The Specific Affect Coding System (SPAFF)

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The Specific Affect Coding System (SPAFF)

In 1989, Gottman and Krokoff introduced the Specific Affect Coding System (SPAFF) for the purpose of systematically observing affective behavior in the context of marital conflict. The original SPAFF conferred a host of advantages over earlier "microanalytic" coding strategies, the primary innovation being the ability to code affect at the construct level instead of at the level of extremely discrete bits of behavior, such as specific gestures or facial movements (Gottman, McCoy, Coan, & Collier, 1995).

Since its debut, the SPAFF has, in one version or another, informed dozens of published scientific findings deriving from numerous laboratories (e.g., Burman, Margolin, & John, 1993; Carstensen, Gottman, & Levenson, 1995; Coan, Gottman, Babcock, & Jacobson, 1997; Cohan & Bradbury, 1994, 1997; Jacobson et al., 1994; Notarius, Benson, Sloane, Vanzetti, & Hornyak, 1989). For example, the SPAFF has been used to study affective behavior among newlyweds (Cohan & Bradbury, 1997; Gottman, Coan, Carrere, & Swanson, 1998), domestically violent couples (Babcock, Waltz, Jacobson, & Gottman, 1993; Coan et al., 1997), couples in long-term marriages (Carstensen et al., 1995; Levenson, Carstensen, & Gottman, 1994), and, most recently, gay and lesbian couples (Gottman, Levenson, Gross, et al., 2003; Gottman, Levenson, Swanson, et al., 2003). Although initially developed for the study of emotional communication among romantic couples, the SPAFF is now used for coding interactions among children, their parents, and their peers (Joanne Wu Shortt, personal communication, April 9, 2002), and even to therapy

situations (Janine Giese-Davis, personal communication, October 11, 2003). Indeed, individuals in applied settings have expressed interest in learning the SPAFF (Coan, 1998). In a recent review of observational couples research, Heyman (2001) noted that the SPAFF has "by far the best evidence of construct and criterion validity for its constructs" of all current microanalytic coding systems (Heyman, 2001, p. 25).

History of the SPAFF

Early observational coding systems, such as the Marital Interaction Coding System (MICS; Hops, Wills, Weiss, & Patterson, 1972), and the Facial Affect Scoring Technique (FAST; Ekman, Friesen, & Tomkins, 1971), sought to identify extremely discrete bits of behavior that might prove useful in understanding how such behaviors function in the context of interpersonal relationships. Initially, Gottman followed in this tradition with the development of the Couples Interaction Scoring System (CISS; Gottman, 1979). CISS coders were instructed to hierarchically scan behaviors for specific cues, starting with the face, moving to the voice, and finally coding body movements. Notably, the CISS ignored verbal content altogether. A short while later, frustrated with perceived inadequacies in the CISS, Gottman sought a revision of his system that was heavily influenced by the Facial Action Coding System (FACS; Ekman & Friesen, 1978). Nevertheless, Gottman's frustrations mounted as his lists of

discrete codable behaviors grew at an alarming rate. As he recounted in his first published SPAFF manual:

> I did not want my summary codes to read something like: "Husband shows zygomatic major contracts on face with contraction of the cheek raiser muscle, with shift downward in fundamental frequency, decrease in amplitude and voice in a major key and rapid inhalation and exhalation of breath with *hut hut* vocalizations." Instead, I wanted to say that the husband laughed. (Gottman et al., 1995, p. 3)

The point was not to ignore the identification of zygomatic major contractions or modulations of frequency and amplitude in vocal communication. Rather, the point was that modern affect coding, although informed by a thorough knowledge of discrete behaviors such as those described by Ekman, Scherer, and others (e.g., Banse & Scherer, 1996; Ekman & Friesen, 1975; Scherer, 1974), often missed the forest for the trees. Gottman sought to devise a coding system that made explicit use of discrete bits of information in the service of describing constructs representing generalizable human affective behavior. Thus Gottman reintroduced *verbal content* to the specification of those constructs.

Of course, previous microanalytic coding systems had been used to cluster codes into "macrocodes" or constructs, but these attempts had been empirical and, in any event, had often been implemented *after* the coding had been completed. Gottman (Gottman et al., 1995) sought instead to let his coders code *theoretically specified* constructs directly. This new approach assumed that coders had, or could be taught, the ability to integrate a variety of different affective cues into broader constructs both rapidly and accurately. It was hoped that such an approach would increase the speed with which such coding could be done and also that it would render such coding more reliable and externally valid.

It was from these efforts that the first major version of the SPAFF was born. The original version of the SPAFF comprised 10 gestalt behavior codes: Neutral, Humor, Affection/Caring, Interest/Curiosity, Anger, Disgust/Scorn/Contempt, Whining, Sadness, and Fear. This was later expanded to a second major version that comprised 16 such codes, adding Surprise and Validation to the positive set and expanding the negative set to include Belligerence, Dominance, Stonewalling, and Defensiveness, as well as separating Disgust and Contempt into distinct codes (Gottman et al., 1995). Since the publication of the first SPAFF manual, the SPAFF has been revised yet further. This chapter holds to a description of the SPAFF in its most current form, with a full listing of its revised and updated list of codes and their indicators. It also includes advice for training SPAFF coders, for assessing coding reliability, and for solving various data analytic issues. Recent innovations in weighting SPAFF codes for use as a continuous scale, as well as attempts to utilize SPAFF codes as separate continuous variables, are also described.

Learning to Code Behavior: The Philosophy of the SPAFF

Among the core ideas underlying the SPAFF is the uncontroversial notion that emotions are expressed in a wide variety of ways and that this variety should be respected. If there is a second major idea, it is that SPAFF coding requires the use of human beings with a personal history of interpersonal, affective communication. Such a personal history provides access to subtle cues that even many years of strict training in the identification of discrete physical features may neglect. Thus learning to observe emotional behavior means, on the one hand, learning to identify multiple discrete indicators, any one of which may or may not be present during a particular emotional episode, and, on the other hand, drawing from one's own personal history of affective communication in order to spot the complexities of behavior that remain outside the grasp of highly detailed discrete analysis. SPAFF coding means learning to integrate voice, physical features, verbal content, and more—indicators that are sometimes hard to describe (e.g., "positive energy") but that are easily grasped by most coders.

SPAFF Codes Are Latent Psychological Constructs

Figure 16.1 depicts, for the purpose of illustration,[1] a *latent variable model* (cf. Bollen, 2002) representing the SPAFF code Validation. In this model, the core, latent construct Validation (represented in the oval) is not directly observable. Rather, it is assumed to exist and to actually *cause* the expression of its various observable indicators (represented as rectangles). One would not be able to "see" Validation without directly observing at least one of its indicators. An indicator is an objective piece of evidence that any observer can see or hear directly. It is called an indicator because when it is present, it literally "indicates" the underlying construct we are interested in—it tells us that our latent construct is happening. Importantly, we are rarely interested in any one of the indicators of Validation per se. Rather, we are interested in the construct that those indicators indicate. Put another way, it is of little specific consequence to us as SPAFF coders whether we observe direct statements of agreement or apology, whether we observe summarizing behaviors, or whether we observe head-nodding behavior with eye contact. These bits of observation are merely the media through which we become aware of the thing we are *really* interested in, which is Validation. We cannot "see" Validation without the presence of one or more or its indicators, but without the construct of Validation, those indicators are by themselves of little theoretical value. This is true even when discrete and easily identified behaviors wind up predicting important outcomes, such as happens, for example, in the association between the "eye roll" and marital dissolution. The importance of a discrete behavior such as the eye roll lies in its connection to the construct of contempt (cf. Gottman, 1993b).
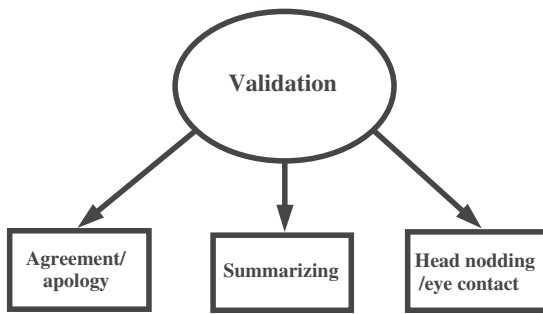
Figure 16.1. The SPAFF code Validation represented as a latent construct.

Physical Features and Cultural Informants

In the language and history of behavior coding, at least two broad approaches can be identified. These are the *physical features* and *cultural informant* approaches. Physical-features approaches hold strictly to the detailed description of physical observables, such as changes in vocal acoustic properties, facial expressions, specific gestures, and body postures. In theory, anyone, or nearly anyone, can be taught to be a physical-features coder; even computers are now becoming capable of doing so (Xiao, Moriyama, Kanade, & Cohn, 2003).

By contrast, the cultural-informant approach utilizes individuals who are, for one reason or another, sensitive observers in a specific cultural setting. They may, for example, have specific knowledge about a certain culture or group of cultures and, by virtue of this specific knowledge, be uniquely capable of decoding the *meaning* of specific behaviors within the context of that culture. Anthropologists have employed cultural informants to study cultures with which they were not intuitively familiar. Cultural informants aid researchers in the *interpretation* of specific observable events.

In SPAFF coding, both physical-features and cultural-informant approaches are utilized in the service of capturing meaningful affective constructs. In training SPAFF coders, the assumption is made that most individuals will be sensitive to subtle differences between certain instances of observable events. Take, for example, an instance in which a young woman gently rubs her cheek on her shoulder while making eye contact with her partner. A purely physical-features approach might note her cheek-shoulder distance and append that particular unit of distance to a tally of other such distances for later analysis. Such units of distance would certainly constitute a kind of information about this woman. Indeed (as was noted earlier), a computer could very probably do this kind of coding. However, it is probably still true that only a live human being with a lifetime of experience observing people interacting with each other would be able to distinguish between a cheek rubbed on the shoulder as part of an emotional display (of, say, coy affection) versus a cheek rubbed on the shoulder to relieve an itch.

Such a large and complex number of indicators are needed to distinguish these two possibilities that computer algorithms, as sophisticated as they are becoming, are probably still many years from being able to do so. On the other hand, a human being—that is, a cultural informant—could reliably note the difference in an instant, and the difference is likely to be a meaningful one.

Becoming a Cultural Informant: Seeing Versus Observing

Perhaps the most recognizable quotation of Sir Arthur Conan Doyle's literary creation Sherlock Holmes is "you saw, but you did not observe." The line was used to chastise the affable and earnest Dr. Watson, but it applies equally well to most of us, most of the time. We usually attend to only some fraction of the sensory information that is available to us. Most of our time is spent reflexively responding to a kind of social and affective rhythm, to the pitch and meter of conversation, to the style of the clothes people are wearing, to the moods implied in the ways people carry themselves and the obvious components of the looks on their faces. All of these bits of information influence our behaviors, and our behaviors in turn influence the individuals who are influencing *us*. Presumably, our brains "see" all of this information as it occurs, at least in the sense that the information is causing us to respond in certain ways, but under ordinary circumstances, we do not reflect on the information explicitly.

Becoming an effective cultural informant means learning to be an *active observer* of the kinds of information just described. The first step toward becoming an active observer simply involves learning to be mindful of the information that is available at any one moment. For example, when conversing with an office mate, it may be useful to pay close attention to how he expresses his feelings with his face and to note what he's wearing and how he typically carries himself. Such exercises prompt a number of interesting questions. What, for example, might this person be intending to communicate other than what he is explicitly saying? Perhaps one would conclude that he is interested in portraying himself as a serious and highly skilled worker but also a fun-loving and adventuresome person in other contexts. Fair enough. But what is he actually doing to convey this information? In other words, after we have come to some tentative conclusions about who this person is and what he is trying to tell us in subtle ways about himself, we can ask the next question: *How do we know?* By doing so, we are already well on the way to becoming active observers.

Three Rules of People Watching

We have found that active observation can be facilitated with some simple exercises that we refer to as the *rules of people watching* (Gottman et al., 1995). These rules are predicated on the idea that when people behave in certain characteris-

tic ways, or even in ways that seem specific to certain situations, they are doing so *to portray themselves as a kind of character.* Further, they select behaviors for this purpose *from a set of possible choices of how to act at any one moment.* That said, it is important to recognize that we are *not* asserting that this is *actually* what people are doing most of the time, though it might be. Rather, our intention is to provide the reader with ways to approach the problem of people watching so that he or she can become a more sensitive and more accurate cultural informant. In other words, what follows are not the rules of behavior but the rules of the active observation of behavior. They are rules for becoming an active observer.

Rule 1: View a Behavior as Though It Were Chosen From a Collection of Possible Alternatives

If one imagines two different people with precisely the same mild disability, a limp for example, it is possible to imagine further that each individual will behave differently with regard to the limp he or she copes with. One of them may, for example, work to minimize the extent of the limp through a variety of movements designed to keep others from seeing it. Another may exaggerate the limp, forming it into a kind of a swagger. The obvious point is that either of them could have chosen either approach to dealing with the limp, and there may indeed be other approaches as well. There are multiple options for incorporating the disability into their day-to-day behaviors. The other point, however, and perhaps the less obvious one, is that these options could be thought of as *alternative styles* of having a mild disability.

One can imagine a multitude of behavioral styles in a variety of contexts. People watching at parties can be particularly useful for this. It is informative to note the variety of dress, the different kinds of laughter people use, the intensity of the smiles one observes, the degree of physical space that people maintain, and so forth. Any of these dimensions of behavior could, in theory, be selected by any of the people in the room. And yet, certain people "select" only certain behaviors. The question is *why* certain people select certain behaviors, and that leads to rule 2.

Rule 2: View Behavior as if It Were Designed to Portray a Character in a Play or a Film—as if It Were Written to Follow a Script

As you watch people at our hypothetical party, it is possible to image that everyone's role has been scripted and that one is actually observing actors working to portray certain characters. When actors begin preparing characters, they are frequently given a number of character attributes that they must then devise ways of communicating to an audience. Thus, when an individual at a party begins laughing loudly and becoming very animated, one might ask, *What is it that the actor is trying to portray about that character?* He or she may, for example, be attempting to communicate that he or she is uninhibited, spontaneous, and warm. When meeting a new individual at a party, or indeed in any setting, it can be very useful to ask the question, *I wonder how this person is going to communicate what he or she is like?*

Rule 3: Watch a Person as if You Were an Actor Who Had to Play That Person in a Film

It is instructive to ask oneself what kinds of behaviors would be necessary to portray any individual being that one is observing. This exercise can be as simple, at first, as just trying to mirror his or her behavior. Frequently, your body will know what to do if you just try to mimic someone. Indeed, research suggests that mirroring behavior can enhance one's ability to code it (e.g., Blairy, Herrera, & Hess, 1999). Mimic the life of the party and contrast that with the feeling of mimicking the person who seemed to spend the evening in relative seclusion. Each exercise in imitation reveals a set of feelings, specific movements, props, and even attitudes that can assist in the development of active observation. In practice, the three rules of people watching can begin the process of becoming comfortable with, and deliberate about, observing rather than merely seeing. But when it comes to observational coding, being comfortable with and deliberate about observing people is only the first step.

Facial Expressions of the SPAFF

As noted in some detail previously, the SPAFF is not a strictly physical-features-based coding system. Nevertheless, more than any other such system, the SPAFF has been heavily influenced by, and indeed incorporates, the Facial Action Coding System of Paul Ekman and Wallace Friesen (Cohn, Amdadar & Ekman, chapter 13, this volume; Ekman & Friesen, 1978). We regard the FACS as the state of the art in facial coding, and in this section we describe the movements that are regarded as essential to understanding many SPAFF codes. That said, there are notable departures from official FACS protocol in the SPAFF, not the least of which is that the intensity levels of FACS codes are more or less ignored in favor of coding specific FACS codes as either present at any level of intensity or not present. Further, for the sake of brevity and specificity, many FACS codes are not included in the SPAFF at all.

Specific facial movements are covered in detail elsewhere in this volume (Cohn, et al., chapter 13, this volume). Thus we refer the reader to the chapter by Cohn, et al., and, indeed, to the FACS manual itself for detailed descriptions of the action units (AUs) described in this and subsequent sections. Figure 16.2 depicts a selection of common facial expressions associated with the SPAFF.

Action Units of the Upper Face

- Action Unit 1 (AU1)—The Inner Brow Raiser. (We sometimes refer to this as the *Woody Allen.*)

AU2

AU2 ("the horns") with head forward, associated with Domineering

AU15

AU1

AUs 1+6+15, associated with Sadness

AU2 ("the horns"), associated with Domineering

AUs 1+15, associated with Sadness

AU10

AU12

AU6

AUs 4+10, associated with Disgust and Contempt

AUs 6+12, associated with Interest, Affection, Validation, Humor and Enthusiasm

Unilateral AU14 with eye roll, associated with Contempt

Slight AUs 6+12, associated with Neutral, Interest, Affection, and Validation.

AU14

AU20

AU5

Unilateral AU14, associated with Contempt

AUs 1+2+4+5+20, associated with high intensity Fear / Tension (exaggerated here).

AU4

AUs 4+5, with lip press, associated with Anger, Criticism, Contempt

AUs 1+2+5, with cheek biting, associated with Fear / Tension

Figure 16.2. In this figure of the common facial expressions of the SPAFF, arrows highlight the major action units (AUs) involved in the different expressions. Note that although AUs are highlighted only once each, several occur in more than one expression.

- Action Unit 2 (AU2)—The Outer Brow Raiser. (We frequently refer to the bilateral manifestation of this movement as the *horns*.)
- Action Unit 4 (AU4)—The Brow Lowerer.
- Action Unit 5 (AU5)—The Upper Lid Raiser.
- Action Unit 6 (AU6)—The Cheek Raiser and Lid Compressor.
- Action Unit 7 (AU7)—The Lid Tightener. (We sometimes refer to this movement as the *Clint Eastwood*.)
- Action Unit 9 (AU9)—The Nose Wrinkler.

Action Units of the Lower Face

- Action Unit 10 (AU10)—The Upper Lip Raiser.
- Action Unit 12 (AU12)—The Lip Corner Puller.
- Action Unit 14 (AU14)—The Dimpler.
- Action Unit 15 (AU15)—The Lip Corner Depressor.
- Action Unit 17 (AU17)—The Chin Raiser.
- Action Unit 20 (AU20)—The Lip Stretcher.
- Action Unit 25/26 (AU25/26)—Lips Part/Jaw Drop

The facial action units detailed in the preceding lists may occur singly or in combination. Moreover, some action units, such as AU14, which is heavily implicated in the SPAFF code Contempt, frequently manifest on one side of the face only.

Codes of the SPAFF

As described earlier, coding the SPAFF requires that attention be paid to verbal content, facial behaviors, voice tones, and other forms of communication. What follows are detailed description of the codes that make up the current version of the SPAFF (see Table 16.1). Descriptions include subsections that detail the *function* of the code in interpersonal communication, various *indicators* of the code, *physi-*

Table 16.1
Current Codes of the SPAFF

Positive Affects	Negative Affects
Affection	Anger
Enthusiasm	Belligerence
Humor	Contempt
Interest	Criticism
Validation	Defensiveness
	Disgust
	Domineering
	Fear / Tension
	Sadness
	Stonewalling
	Threats
	Whining
Neutral	

cal cues for the code, and specific *counterindicators* regarding the code. Indicators and physical cues provide information about behaviors that *probably* derive from the presence of the code, whereas counterindicators provide information about behaviors that *probably do not* derive from the presence of the code. Throughout these descriptions, reference is made to *speakers* and *receivers*. Speakers are those who are observed using the code, and receivers are those the speakers are speaking to.

Affection

Function

Affection expresses genuine caring and concern and offers comfort. Often the voice slows and becomes quieter or lower. Its function is to facilitate closeness and bonding.

Indicators

1. *Reminiscing.* The speaker shares warm memories of something she and the receiver enjoyed together.
2. *Caring statements.* Direct statements of affection or concern, such as "I love you," "I care about you," "I worry about you," and so forth.
3. *Compliments.* Statements that communicate pride in or admiration of one's partner (e.g., "you are so smart!" or "you did such a great job with the . . .").
4. *Empathy.* Empathizing individuals mirror the affect of their partners. Such mirroring need not be verbal, but however it is expressed, it should be obvious that the intent of the mirroring is to express an understanding of the partner's feelings. Importantly, empathy does more than simply validate the partner's thoughts and feelings—by mirroring the affect of the partner at the same time, it conveys a level of care that surpasses validation per se.
5. *The common cause.* An important indicator of Affection, similar to empathy, is the common cause, whereby individuals engage in virtually any affective behavior *together* as a form of building trust, closeness, consensus, or bonding. This indicator can sometimes be confusing. Insults, such as remarking that "Bob is a jerk," can be coded Affection if intended to express obvious agreement. A shared anger, a shared fear, a shared and vocalized political opinion—all of these things could be coded Affection.
6. *Flirting.* When individuals flirt, they are communicating desire for their partners. The verbal expression would be "I want you," but flirting needn't be verbal. Flirting can be playful, sweet, warm, intense, or all of the these.

Physical Cues

There are no particular AUs that indicate affection, but AUs 6 + 12 will commonly be seen.

Counterindicators

- *Defensive affection.* Occasionally, a speaker will insist that he loves the receiver as a defensive maneuver. The indicators of defensiveness (discussed later) will usually give this away. Watch for defensive voice tone, a defensive context, and a lack of warm, positive feeling underlying the affectionate message.

Anger

Function

In the SPAFF, anger functions to respond to perceived violations of the speaker's rights to autonomy and respect. It serves as a kind of "affective underlining" of displeasure and complaint, indicating that an interpersonal boundary has been transgressed. Some SPAFF coders have called the SPAFF code of Anger "angry affect without belligerence, contempt, defensiveness, disgust or attempts to dominate." This is largely true.

Indicators

1. *Frustration.* A relatively low intensity form of Anger, here facial expressions of anger become apparent at low levels and the voice may lower in pitch and tempo. The anger will appear constrained or out of the obvious awareness of the speaker. Otherwise, the person may not express anger verbally at all.
2. *Angry "I-statements."* These are verbal statements that express personal feelings, as in "I am so angry!" or "I am so frustrated right now!"
3. *Angry questions.* Questions asked with angry affect and usually with sharp exhalations, as in "Why?!"
4. *Commands.* Commands are not attempts to dominate but rather are strong, affectively intense attempts to stop a recent or ongoing violation of the speaker's autonomy or dignity. Sharp exhalations and strong angry affect frequently accompany commands. Examples include "Stop!" or "Don't speak to me like I'm a child!"

Physical Cues

AUs 4, 5, 7, 4+5, 4+5+7, 23, 24. The lips will frequently thin, with the red of the upper lip disappearing or the lips pressed together; the teeth will clench; and the muscles of the jaw and neck will tighten. The voice may suddenly increase in pitch, amplitude, and tempo and may include a kind of "growl" as when yelling.

Counterindicators

- *Blends with other codes.* Angry affect is frequently observed during moments in which indicators of other negative codes are present. In these instances, Anger is never coded.

Belligerence

Function

The function of Belligerence is to "get a rise" out of the receiver through provocation of anger. The belligerent speaker is, in a sense, looking for a fight.

Indicators

1. *Taunting questions.* These are questions whose function is to irritate or confuse the receiver. An example might include the frequent and irritating use of the question "Why?" in the context of a serious discussion. Frequently the belligerent speaker is seen struggling to suppress a smirk while asking taunting questions as the receiver becomes increasingly enraged.
2. *Unreciprocated humor.* Sometimes, the belligerent speaker appears to actually believe he or she is being funny, even though the receiver is obviously annoyed. Such moments of unreciprocated humor are neither playful, fun, and shared (as in humor) nor sarcastic, mocking, and insulting (as in contempt). Belligerent speakers do not appear to get the message that the humor is not universally funny, or the fact that the jokes are annoying the receiver may increase the level of humor experienced by the speaker.
3. *Interpersonal terrorism.* Here, the belligerent speaker is posing direct challenges to the agreed-on rules or boundaries of the relationship. Frequently, such behavior takes the form of a dare, as in "What would you do if I did?" or "What are you going to do about it?" It can also be accompanied by a kind of emotional "strutting," whereby the belligerent person will make use of loud commands such as "Don't interrupt me!" as a means of demonstrating his or her power. This is often seen in violent men as a vestigial reminder of how dangerous they can be.

Physical Cues

AUs 1 or 2. Jaw thrust forward.

Counterindicators

1. *Good-natured teasing.* Good-natured "jabs" at the receiver's foibles are not coded as belligerence, especially if the humor or the teasing appears to be shared.
2. *Hostile humor.* Unreciprocated humor that is obviously hostile, mocking, belittling, or insulting is coded Contempt.

Contempt

Function

The function of Contemptuous behavior is to belittle, hurt, or humiliate. Contempt can be any statement made from a

superior position to the partner, such as correcting an angry person's grammar. Such behavior deliberately and forthrightly communicates an icy lack of respect, often cruelty. On theoretical and empirical grounds, we regard this behavior as extremely detrimental to interpersonal relationships (Coan et al., 1997; Gottman, 1993a; Gottman et al., 1998; Gottman & Levenson, 1992), and so the SPAFF gives it precedence over most other behaviors.

Indicators

1. *Sarcasm.* Sarcasm in conversation frequently precedes derisive laughter at the receiver's expense or manifests as a ridiculing comment regarding something the receiver has said. Frequent examples include the ironic use of such statements as "sure!" or "I'll bet you did!"
2. *Mockery.* When speakers mock, they repeat something the receiver has said while exaggeratedly imitating the receiver's manner of speech or emotional state for the purpose of making the receiver look ridiculous or stupid.
3. *Insults.* Insults are active and straightforward forms of contempt—they are shows of disrespect for the receiver through obvious verbal cruelty.
4. *Hostile humor.* Often, the contemptuous speaker uses a form of unshared humor that, though an apparent joke, utilizes sarcasm, mocking, or insults to achieve the aim of contempt. By delivering such messages as a "joke," the speaker may be attempting to leave him- or herself an "out" (as in, "hey, I was only joking"). Hostile humor can be momentarily confusing for coders and receivers alike. The contemptuous speaker may laugh heartily, and sometimes the receiver will briefly and reflexively laugh along. Such moments are not coded as Humor.

Physical Cues

AU 14 (uni- or bilateral). *Note: Eye rolls are nearly always coded as contempt.*

Counterindicators

- *Good-natured teasing.* Good-natured "jabs" at the receiver's foibles are not coded as contempt. A good indication that contempt is not occurring is that the context of the conversation appears to contradict contemptuous intentions or that the speaker and receiver appear to both experience laughter and joy as a result of the teasing.

Criticism

Function

Criticism functions as an attack on someone's character or personality in a way that is not obviously insulting, as in Contempt. It is a complaint that suggests that the partner's personality is defective. It is often accompanied by blame and is quite distinct from complaining.[2] Complaints refer to specific instances of behavior, whereas Criticisms are characterized by negative global assessments of a person's abilities or value as a person. Complaints accompanied by "you always" or "you never" statements are considered criticisms. Criticism may or may not make reference to a specific event.

Indicators

1. *Blaming.* In blaming, one individual assigns fault to another, along with a personal attack or global accusation, as in "the reason the engine blew up is that you *never* put oil in it."
2. *Character attacks.* Often expressed as "you never/you always" generalizations, character attacks are critical of a person's personality or abilities in very general ways. Examples include statements such as "you don't care," "you always put yourself first," and so forth.
3. *Kitchen sinking.* This is essentially a long list of complaints. Even though any particular item on the list may not fit criteria for Criticism per se, a long list functions to illustrate the incompetence or personality defects of the person on the receiving end. For example, an individual might "kitchen sink" using complaints and "I" statements, such as, "I don't feel listened to by you, and you don't touch me very often, and I asked you to do certain chores, but you didn't, and we don't do very many fun things together lately."
4. *Betrayal statements.* Similar to blaming, betrayal statements specifically reference trust and commitment, implying that the person on the receiving end is either not committed, untrustworthy, or both. "How could you?" is a question frequently indicative of Criticism.
5. *Negative mind reading.* Generally speaking, mind-reading statements express attributions about another's feelings, behaviors, or motives. They indicate Criticism when negative or accompanied by negative affect. An example of negative mind reading would be "you just don't like Tom because he smokes."

Physical Cues

There are no particular AUs that indicate Criticism.

Counterindicators

- *Insults.* Critical statements designed to inflict gratuitous emotional pain (e.g., "you're an idiot") are coded contempt.

Defensiveness

Function

Defensiveness functions to deflect responsibility or blame. It communicates a kind of innocent victimhood or righteous

indignation (e.g., as a counterattack) on the part of the speaker, implying that whatever bad thing being discussed is not the speaker's fault. Defensive speakers can engage in defending themselves or friends and loved ones who may be under attack by their partners.

Indicators

1. *The "yes-but."* SPAFF coders refer to statements that start off as momentary agreements but very quickly end in disagreements as "yes-buts." They are common indicators of defensiveness.
2. *Cross-complaining.* This behavior involves meeting one complaint with an immediate countercomplaint. In this way, complaints are simply not responded to—cross-complaints deflect them by leading the conversation into a suddenly new direction.
3. *Minimization.* Defensive speakers will frequently try to minimize a complaint by asserting that the problem they are potentially responsible for was scarcely a problem in the first place. A minimizing speaker might say, for example, "You're right, I did forget to put the garbage out, but there was hardly any garbage anyway, so it really isn't a problem. It can wait until next week."
4. *Excuses.* Excuses are attempts to locate responsibility or blame in something other than the speaker, as in, "well, traffic was all backed up, there was nothing I could do."
5. *Aggressive defenses.* Oftentimes a speaker will aggressively assert things, for example, "I did *not!*" These are vehement denials of responsibility that come across as childish, as in "did not/did too" interactions.

Physical Cues

AUs 1, 2, 1 + 2, arms folded across chest. The voice will increase in pitch and amplitude.

Counterindicators

- *Invalidations.* Statements designed to directly contradict the receiver (e.g., "you are wrong" or "that's simply untrue"), spoken in a lower pitched voice tone, are more properly coded Domineering.

Disgust

Function

Disgust is a relatively involuntary verbal or nonverbal reaction to a stimulus that is perceived to be noxious. Harmful substances (e.g., feces, rotted food) reliably elicit disgust, but disgust can also occur for moral or symbolic reasons (Rozin, Lowery, & Ebert, 1994).

Indicators

1. *Involuntary revulsion.* Here the object of disgust is some obvious image of, or reference to, an aversive, noxious stimulus, as in momentary descriptions of a gruesome physical injury.
2. *Moral objection.* Here the object of disgust is an action or idea that the speaker finds repulsive for moral or other symbolic reasons, as in responses to undesirable sexual practices or even political positions.

Physical Cues

The physical cues of Disgust are robust and specific. AUs 9, 10, 4, 15, and 17 can sometimes be seen, either singly or in any combination. The tongue will sometimes protrude, and the head will sometimes turn to one side as if avoiding the noxious stimulus.

Counterindicators

1. *Mockery, insults, or belittlement.* If the function of a disgust response, whether verbal or nonverbal, appears to be to communicate obvious disrespect of the receiver, it is more properly coded as Contempt. This includes instances in which the speaker appears to be disgusted by the behavior of the receiver.
2. *Disapproval without Disgust affect.* Disapproval, absent other obvious signs of disgust, can be coded Neutral (when lacking in obvious affective tone), Domineering (when spoken in a patronizing tone), or Anger (with angry affect).

Domineering

Function

The function of Domineering behavior is to exert and demonstrate control over one's partner or a conversation. Domineering behaviors attempt to impose compliance on the receiver's responses or behaviors.

Indicators

1. *Invalidation.* Invalidation deliberately and forcefully contradicts the validity of the receiver's point of view (e.g., "that's just wrong") or expressed feelings (e.g., "oh, you are not afraid, quit exaggerating").
2. *Lecturing and patronizing.* This indicator identifies attempts to belittle or disempower a person or a person's arguments. Many "subindicators" suggest the presence of lecturing and patronizing, including pointing or wagging a finger while talking, citing authorities (e.g., "well, Dr. Phil says . . ."), speaking in platitudes and clichés, appealing to an ambiguous "everyone" (as in "everyone knows"), and so forth. A distinctly patronizing quality often accompanies these behaviors. Look for finger pointing used for emphasis.
3. *Low balling.* Low balling expresses itself in the form of questions that have predetermined answers. The questions are not merely rhetorical but also have a manipulative quality, such as, "You want me to be

happy, don't you?" Low-balling behaviors are similar to sales ploys that seek to force unwary customers to answer "yes" to very simple questions (e.g., "Do you want your children to achieve their potential?") in order to manipulate them into purchasing a product.

4. *Incessant speech.* By using incessant speech, domineering persons can ensure that the receiver is not allowed an opportunity to respond. It is a form of forcibly maintaining the floor in a conversation at all times. Incessant speech often has a repetitious, steady, almost rhythmic quality in the voice. When speaking incessantly, domineering persons often repeat or summarize their point of view while paying very little attention to the verbal content of things said by the people with whom they are speaking. Look for finger pointing used for emphasis.

5. *Glowering.* Glowering is really a kind of steady gaze, often characterized by the head tilted forward with the chin down, and the outer portions of the eyebrows raised—an eyebrow configuration we refer to as "the horns" because, when configured in this way, the eyebrows do indeed resemble horns. Thus, when glowering, the "horns" are emphasized, and the person may be leaning the head, body, or both forward.

Physical Cues

AU 2 ("the horns"), head forward, body forward, finger pointing, head cocked to one side.

Counterindicators

- *Contemptuous patronizing.* Whenever the content of patronizing becomes blatantly insulting, it should be coded Contempt.

Enthusiasm (Formerly Joy)

Function

The function of enthusiasm is to express a passionate interest in a person or activity, as well as a positive valence associated with that interest. Enthusiasm is infectious and often sudden, loud, boisterous, and energetic. Nonverbal behaviors prominently accompany verbal expressions of eagerness and joy.

Indicators

1. *Anticipation.* Anticipatory behaviors are hopeful, future-oriented, and often childlike. They may be accompanied by fidgeting and distraction.

2. *Positive surprise.* This is an emphatically happy reaction to some unanticipated event or remark. Prominent smiles and loud verbalizations characterize this indicator (e.g., AU 1+2+6+12+24, accompanied by "Really!?")

3. *Positive excitement.* Similar to positive surprise, positive excitement includes expressions of joy and anticipation at very high levels of intensity.

4. *Joy.* Joyful moments reflect high levels of often suddenly felt happiness, similar to positive surprise but less intense. Joy will frequently follow receipt of a compliment and will often be accompanied by broad, warm smiles and bright, alert, positive facial expressions.

5. *Expansiveness.* Expansive individuals feel creative, motivated, and inspired and convey an effervescent and elated affect.

Physical Cues

AUs 1+2, 5, 6+12, 23, 24, 25–27 will commonly be seen. Individuals will sometimes sit up or forward in their chairs, and their voices will increase in pitch and volume.

Counterindicators

- *Interest indicators.* Enthusiasm can sometimes look like Interest and vice versa. Interested questions are accompanied by positive affect but of a lower intensity than those coded Enthusiasm.

- *Negative Surprise.* Surprise reactions are not unequivocally positive, and it is important to be watchful for surprise reactions that contain either a lack of positive affect or the presence of negative affect.

Fear/Tension

Function

Fear/Tension communicates, usually involuntarily, fear, worry, anxiety, nervous anticipation, or dread.

Indicators

1. *Speech disturbances.* Fearful or tense speakers will often have a difficult time expressing or even knowing what they want to say. This will manifest as incomplete or unfinished statements, stuttering, or *frequent* and *rapid* "uhs" and "ahs." Watch also for shallow, rapid breathing. (Note that the *occasional* use of "ah, "er," or "umm" can simply reflect attempts to keep the floor or turn at speech.)

2. *Shifts in fundamental frequency.* In studies of vocal quality, *chest register* refers to a lower pitch characterized by vibratory sensations felt in the sternum and trachea, and *head register* refers to a higher pitch characterized by vibratory sensations felt in the head. Either of these states can characterize a *fundamental frequency,* or the lowest frequency, of sound waves characterizing a person's speech. In fear/tension, one can often detect a shift in fundamental frequency that moves from a chest register to a head register.

3. *Fidgeting.* Fearful or tense individuals will fidget, repeatedly shifting their position in their chairs (as if in the "hot seat"), plucking at clothes or hands, rubbing their faces (especially the temple, mouth, and chin), or biting the lips or inside of their mouths.

4. *Nervous laughter.* Unshared laughter or giggling that doesn't appear to fit in the conversation and likely is a response to nervous tension (e.g., no jokes or humorous moments have occurred). Often, the fearful or tense individual will seem unable to stop. The smile will often appear "pasted on" (see "Physical Cues").

5. *Nervous gestures.* Certain gestures of the arms and face can indicate fear/tension, such as arms akimbo (folded across the chest) and hands frequently touching the face.

Physical Cues

AUs 1, 2, 4, 12, 20, 1+2+4, 1+2+4+5. Watch for frequent eye movements, frequent gulping, biting of lips and inside of mouth, and the "unfelt smile," a smile without AU6 that has been associated with neurophysiological patterns suggestive of behavioral withdrawal (Ekman & Davidson, 1993; Ekman, Davidson, & Friesen, 1990).

Counterindicators

1. *Away behaviors.* Away behaviors, such as paying attention to trivial objects in the room, looking at one's own hands or nails, and so forth, when unaccompanied by anxious affect and when in the context of high negative affect, are more properly coded as Stonewalling.

2. *Foreign object.* Sometimes individuals will become occupied with picking their teeth or removing something from their eye in the midst of a conversation. Such behaviors may be associated with increased anxiety but are more likely simply Neutral.

3. *Shared nervous laughter.* Nervous laughter that is shared among two or more individuals can quickly escalate into a shared moment of positive affect that is more properly coded as Humor.

Humor

Function

The function of humor is to share in mutual amusement and joy following a mutually recognized moment of absurdity or fun. Humor is relatively unique within the SPAFF in that it cannot be coded in isolation. The humor code requires a moment of *shared* amusement.

Indicators

1. *Good-natured teasing.* When an individual teases, she highlights qualities or behaviors in her partner that *both* agree are somewhat ridiculous, cute, or otherwise funny.

2. *Wit and silliness.* Wit is expressed as an apt or clever observation that is considered by both individuals to be humorous. This could manifest as a funny observation or the straightforward telling of a joke.

3. *Private jokes.* Private jokes can include moments of shared laughter and obvious amusement that derive from coded messages or moments of sudden mutually recognized humor that are opaque to all but the two individuals who are communicating.

4. *Fun and exaggeration.* A very playful form of humor; here individuals share active, animated, and exaggerated play or imitation behavior. High energy and a deeper form of laughter often accompanies this indicator.

5. *Nervous giggling.* Occasionally, individuals will begin to chuckle with each other for no apparent reason. This could result from a private joke or may indicate a brief release of nervous tension given the experimental context. The affect underlying the giggling should be obviously positive and shared, unlike a similar form of giggling associated with the Fear/Tension code.

Physical Cues

AUs include 1, 2, 6, 12, 6 + 12, and 25–27.

Counterindicators

1. *Unshared humor.* Laughter or amusement that is not shared is never coded Humor.

2. *Tense humor.* Humor that is obviously both a nervous reaction to a high level of tension in the conversation and either lacking in any positive energy or unshared.

3. *Affectionate humor.* Sometimes a joke will be coupled with affectionate messages. Such moments are more properly coded affection.

4. *Belligerent humor.* A form of unshared humor, one individual makes jokes that are intended to "get a rise" out of the other or make the other angry.

5. *Contemptuous humor.* Jokes that are intended to be hurtful or insulting and that are unshared. This is sometimes confused with teasing. A good rule for distinguishing contemptuous humor from good-natured teasing is to attend closely to the degree to which both individuals are amused.

Interest

Function

The function of this behavior is to communicate genuine interest in one's partner through active elaboration or clarification seeking. As used in the SPAFF, Interest is characterized as a positively valenced behavior that emphasizes informa-

tion gathering about the partner as opposed to minor or trivial factual information.

Indicators

1. *Nonverbal attention with positive affect.* Interested persons will frequently attempt to actively communicate their interest through nonverbal behaviors, such as leaning forward in their chairs, affecting a warm tone of voice, and making steady eye contact. The interested person will communicate focused, respectful, and active engagement with what his or her partner is saying. If cues associated with Fear/Tension are not present, the interested person will sometimes communicate low levels of excitement (not to be confused with Enthusiasm) that communicates a desire to hear more.
2. *Elaboration and clarification seeking.* Interested individuals will often ask specific questions in order to gather additional information. Frequently, such questions will be accompanied by nonverbal behaviors such as those described in indicator 1. It is important that questions that serve to elicit more information are not accompanied by nonverbal negative affect, as such affect can indicate other affective agendas. Elaboration and clarification-seeking questions can include questions about a partner's opinions and questions that serve to paraphrase what a partner has been saying. Paraphrasing questions are easy to confuse with paraphrasing statements that are coded as Validation (discussed later).
3. *Open-ended questions.* Almost any question that does not require a "yes" or "no" response and that allows the partner to express him- or herself in greater detail.

Physical Cues

AUs 1+2, 6, 12, 6+12, leaning forward, positive valence.

Counterindicators

1. *Lack of eye contact.* Eye contact is not absolutely essential for coding interest, but a lack of eye contact can indicate that interest is feigned or that questions are serving some other affective function.
2. *No pauses following questions.* When questions are frequent and no opportunity is provided for a partner to respond to them, it is unlikely that genuine interest is being observed. Relentless question asking, especially if it appears to be leading the partner to a very specific series of answers, can be a sign of Domineering behavior.
3. *Low-balling questions.* Similar to counterindicator 2, low-balling questions are those to which there is only one rational answer. An example would be, "Don't you want me to be happy?" Such a question is properly coded Domineering.
4. *Exchange of general factual information.* It is important, though sometimes difficult, to distinguish between

questions that communicate an interest in the partner and those that communicate an interest in settling some minor factual issue. An example of a noninterested (per SPAFF) question might be "What time is it?"

Neutral

Function

The Neutral code represents a sort of "dividing line" between positive and negative SPAFF codes. It is relatively nonaffective and is associated with the exchange of unvalenced information. The voice will have a relaxed quality, with an even pitch and volume. It is important to become familiar with an individual's neutral behavior early on in a coding session, as facial morphology and other characterological mannerisms that are actually neutral for a given person can often seem affective to coders unfamiliar with them.

Indicators

1. *Information exchanges.*
2. *Noncodable moments.* Sometimes it will be unclear whether a behavior is affective or what a particular affective behavior represents. In the SPAFF, such moments are coded Neutral.

Physical Cues

The neutral face is apparent, though care must be taken to avoid coding baseline facial morphologies as affective facial behavior.

Counterindicators

1. *Loaded issue.* It is possible that a moment of behavior that seems to be a neutral exchange of information actually makes reference to an issue that has emotional relevance to the speaker, the receiver, or both. Such moments are not properly coded Neutral.
2. *Any codable affect.*

Sadness

Function

In the SPAFF, the Sadness code refers to behaviors that communicate loss, resignation, helplessness, pessimism, hopelessness, or a plaintive or poignant quiescence.

Indicators

1. *Sighing.* Sighs, especially deep sighs, very frequently occur in the context of Sadness. Thus sighing is nearly always considered an indication of sad feelings (note, however, "relief" as a counterindicators).
2. *Pouting/Sulking.* Sadness physical cues in the context of being rebuffed, ignored, or not getting one's way.

Pouting may cause the sad person to appear to withdraw from the conversation.

3. *Resignation.* Sad individuals will frequently behave as if resigned or hopeless. This behavior is communicated through a pattern of very low energy, slouching, long pauses between words, and so forth. In the resigned person, nearly all movement appears to require extra effort.

4. *Crying.* Nearly all instances of crying indicate sadness (but see "happy tears" as a counterindicators.) Sometimes individuals can be observed "choking back tears," or trying not to cry. Physical cues and tears welling up in the eyes will give them away.

5. *Hurt feelings.* In response to moments of high negativity, such as belligerence, contempt, or anger, individuals will sometimes report or appear to have hurt feelings. Such moments are coded as Sadness.

Physical Cues

AUs 1, 6, 15, 17, 1+6, 1+15, 1+6+15, 1+6+15+17. Shoulders may droop, and individuals may hang their heads or look down. The lips and the chin may tremble. The voice may quaver in terms of pitch and amplitude and may occasionally break.

Counterindicators

1. *No back channels.* A lack of responding that is attributable to the deliberate attempt to communicate lack of interest is not a form of pouting and is more properly coded Stonewalling.

2. *Relief.* Individuals who display a sudden decrease in energy as a result of the diffusion of tension or an escape from responsibility may be showing evidence of relief, which may be coded as Neutral.

3. *Happy tears.* Happy tears are here intended to mean one of two things. First, tears can sometimes result from intense laughter. Second, tears can sometimes result from sudden moments of shared intimacy, compliments, accomplishments, and so forth. These instances of tears are more properly coded as Humor, Enthusiasm, or Affection.

Stonewalling

Function

Stonewalling functions to communicate an unwillingness to listen or respond to the receiver.

Indicators

1. *Active away behavior.* The speaker focuses on some trivial object in order to avoid contact with the receiver. Such away behavior frequently entails the use of "automanipulation," a behavior characterized by playing with hair or hands (e.g., cleaning fingernails or

looking at split ends). This behavior is "active" in Stonewalling in that it is not a function of idleness but rather purposefully communicates an unwillingness to pay attention, especially during conversational moments characterized by high levels of negative affect. The "speaker" (i.e., the contemptuous person) is communicating the message, "I'd rather not be here right now, and I don't want to listen to you."

2. *No back channels.* The stonewalling person offers no vocal or nonvocal back channels such as one would find in Validation. There are no head nods, the neck is rigid, there are no vocal or verbal assents (as in "umm-hmmm," "yeah," "uh-huh," etc.), and no other verbal responses. There is little if any facial movement and certainly no facial mirroring or eye contact. The "no-back-channeling" behavior may occur very abruptly, as if intended to suddenly put up an obvious, though technically invisible, wall between the speaker and the receiver.

3. *Monitoring gaze.* Within the context of "no back channels," stonewalling individuals will occasionally steal glances at their partners, as if to remind their partners to notice their lack of listening behavior. This can appear as a intermittent glance in the partner's direction, as if the partner is an annoyance that must be endured, much as one might occasionally glance over at a noisy person in a library.

Physical Cues

In Stonewalling, the face will typically appear stiff or frozen. The jaw may be clenched, and the muscles of the neck may be obviously flexed. Other times, the face will show no obvious signs of emotion at all, deliberately arranged to appear neutral.

Counterindicators

1. *Boredom.* Individuals can sometimes become bored or otherwise run out of things to say to each other. Sometimes, this will cause them to sit quietly without interacting for seemingly long periods of time. Away behavior can characterize these moments, but they should not be confused with Stonewalling behavior. Stonewalling does not result from idleness or boredom but is rather a form of active and aggressive communication, most frequently observed during heated moments.

2. *Sleepiness.* If an individual stops offering back channels but also appears to be very sleepy (as sometimes happens), his or her behavior is more properly coded as Neutral.

3. *Resignation.* Sometimes individuals will become sad or defeated during an intense conversation. During such moments, they can appear to be Stonewalling for want of back-channeling behavior. It is important to recognize when this is occurring and to code accord-

ingly. Most often, resigned behaviors such as these are coded as Sadness.

Threats

Function

Threats are a particularly hostile form of domineering behavior in that their function is to control the behavior of the receiver by setting explicit conditions under which the receiver will be punished for behaving in ways the speaker finds undesirable.

Indicators

1. *Bans.* These are direct "if/then" statements that forbid certain behaviors and threaten to impose punitive (sometimes violent) consequences if those behaviors occur. An example might be "if you ever speak to me like that again, I'll. . . ."
2. *Ultimatums.* Ultimatums reflect demands for change within some defined context or time period. An example might include "if you don't start doing your share around here by next month, I'm moving out."

Physical Cues

AU 1, 2 ("the horns"), 1+2, 1+2+5, head forward, body forward, finger pointing, head cocked to one side.

Counterindicators

• *Good-natured teasing.* Good-natured "jabs" at the receiver's foibles and those that include humorous threats (as in, "ooh, I'm going to get you for that!") are coded as Humor.

Validation

Function The function of validation is to communicate sincere understanding and acceptance of one's partner or of one's partner's views and opinions. In the SPAFF, Validation is considered to be a positively valenced behavior.

Indicators

1. *Back channels.* Back channels are behaviors that indicate attentive and affirmative listening through the use of paralinguistic and physical cues, such as head nods and "uh-huhs" or other physical and vocal assenting behaviors. Usually, back channels are accompanied by eye contact.
2. *Direct expressions of understanding.* Direct expressions of understanding include explicit expressions of respect or agreement (e.g., "I agree," or "that's a very good point").
3. *Paraphrasing.* In this behavior, individuals repeat back what their partners have told them, usually verbatim, but sometimes in a slightly altered style.

4. *Apologies.*
5. *Sentence finishing.* In this behavior, individuals will place endings on the sentences their partners have begun. This behavior lets partners know that both individuals are "on the same page." Importantly, sentence finishing is an indicator of validation only if it is delivered in a package of positive affect (see "Physical Cues").

Physical Cues

AUs 1+2, 6, 12, 6+12. Head nod, eye contact, nonconfrontational voice tone.

Counterindicators

1. *Lack of eye contact.* A lack of eye contact can mean that the back channels being offered are insincere, as in humoring. Back channels without eye contact can also be associated with sarcastic behavior.
2. *Bobbing heads.* "Bobbing heads" are head nods that appear so automatic and repetitive that they essentially become meaningless. Bobbing heads can also be a sign of exasperation—a kind of nonverbal request to "shut up."
3. *Affect mirroring.* Sometimes, the various indicators of validation occur in the context of strong mirroring of affect, as when an individual says, "I understand how you're feeling" while expressing facial signs of sadness in response to their crying partners. The SPAFF considers such expressions to be signs of empathy, and such signs are properly coded Affection.
4. *Interrupting.* Sentence finishing can be an important indicator of Validation, but if the sentence finishing is abrupt or is delivered with negative affect, it is likely nothing more than an interruption related to Domineering, Defensiveness, or other negative affective behaviors.

Whining

Function

Whining functions to make what might otherwise be an ordinary complaint into a plaintive or pleading form of emotional protest. Whining suggests an innocent victim stance, communicating something like "What are you picking on me for?" or "What about all the good I do?"

Indicators

• *Whiny protest.* Whining is really characterized by a quality of voice paired with a complaint or protest. This voice quality is high-pitched, nasal, "sing-songy," or otherwise annoyingly plaintive. For example, the question "why" might be expressed in a high-pitched voice and drawn out with an exaggerated "eeee" sound at the end, as in "whyyyyeeee?"

Physical Cues

AUs 1, 1 + 2, 1 + 2 + 15.

Counterindicators

- *Defensive whining.* Sometimes defensive behaviors can be expressed in a whiny voice style. Such moments are more properly coded Defensive.

The Nuts and Bolts of SPAFF Coding

Training

In our experience, SPAFF training requires some reading, some didactic exercises, and a large amount of practice. Indeed, SPAFF practice is generally ongoing in our laboratories, including weekly meetings at which confusions are clarified and practice tapes are watched collectively. In the past, we have trained SPAFF coders in steps, as follows.[3]

Step 1. *People watching and learning to think about constructs.* Following the structure of this chapter, students are encouraged to think about and practice the rules of people watching and are trained to understand the difference between constructs and indicators.

Step 2. *FACS training.* At a minimum, coders should be trained to reliably recognize those FACS codes that are commonly observed in the codes of the SPAFF. It is preferable, though not necessary, for SPAFF coders to be fully FACS certified through a process of studying the FACS manual and taking the FACS exam (see Cohn et al., chapter 13, this volume, for details).

Step 3: *Learning the SPAFF codes.* Learning the SPAFF codes requires careful explanation of the codes, in addition to frequent viewing of examples of the codes using videotapes.[4] When viewing videotapes, we start whenever possible by showing clips designed to illustrate codes that are the subject of discussion or recent reading. Eventually, longer clips are played, and students are encouraged to discuss what they see in terms of the SPAFF codes they have learned. Virtually any videotaped interaction (e.g., tapes of participants, clips from movies or television) can be useful for this. Exercises such as these serve at least two purposes. First, they train people to talk about and discuss affective behavior using SPAFF as their "language." The value of this first purpose is often underappreciated (more on this later). Second, they hone their skills in reliably identifying SPAFF codes.

Data Collection and Reliability Assessment

Video- and Audiotapes

Several pragmatic data collection considerations are important for maximizing the effectiveness of the SPAFF. For example, it is critical that audio and video are of high quality. We have found that small microphones with gated compressor mixers attached to people's shirts or collars provide the best audio quality. Many video cameras come with their own built-in microphones, but the audio quality provided by these is inconsistent. Alternatives include wall-mounted omnidirectional cardoid condenser microphones, generally aimed at the participants. For video collection, many options now exist, including sophisticated digital recorders that are quite compact and relatively unobtrusive. In any case, we recommend that two cameras are used to generate a "split screen," at least with dyads (such that both participants can be viewed simultaneously on the same monitor), and that both cameras are situated to provide full-face shots, including coverage from the top of the head to the mid-chest. To create a split screen, a special-effects generator with "wipe" capabilities will be required. A wide variety of such devices are commercially available. Profile shots should be avoided whenever possible, as they make it harder to read emotion on the face (e.g., AU14, a FACS code associated with contempt, is frequently only seen on one side of the face). Moreover, and despite the risk of participant self-consciousness, cameras should be low. We have found that cameras placed about 1 foot above the participants' eye level causes minimal self-consciousness and that, in any case, participants in emotionally charged situations habituate to the cameras rapidly. In coding the SPAFF, a time-code generator that is both visible on the video recording and readable by computer interface is imperative. Devices that accomplish this, frequently referred to as *vertical interval time code* (or "VITC") *generators,* are widely available.

Reliability Assessment

Timing is critical to the utility of the SPAFF as a measure, as well as to the assessment of reliability. Before coding begins, a number of timing decisions must be made. For example, the *unit* of time per code must be established. Due to technological limitations, early versions of the SPAFF used very little or no timing information, using "thought units" based on transcripts for coding instead. Since then, we have frequently used 1 second as the unit of time for SPAFF coding, allowing for one code per second per participant. Next, the *time window* for assessing reliability must be established. The time window refers to the amount of time relative to a target moment around which coders may agree or disagree. For example, a time window of plus or minus 1 second may be established around some target second, allowing for a total *window of agreement* of 3 seconds within which SPAFF coders may agree or disagree about how to categorize a particular behavior. The size of this window is a function of the

investigator's discretion. For most coding, a 3-second window provides an adequate balance between precision and agreement.

A variety of options exist for the statistical assessment of reliability of these kinds of data (Bakeman & Gottman, 1997). We have assessed reliability by computing *confusion matrices,* which tally agreements and disagreements between two coders, allowing for the computation of *Cohen's kappa* both for each interaction and for all interactions within a sample combined. Cohen's kappa is useful for assessing the reliability of event-coded data to be used for sequential-type analyses in which agreements must be locked in time within a particular window. We have also computed Cronbach's alpha for this purpose, per Wiggins (1973). However, when reliability concerns the total *frequency* of a given code, the rank-order intraclass correlation, or *generalizability coefficient,* provides a sufficient assessment of reliability (see also Shrout & Fleiss, 1979). Figure 16.3 provides a sample confusion matrix obtained from a sample of domestically violent couples, taken from Gottman et al. (1995).

Typically, all tapes in a given study are coded twice, once each by two independent coders. Checking the reliability of every interaction in a given study is recommended for optimal data quality. Moreover, reliability should be checked continuously as a study is ongoing if those reliabilities are to remain high throughout. It is useful for coders to know that their reliability will be checked for every tape that they code. A variety of computer-based coding packages are now available, including the Long Video Coding System (VCS, available from the James Long Company; see http://www.jameslong.net/ for more information). Tape-by-tape reliability checks are augmented by weekly meetings, with all coders present. Such meetings are critical to the success of coding any given study. Because studies differ in sometimes subtle ways, it is possible that the SPAFF manual will be unclear about a particular behavior or distinction. Coding meetings cope with this in at least two ways. First, they can clarify applications of the SPAFF to particular samples (e.g., is Contempt—a latent construct—always indicated in the same ways in all samples?). Second, they contribute to clarifications within

Disagreement Matrix and Overall Kappa
Files processed in this run:
T131rh
High and Low Combined
Column and Row Headings are as follows

(1) Disgust	(7) Defensive	(13) Validation
(2) Contempt	(8) Whining	(14) Affection
(3) Belligerence	(9) Sadness	(15) Humor
(4) Domineering	(10) Stonewall	(16) Surprise/Joy
(5) Anger	(11) Neutral	
(6) Fear	(12) Interest	

OBS#1	1	2	3	4	5	OBS#2 6	7	8	9	10	11	12	13	14	15	16	
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.000
2	.	2.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.006
3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.000
4	.	.	.	6.	.	.	3.	.	.	.	.	.	.	.	.	.	.007
5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.000
6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.000
7	.	3.	.	.	.	.	337.	.	.	.	28.	.	.	.	.	.	.418
8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.000
9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.000
10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.000
11	.	.	.	.	.	.	30.	.	.	.	458.	.	2.	1.	.	.	.551
12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.000
13	.	.	.	.	.	.	.	.	.	.	1.	.	6.	.	.	.	.009
14	.	.	.	.	.	.	.	.	.	.	.	.	.	2.	.	.	.005
15	.	.	.	.	.	.	.	.	.	.	1.	.	.	1.	5.	.	.006
16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.000
	.000	.002	.000	,010	.000	.000	.415	.000	.000	.000	.554	.000	.008	.002	.008	.000	

Total frequency	886.000
Pct observed agreement	.921
Pct due to chance	.479
Kappa	.848
Standard Error	.031
Z-score	27.652

Figure 16.3. A sample confusion matrix (Gottman et al., 1995).

the manual. In this way, the development of the SPAFF is analogous to "open source" software, with many groups of coders, within and between labs, contributing to its development. Coding meetings are typically semistructured, with meeting facilitators bringing clips that are frequently, or recently, the source of disagreement and confusion. Such clips are often brought to the attention of the meeting facilitator by the coders themselves, but they need not be. For example, the VCS program allows for the easy identification of disagreements in the coding record that can be used for discussion. It is important to discuss specific instances, with video, during these meetings; abstract discussions of the codes are generally less helpful. In general, the agreement in a single session of coding should be above 75%, but 60% can be acceptable with particularly difficult tapes. If the percentage of agreement is lower, two different coders should recode the tape.

Table 16.2
Weighting scheme for the 16-code version of the SPAFF

Positive Affects		Negative Affects	
Joy	+ 4	Contempt	– 4
Humor	+ 4	Disgust	– 3
Affection	+ 4	Defensiveness	– 2
Validation	+ 4	Belligerence	– 2
Interest	+ 2	Stonewalling	– 2
		Domineering	– 1
		Anger	– 1
		Whining	– 1
		Sadness	– 1
		Fear / Tension	0</T B>
	Neutral	+ 0.1	

The Future of the SPAFF

The SPAFF is always in development. It can be used to quantify affective and interactive behaviors, but it can also be thought of more generally as a language for describing those behaviors. Indeed, recent applications of the SPAFF include its transformation into a continuous scale and the use of the SPAFF terminology to code higher order constructs, and even sequences of behavior, directly.

The SPAFF as a Scale

The transformation of an earlier version of the SPAFF was accomplished by using prior research to assign weights to each code (see Carrere & Gottman, 1999; Gottman, Swanson, & Murray, 1999). Thus codes more predictive of negative outcomes received more negative weights, and codes more predictive of positive outcomes received more positive weights. The weighting scheme resulted in a continuous scale running from –4 to +4 in any given second. These scores were then summed across 6-second intervals, resulting in a continuous score of –24 to +24 for any given 6-second epoch. Weights assigned to a previous version of the SPAFF code are given in Table 16.2.

The SPAFF as a Language

In new ongoing research, the language of the SPAFF is being implemented as a means of training coders to observe specific sequences of behavior across larger periods of time (e.g., 5 minutes). In this work, very specific sequences of behavior are of interest, and estimates of the frequency of such sequences are given by continuous Likert-type rating scales. For example, of particular interest is a sequence of behavior that begins with one spouse's low-level negative affect (the antecedent) and ends with the other's high-level

negative affect (the consequent). In previous research, this sequence has been interpreted as a "rejection of influence" (Coan et al., 1997; Gottman et al., 1998). Coders understand that low-level negative affect includes such SPAFF codes as Anger, Fear/Tension, Sadness, and so forth, and that high-level negative affect includes Stonewalling, Contempt, Criticism, Defensiveness, and so on. They use their knowledge of the SPAFF to code the sequence directly. Though currently in the experimental stages, this approach has dramatically increased the speed with which coding is done, with little or no apparent cost in terms of reliability. For example, the intraclass correlation coefficient (ICC) across three coders and 64 couples for the coding of husband influence rejection was .84, although the same ICC for the wife was somewhat lower, at .63. This work is still in development and awaits further testing and analysis. Nevertheless, it holds the promise of new ways to implement the SPAFF.

Conclusion

The SPAFF is a flexible, evolving, and reliable language for describing interactive affective behavior. It has informed numerous studies and enjoys ample empirical support for its constructs. The SPAFF has typically been applied to the study of married couples, but in recent years it has been applied to parent-child interactions and even to group therapy sessions. A few new codes have been introduced here, and recent new directions in the use of the SPAFF have been covered. Using the SPAFF can be labor intensive and challenging but also highly rewarding. As use of the SPAFF increases, we enthusiastically anticipate yet more innovation and development.

Notes

1. Here we are using the language of latent variable models analogously, not literally. Actual latent variable models imply a host of mathematical properties that are not necessarily true of any of our SPAFF codes. Nevertheless, many of the theoretical properties do apply. It is better, for example, to observe multiple indicators of a construct if one wishes to infer the construct's existence. This is equally true of the SPAFF. However, in mathematical latent variable modeling, it is virtually axiomatic that one is *required* to have at least three indicators (sometimes referred to as *manifest variables*) to properly model the construct. This is not true of SPAFF coding, in which, in many cases, a single indicator is sufficient.

2. For the sake of clarity, we contrast critical statements with complaint statements. These examples are taken from John Gottman's book *Why Marriages Succeed or Fail* (Gottman, 1994).

> Complaint: We don't go out as often as I'd like to.
>   Criticism: You never take me anywhere.
>   Complaint: It upset me when I came home and there were dirty dishes in the sink. This morning we agreed you'd wash them.
>   Criticism: You left dirty dishes in the sink again. You promised me you wouldn't. I just can't trust you, can I?
>   Complaint: I expected you to come home right after work. When you didn't, it made me feel like you care more about going out with your friends than spending time with me.
>   Criticism: I hate that you're the type of person who never thinks to call and tell me you'll be late coming home. You always leave me hanging. You care more about your friends than you do about our marriage.

3. One of the authors (JAC) is available for SPAFF workshops.

4. Training and test tapes for the SPAFF are not currently commercially available, although new tapes may be available in the future, depending on demand. Alternatively, any tapes involving affective behavior can be used to gain practice in coding SPAFF. One of the authors (JAC) has even used movie clips to illustrate examples of SPAFF codes. Virtually any videotaped social interaction can be useful for SPAFF training, as long as the faces of the individuals are clearly visible.

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