conversation than warranted, it is sufficient to show that laughing is not an exclusive consequence of a particular type of comment. Laughter by speaker or audience followed statements in 84 percent, and questions in 16 percent of laugh episodes. The precise proportion is less significant than the demonstration that laughter commonly follows both statements and questions.

Observers awarded an exclamation to 41 percent of sentences (statements and questions) preceding laughter. Laughter often followed such statements as "What a shirt!" or "You did what?!" Exclamatory sentences, a highly subjective categorization, ended on a

crescendo, change in intonation, or other attention-getting nuance associated with elevated emotional tone.

The first report of a defect in the punctuation process may have been made in *Thinking in Pictures*, Temple Grandin's fascinating, autobiographical account of life with autism. She notes that "when several people are together and having a good time, their speech and laughter follow a rhythm. They will laugh together and then talk quietly until the next laughing cycle. I have always had a hard time fitting in with this rhythm, and I usually interrupt conversations without realizing my mistake. The problem is that I can't follow the rhythm." It's significant that Grandin is struggling with an ability that nonautistic individuals mindlessly perform with remarkable accuracy.

The punctuation effect finds application in joke telling. Master comedians are aware that success lies as much with the presentation of a joke as with the joke itself. A critical part of joke telling is timing, the pace of storytelling, the setting up, and delivery of the punch line—and most important to our present story, the pause that follows the punch line.

Some comedians, like Groucho Marx, work quickly, delivering a rapid-fire barrage of jokes, while others, like Jack Benny, proceed at a more leisurely pace, in the tradition of storytelling. But a critical feature in the style of all stand-up comedians is a pause after the delivery of the punch line, during which the audience laughs. The comic usually signals the onset of this critical pause with marked gestures, facial expressions, and altered voice intonation. Jack Benny was known for his minimalist gestures, but they were still discernible, and worked wonderfully. A joke will fail if the comic rushes to his next joke, providing no pause for audience laughter (*premature ejakulation*)—this is comedy's recognition of the power of the punctuation effect. When the comic continues too soon after delivery of his punch line, he not only discourages, and crowds-out, but neurologically *inhibits* audience laughter (*lagfus interruptus*). In show-biz jargon, you don't want to "step on" your punch line.

NOTHING TO JOKE ABOUT: WHAT PEOPLE SAY BEFORE THEY LAUGH

If you want people to laugh, you tell them jokes. Right? Well, not according to our survey of what 1,200 people said immediately before they laughed. Jokes will work, but people laugh more often after such innocuous lines as "I'll see you guys later" or "Are you sure?"—not exactly knee-slappers. Our fieldwork failed to discover The Mother of All Jokes or even her next of kin. In fact, most laughter did not follow anything resembling a joke, storytelling, or other formal attempt at humor: Only about 10 percent to 20 percent of prelaugh comments were estimated by my assistants to be even remotely humorous. Peruse the sample list of 25 Typical Prelaugh Comments and make your own decision about their humorousness.

TABLE 1
25 Typical Prelaugh Comments

Typical Statements

- I'll see you guys later.
- Put those cigarettes away.
- I hope we all do well.
- It was nice meeting you too.
- We can handle this.
- I see your point.
- I should do that, but I'm too lazy.
- I try to lead a normal life.
- I think I'm done.
- I told you so!
- I was completely horrified!
- There you go!
- I know!
- Must be nice!
- Look, it's Andre!

Typical Questions

- It wasn't you?
- Does anyone have a rubber band?
- Oh, Tracey, what's wrong with us?
- Can I join you?
- How are you?
- Are you sure?
- Do you want one of mine?
- What can I say?
- Why are you telling me this?
- What is that supposed to mean?!

TABLE 2
Greatest Hits! 25 Funniest Prelaugh Comments

Humorous Statements

- He didn't realize he was sitting in dog shit until he put his hand down to get up.
- When they asked John, he said he wanted to grow up to be a bird.
- Look at that hunk of burning love.
- He has a job holding back skin in the operating room.
- Poor boy looks just like his father.
- He tried to blow his nose but he missed.
- You smell like you had a good workout.
- She even makes my tongue hard!
- I never eat anything that moves. (Reference to dormitory food)
- Now you know what happened to Jimmy Hoffa. (Reference to dormitory food)
- That's because you're a male!
- I'd pay a hundred dollars to wade through her shit! (Expression of endearment)
- She's working on a Ph.D. in horizontal folk dancing.
- You don't have to drink, just buy us drinks.

She's got a sex disorder—she doesn't like sex.
You just farted!

Humorous Questions

Was that before or after I took my clothes off?

Do you date within your species?

Did you find that in your nose? (Reference to dormitory food)

Are you working here or just trying to look busy?

Why would you go water skiing if you don't know how to swim?

What did you do to your hair?!

Did he discuss anything during his last lecture? (Student query

about a missed college lecture—one of mine!)

Is that considered clothing or shelter?

Are you going to wear that?!

The conversations we recorded were monitored long enough to establish that the low level of humorless prelaugh comments reported here was not an artifact of sampling only the out-of-context punch line of a joke or climax of a funny story. The low rate of joke-triggered laughter also was not the result of neglecting sight gags, comic gestures, or other visual cues, because plenty of laughter is present in telephone conversations, a purely auditory mode of communication. The telephone is a good, low-cost filter that passes auditory cues while blocking all visual ones.

Most prelaugh dialogue is like that of an interminable television situation comedy scripted by an extremely ungifted writer: When we hear peals of laughter at social gatherings, we are not experiencing the result of a furious rate of joke telling. The next time you are around laughing people, examine for yourself the general witlessness of prelaugh comments.

The discovery that *most laughter is not a response to jokes or other formal attempts at humor* forces a reevaluation of what laughter signals, when we do it, what it means, and how we should study it. Humor (jokes, pranks, tricks, gags, cartoons, etc.), taps only recently

evolved cognitive and linguistic stimuli for laughter (e.g., incongruity) of the sort that concerned Kant and Schopenhauer and was described in Chapter 2. Although valid in their own domain, humor-based approaches are of limited relevance in understanding most laughter.

Compare, for example, the socially impoverished, narrow, and verbally oriented scenario of stand-up comedy, the prototype of much laugh research and philosophical inquiry, with the richness and complexity of everyday conversational laughter.

1. Stand-up comedy is based on joke telling, in contrast to the mundane, nonjoke, prelaugh comments of everyday life.
2. The comedian, the designated joke-teller in stand-up comedy, is physically and socially distant from the audience, in contrast to the intimate contact and interaction during normal conversational laughter. (Comedians attempt to close this gap and develop a relationship with the audience with such stories as "Have you ever taken your car to a garage for repair and the mechanic says . . ." etc.)
3. Comedians typically talk but don't laugh, and their audience laughs but doesn't talk, an unnatural representation of the social setting of conversational laughter, in which the speaker laughs most of all, and periodically trades roles with the audience.

LAUGHING RELATIONSHIPS

"Ha-ha-ha" is not broadcast into the void like the message of an animal calling. "This is my territory" or "I'm available for mating." Laughter, like speech, is a vocal signal that we seldom send unless there is an audience. Danish philosopher Søren Kierkegaard noted the rarity of solitary laughter when he inquired of a friend, "Answer me honestly . . . do you really laugh when you are alone?" Kierke-

gaard concluded that you have to be "a little more than queer" if you do. Indeed, laughter is the quintessential human social signal. Laughter is about relationships.

To learn more about the social setting essential for laughter, 72 undergraduate student volunteers from my classes recorded their own laughter, its time of occurrence, and its social circumstance in small pocket-sized notebooks (laugh-logs). Smiling and talking were also recorded to provide contrasts with laughter and each other. Laughing and talking are principally auditory signals, functioning in light or darkness and around obstructions. Smiling, in contrast, is a visual signal requiring line-of-sight visual contact between the recipient and the illuminated face of the sender. Talking was studied because its role in communication is unquestioned. The approach to talking taken here is a bit unusual because no attention was paid to what was said—subjects simply recorded when talking occurred. Singing "Louie, Louie" was weighted equally with the recitation of the Gettysburg Address.

A decision had to be made about how to treat media. For example, are you really "alone" when sitting in your living room watching television, listening to the radio, or reading a book? Probably not—you respond to media as a source of vicarious social stimulation. Your feelings of fear, loathing, lust, love, and aggression produced by media is not a response to an arbitrary pattern of light, sound, or imagery, but the product of relationships you have formed with the characters and events portrayed. When experiencing vicariously the trials of Scarlet and Rhett, you really do give a damn. To control for these confounding influences, only media-free cases of solitary laughter were considered.

The dedicated logbook keepers revealed that laughter, smiling, and talking were infrequent immediately before bedtime and after waking. After all, we seldom have much of an audience at these times, and when we do, we are not enthusiastic communicators. Among *solitary* subjects, talking was by far the most common early morning activity, followed by smiling, with laughing a distant third. Singing, rehearsing upcoming conversations, studying, cursing, and

"thinking out loud" were parts of these morning soliloquies. The monologues were sometimes punctuated with smiles, but seldom laughs.

The *sociality* of laughing was striking. (Sociality refers to the ratio of social to solitary performance of a behavior.) My logbook keepers laughed about 30 times more when they were around others than when they were alone—laughter almost disappeared among solitary subjects not exposed to media stimulation. In the social sciences, where many effects are tiny and revealed only through statistical analyses of huge samples, it's gratifying to find a result of this magnitude. Laughter's marked sociality reflects its evolutionary roots in tickle and rough-and-tumble play, activities requiring a partner (Chapters 5, 6). In contrast to the awesome sociality of laughter, people smiled over six times more and talked over four times more in social than in solitary situations.

Although we probably laugh or smile more when we are happy than sad, these acts are performed primarily in response to face-to-face encounters with others, our audience. This dependence on social context means that, contrary to popular opinion, laughter and associated facial behavior are unreliable mood meters—after all, would you announce "I'm a very happy person," when entering a vacant room or striding down a sidewalk alone?

Until recently, bowlers have been known mostly for beer, big hair, fancy shirts, and nondesigner shoes. But psychologists Robert Kraut and Robert Johnston changed all of that when they ventured into Ide's Bowling Lanes in Ithaca, New York, to observe smiling. In the most notable psychological research ever conducted at a bowling alley, they observed that bowlers often smiled during social interactions, but not necessarily after receiving good scores (strikes or spares). Furthermore, the bowlers rarely smiled while facing the pins, but often smiled when facing their friends. As in my logbook study, there was a strong association between smiling and social motivation and an erratic association with emotional experience.

Smiles are also flashed as social displays by athletes at the other end of the fitness spectrum from Ithaca's bowlers. José Miguel

Fernandez-Dols found Olympic gold medal winners at the Barcelona games to smile fleetingly when receiving their medals but only intermittently at other times during the presentation ceremony. The smiles were coupled with the face-to-face encounter with the presenter although the unquestionable joy of the moment, the culmination of a lifelong quest, was presumably stable during the entire presentation. The use of the smile as a social display develops early in life. Babies at play tend not to smile until they look around and make eye contact with their mother; observed psychologist Susan Jones.

Eye contact between friends (the people you laugh with) also facilitates laughter, a discovery I made while interviewing strollers on Baltimore sidewalks. When I encountered oncoming pedestrians (I'm sometimes trailed by a video cameraman) and informed them that "I'm conducting a survey of laughter," they typically shifted their gaze to each other and laughed. When I asked why they were laughing at each other but not at me, they often said, "You aren't funny," a rationalization of their action. People's nonverbal behavior tells a less ambiguous story. Laughter is a social act involving members of their group (their companions), and eye contact is an important link in this social pas de deux. I was the uninvited and "unfunny" outsider. ("Funny" and "unfunny" are simply ways of saying that you laughed at or did not laugh at somebody or something. "Funny" is not an adequate explanation of laughter.)

The social circumstances that most favor laughing and smiling are similar to those that favor talking. Talking may be more akin to laughing, smiling, and other nonverbal social signals than is often appreciated. For example, I have suggested that small talk may have evolved to facilitate or maintain social bonds among our tribal ancestors, a role independent of linguistic content and similar to that served by mutual grooming among members of contemporary primate troops. Robin Dunbar developed this proposition in his entertaining book, *Grooming, Gossip, and the Evolution of Language*. In her study of gender differences in conversation patterns, Deborah Tannen concurs that "small talk serves a big purpose," being "crucial

to maintain a sense of camaraderie when there is nothing special to say." This social bonding function is a property of the "phatic" speech described by Malinowski "in which the ties of union are created by a mere exchange of words." In this context, the act of speaking is more important than what is said.

Laughter plays a somewhat similar, nonlinguistic role in social bonding, solidifying friendships and pulling people into the fold. You can define "friends" and "group members" as those with whom you laugh. But laughter has a darker side, as when group members coordinate their laughter to jeer and exclude outsiders. *Ridicule*, a fine French film exploring this theme, begins with the apocryphal quotation "In this country, vices are without consequence, but ridicule can kill" (Duke of Guines). The film deftly instructs us on how wit and laughter were used as currency and weapon in the effete, socially competitive court of Louis XVI. But laughter has long been instrumental in the casting out of misfits, sometimes with dire consequences. Throughout the ages, cripples, mental defectives, and court fools have been injured and perhaps even killed in a crescendo of teasing, laughter, and violence. Laughter scorns the victims and bonds and feeds the wrath of aggressors. On a more massive scale, dark laughter has sometimes accompanied the looting, killing, and raping that are among the traditional fruits of war. We are still burdened with such savage vestiges of our primate heritage. Recent news reports confirm that mob violence, massacres, and butchery throughout the world are sometimes accompanied by laughter. During 1999, laughter has been reported during ethnic violence in Indonesia and Kosovo, and in a high school massacre in Littleton, Colorado. According to Aron Cohn, a survivor of the Littleton school shooting, the two male killers "laughed. They were just howling and hollering. Having the time of their life." ("Death Goes to School with Cold, Evil Laughter," *Denver Rocky Mountain News*, 21 April 1999).

One of the best theatrical illustrations of the two sides of laughter appears in the film *Coolyellas*, in which the volatile character played by Joe Pesci at times "laughs with" and "laughs at" his mob buddies

and outsiders, sometimes with deadly effect. Consider especially the notorious "Do you think I'm funny" nightclub scene early in the film.

What is the nature of a *laughing relationship*—the association necessary for a stimulus object, organism, or person to be considered funny (i.e., trigger laughter)? Most of us can envision a social relationship with a pet dog or cat, honorary members of our social world. We play with these creatures and may even laugh at them—the more humanlike their behavior, the funnier we perceive them. But can an inanimate object be funny? Here we revisit an issue developed by philosopher Henri Bergson (Chapter 2)—that mechanical things are funny in proportion to the degree in which they resemble humans (i.e., puppets are funnier than auto transmissions). Can you imagine a truly funny device, a creation that I will term a Bergson machine?

Let's consider the fruit test, a botanical twist on the Bergsonian proposition. Can a fruit be funny? What's the funniest fruit you can think of? Imagine the firm roundness of a grape, the plump purple majesty of an eggplant, or the blood red juice of a pomegranate. Although you can do funny things with fruit, by itself, fruit just isn't funny. For something to be funny it must be associated with the actions of people, not objects. The lowly banana peel has earned classic status in comic annals—but only when someone slips on it.

The film industry has important lessons to teach us about generating emotional reactions to inanimate objects—it's a multibillion-dollar laboratory for the study of human behavior that produces data in the form of box office receipts. No scientist has access to such wonderful resources. In the specialized domain of laughter and positive affect, we are far from building a Bergson machine that could win an audition for stand-up comedy. However, the *Star Wars* films have provided promising robotic contestants in those personable, intergalactic swashbucklers C3PO and R2D2. But even here, one member of this squabbling duo, C3PO, is humanoid, while R2D2 resembles a mobile, high-tech fireplug. Their droid humor may fail if it involved only a pair of R2D2s.

IS LAUGHTER CONSCIOUSLY CONTROLLED?

Do we choose to laugh? Do we decide to say "ha-ha-ha" as purposefully as we would select a word in speech? This is one of the most important and neglected questions about laughter; the validity of over two millennia of thinking about laughter hangs in the balance. Many philosophical and social scientific analyses bear the tacit assumption of intentionality and conscious control, and we saw its marks in the common sense rationalizations of why we laugh in Chapter 2. It is understandable that we seek answers in the familiar, but common sense does not serve us well in the unconscious realm of laughter. The narrow beam of consciousness cannot illuminate behavior that lies beyond its reach, and this beam is not only highly selective, it is turned off a surprising amount of the time. In this exploration of voluntary laughter, we will abandon the myth of human rationality and self-control and let simple behavioral demonstrations be our guide.

To learn about the voluntary control of laughter, I contacted Sam McGrady, master actor and director in the University of Maryland Baltimore County's fine theater department. This seemed like a logical first step, in that actors are fellow experts in human behavior; their work having been shaped by the ruthless peer review of audiences for more than 2,000 years. At various times, Sam has been the Marquis de Sade, King Lear, Tartuffe, and any number of saints and sinners. Today's role involved his teaching an improvisational acting class, and he invited me to participate in their "laughing exercise." His students gathered in a large circle and one by one each attempted to laugh. Individually, their efforts were not impressive—most of their laughs sounded forced and artificial. They laughed more convincingly when they gathered in groups of two and four and laughed with and at each other—their difficulty in laughing on cue became a legitimate trigger of involuntary laughter. In their indirect way, the struggling novice actors were announcing that *laughter is under weak conscious control*.