Explanatory style

Explanatory style explanations are considered relevant here. Causal explanations may refer to factors internal to the person ("it's me"), such as ability or effort, or they may refer to external factors, such as other people or chance. If one interprets uncontrollable events internally, the helplessness following these events tends to involve a loss of self-esteem.

Causal explanations may also refer to factors that are stable across time ("it's going to last forever") or unstable. The more enduring the attributed cause, the more enduring the loss of helplessness following uncontrollability.

Finally, causal explanations may refer to global factors influencing a variety of domains ("it's going to undermine everything that I do") or to specific factors relevant only to circumscribed outcomes. Global causal explanations tend to result in generalized helplessness, whereas specific causal explanations do not.

The particular causal explanations made about uncontrollable events are determined by both the reality of the events and an individual's habitual explanatory style (Peterson & Seligman, 1984a). All things being equal, individuals with a pessimistic explanatory style are more likely to display helplessness deficits when confronted with a bad event than their counterparts with an optimistic style. That is, individuals who habitually explain the causes of bad events as internal, stable, and global should be more susceptible to helplessness deficits following bad events than those with the opposite style.

The helplessness reformulation is explicitly concerned with causal explanations for bad events. However, in much of our research applying the model to depression and other phenomena, we have also assessed causal explanations for good events (Peterson & Seligman, 1984a). Our findings suggest two general conclusions. First, explanatory style for good events is usually independent of style for bad events. Second, compared with explanatory style for bad events, explanatory style for good events usually shows the opposite relation with depression and helplessness; that is, internal, stable, and global explanations for good events predict the absence of deficits. Although we have no explicit theory about such explanations for good events, our intuitive sense is that they reflect hope and thus bolster optimism and self-esteem, perhaps by encouraging individuals to savor the good events that befall them.

Explanatory style can be measured with a self-report questionnaire developed for this purpose: the Attributional Style Questionnaire (ASQ; Peterson et al., 1982). The ASQ presents hypothetical events, good and bad, to respondents, who write down the "one major cause" of each event if it happened to them. Then, they rate each cause they have provided on 7-point scales in terms of internality versus externality, stability versus instability, and globality versus specificity. Ratings are averaged across events to yield estimates of a respondent's explanatory style.

Literally hundreds of studies have employed the ASQ to investigate the
relationship of explanatory style to depression, school achievement, athletic performance, morbidity, and mortality. Despite the popularity of this questionnaire, it is obvious that the ASQ can be used only with subjects who are willing and able to complete the instrument. Given the range of topics to which explanatory style is potentially relevant, exclusive reliance on the ASQ to investigate explanatory style and its consequences is overly limiting. Consequently, we developed a content analysis technique to assess explanatory style in populations not accessible for administration of the ASQ (see chapter 26 in this volume).

Any spoken or written materials can be analyzed for spontaneously mentioned events and explanations. We have found causal explanations in such diverse materials as newspaper quotations, therapy transcripts, diaries, political speeches, autobiographies, audiotaped diagnostic interviews, personal letters, and essays. In many cases, such materials are rich enough in naturally occurring good or bad events with accompanying explanations to assess an individual's explanatory style. We have encountered few difficulties in applying this content analysis technique, but no doubt boundaries exist. To date, we have used the procedure only with adults who speak English. Social class, gender, ethnicity, and psychopathology apparently present no barriers.

The purpose in this chapter and the next is to describe this content analysis method for assessing explanatory style, which we call the CAVE technique, an acronym for the Content Analysis of Verbatim Explanations. This description expands on previous statements, published (Peterson, Luborsky, & Seligman, 1983; Peterson, Seligman, & Vaillant, 1988; Schulman, Castellon, & Seligman, 1989; H. M. Zullow, Gettigen, Peterson, & Seligman, 1988) and unpublished (Peterson & Seligman, 1984b; Schulman, Castellon, & Seligman, 1988). In this chapter, I start by explaining why content analysis is an appropriate way to ascertain explanatory style. Then I describe some of the studies that provide validity evidence for our technique.

**H O W T O R E G A R D T H E C A V E T E C H N I Q U E**

Content analysis of public records is not a new research technique. Other researchers have worked productively with such a strategy. Nevertheless, the technique is not used as often as it might be by "mainstream" psychologists, and not just because it can be painstaking. Instead, researchers are skeptical of content analysis because of connotations of bias and fuzziness. The CAVE technique involves two independent steps: (a) extracting verbatim causal explanations, and (b) rating them on 7-point scales according to their internality, stability, and globality. Both steps are done by researchers blind to outcome measures. Both steps have proved reliable.

**Explanatory style**

Reasonable versus unreasonable uses of content analysis are not determined by the technique per se, but rather by the theory in which they are embedded. The CAVE technique is theoretically guided. Indeed, according to the helplessness reformulation and attribution theory in general, content analysis of verbal material is a particularly good assessment strategy, not a "second-best" procedure arising from compromise.

We view causal beliefs as hypothetical constructs, not as intervening variables (Peterson & Seligman, 1984a). They are a way for the theorist to make sense of what he or she has observed, and they can be assessed in a variety of ways. Because it has been convenient to do so, we have often administered the ASQ. However, there is no theoretical reason compelling the exclusive use of this or any other questionnaire to measure causal explanations.

Causal beliefs are part of an individual's naive psychology, the subject matter of attribution theory (Heider, 1958). Thus, unobtrusive research methods may be preferable to invasive techniques that run the risk of producing causal explanations not otherwise offered in the course of everyday living. Some critics have argued that people may not ordinarily explain events (Silver, Wortman, & Klos, 1982; Wortman & Dintzer, 1978). Quite simply, this argument is wrong. People offer causal explanations even when not specifically prompted to do so, and they do so particularly in response to aversive and surprising events (Wong & Weiner, 1981). The circumstances under which causal explanations are made without prompting are precisely those under which subjects are most likely to be mindful and thus most apt not to respond glibly or automatically as they might on a questionnaire (Weiner, 1985).

Reality may override style in determining explanations. In some cases, the event a person explains may be the primary determinant of its explanation (Peterson & Seligman, 1984a). The resulting explanation is irrelevant to estimating an individual's explanatory style. Here is an example. Over the years, we have often asked college students to explain the hypothetical event "You have been unsuccessful in looking for a job." Their answers often reflect the prevailing economic reality. When the job market is lean, that is the modal causal explanation. There is little variance in answers, and nothing "psychological" is revealed by them. In contrast, when opportunities for employment are more plentiful, so too is the variance in proffered causes, and the usefulness of these causes for estimating individual style is correspondingly enhanced. With regard to the CAVE technique, the researcher must be careful to apply it to material in which explanations are not mainly reality-driven.

Although we regard explanatory style as a trait, we do not expect people to show 100% consistency in the internality, stability, and globality of their explanations. This would be at odds with what is known about cross-situational consistencies in behavior. However, as a cognitive characteristic,
more consistency can be expected for explanatory style than for other putative personality traits (Mischel, 1968).

To use the CAVe technique, it is imperative that at least several causal explanations be available for each individual under investigation. Explanatory “style” can only be assessed from multiple explanations. Individual consistency can only be ascertained if repeated explanations have been made. In some cases, explanations may not cohere into a style, because reality factors predominate. In other cases, style may not be apparent because individuals are inconsistent. “Style” should be reserved as a description of cross-event consistency in the various explanations that an individual offers.

The studies reviewed in the next section show that individuals are often consistent in the way they explain events. However, other studies also show that explanations change as a function of important events such as psychotherapy. And yet other studies show that individuals are consistent at one time and at another time, but not across time. We recommend a sophisticated view of explanatory style as a trait (Peterson & Seligman, 1984). It should be treated as a dependent variable that can be modified by life events, as well as an independent variable that modifies future events.

CONSTRUCT VALIDITY OF THE CAVe TECHNIQUE

The CAVe technique makes possible research with all manner of interesting subjects, including those inaccessible with the ASC — the quick, dead, famous, belligerent, sensitive, or remote. And although it is more labor-intensive than the ASQ, this technique allows the researcher to travel back and forth in time, conducting studies in a nonobtrusive way. If outcome measures are already available or can be obtained, and suitable verbatim material can be located from earlier in time, longitudinal research that would normally take many years to complete can be done in mere months. The CAVe technique is also likely to be far less costly than longitudinal investigations begun from scratch.

One of our first uses of the CAVe technique looked at transcribed psychotherapy sessions, in this case with a single patient noteworthy for his sudden mood swings, in and out of depression, which occurred during the course of a session (Peterson et al., 1983). We wondered if causal statements precipitated these shifts, and so the CAVe technique was an appropriate research strategy. We hypothesized that shifts to depression would be preceded by (relatively) internal, stable, and global explanations for bad events, whereas shifts from depression would be preceded by (relatively) external, unstable, and specific explanations.

We obtained transcripts from psychotherapy sessions in which mood shifts occurred, for both increased depression and decreased depression. For comparison purposes, we also obtained transcripts from sessions in which no mood shifts occurred. Causal explanations by the patient immediately before and after his mood shifted were extracted, rated, and combined into a composite by averaging across the three dimensions. Our hypothesis was supported. Highly internal, stable, and global causes preceded increased depression, and highly external, unstable, and specific causes preceded decreased depression. Causal explanations during sessions in which no mood shift occurred were intermediate.

In another early study, we asked 66 students on the University of Pennsylvania campus to write essays about the two worst events that had occurred to them during the past year (Peterson, Bettes, & Seligman, 1985). After writing these essays, subjects completed the ASQ and the Beck Depression Inventory (BDI), a frequently used measure of the extent and severity of common depressive symptoms (Beck, 1967).

We extracted and rated the causal explanations from the essays. These ratings were then collapsed across judges and then across explanations for the same event. Our results provided strong support for the validity of the CAVe technique. First, causal explanations were consistent across the two events. Second, explanatory style as assessed with the CAVe technique was correlated with depressive symptoms as proposed by the helplessness re-formulation. Third, scores of the extracted causal explanations converged with the corresponding scales of the ASQ.

However, convergence between the CAVe and the ASQ was not nearly so high as to suggest that these are simply alternative measures of explanatory style. This conclusion is supported by a more recent study by Schulman et al. (1989), who compared ratings by researchers of causes written on the ASQ by subjects with the ratings made by the subjects themselves. Researcher and subject ratings correlated highly, but subject ratings showed a stronger relationship to depression as measured with the BDI than did the researcher ratings. This may indicate that subjects are more sensitive to the meaning of their own causal beliefs than researchers are.

Burns and Seligman (1989) used the CAVe technique to investigate whether explanatory style is consistent over decades. Thirty subjects, averaging 72 years of age, provided diaries or letters written 50 years earlier. They also wrote brief essays about their current life. Both sets of material were CAVED, and the researchers found that the composite measure (internality + stability + globality) of explanatory style for bad events proved highly stable ($r = .54$). Needless to say, these are impressive results, supporting both the validity of the CAVe technique and our conceptualization of explanatory style as traitlike.

The CAVe technique allowed Peterson et al. (1988) to undertake a 35-year longitudinal study of the psychological precursors of physical illness. Briefly, we assessed the explanatory style of 99 men who completed open-ended questionnaires in 1946 about their difficult wartime experiences. At
that time, the subjects were approximately 25 years of age. Available for each subject at subsequent 5-year intervals were ratings of overall health, based on a physician examination abetted with medical tests. Pessimistic explanatory style predicted poor health from ages 45 through 60, even when initial measures of physical health and emotional well-being (taken at age 25) were held constant.

A final example of how the CAVE technique can be used to study subjects not accessible with the ASQ is H. M. Zullow et al.'s (1988) investigation of explanatory style among Democratic and Republican candidates for the presidency during elections between 1948 and 1988. Nomination acceptance speeches were CAVEd, and the resulting measures of explanatory style was combined with a measure of rumination also derived from content analysis of these speeches. The combination of pessimistic explanatory style for bad events and excessive rumination predicted the loser in 9 out of the 10 elections, even when popular poll results and incumbency were taken into account statistically.

We concluded that the voters respond to the degree of hope conveyed in a nomination speech. To the degree that a candidate can engender hopeful expectations in the electorate, that candidate will win an election; otherwise, the candidate will lose. Characteristic ways of explaining bad events reflect hopefulness or hopelessness, and so the CAVE technique is useful to the political prognosticator.

CAUTIONS

There are several drawbacks to the CAVE technique to which we draw your attention. First, to save time, researchers who have an opportunity to administer a questionnaire may prefer to use the ASQ. Second, the process of extracting causal explanations is the difficult step in the procedure, and we have not found all potential users of CAVE equally skilled or enthusiastic about doing extractions. Third, although we have started to map out the empirical relationship between the ASQ and the CAVE, the conceptual relationship between the two measures awaits a thorough treatment. We suspect that causal explanations for hypothetical events are not always interchangeable with those for actual events. Nonetheless, we expect the CAVE technique to be used widely in the future.

Attribution and cognitive orientations:

26 The explanatory style scoring manual

CHRISTOPHER PETERSON, PETER SCHULMAN, CAMILO CASTELLON, AND MARTIN E. P. SELIGMAN

The actual Content Analysis of Verbatim Explanations (CAVE) technique has two steps: identifying and extracting causal explanations in verbatim material; and then rating these explanations along 7-point scales according to their internality, stability, and globality. We will describe these steps in order.

IDENTIFYING AND EXTRACTING CAUSAL EXPLANATIONS

Four or more events with explanations are ideally required to generate a valid style. Multiple events are the only way that a researcher can estimate a cross-situational style. Also, multiple events allow explanatory style to be more reliably measured. Peterson, Villanueva, and Raps (1985) compared studies that disconfirm the reformulated learned helplessness model with those that support it, finding that the supporting studies had more attributions per subject than the disconfirming studies. Multiple events apparently minimize the effects of the reality of the situation, allowing the individual's habitual style to emerge.

In our research, we usually find bad events with explanations to be more abundant in verbatim material than good events with explanations. What this means is that researchers specifically interested in how people explain good events will have to search more diligently for suitable material for content analysis. When individuals describe events, good or bad, they often end up explaining them, if allowed or encouraged to elaborate their de-

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Scoring for explanatory style

Hypothetical explanations, however, are usually not acceptable. For example:

E: I would be thrilled
A: If I hit the jackpot in the lottery.

The difficulty of rating the stability dimension (to be discussed) in these cases and the uncertainty of the cause ever occurring make hypothetical causes unextractable.

Bad events that have “good” explanations, or vice versa, should not be extracted. For example:

E: I was fired
A: Because I refused to do something unethical.

Although this sort of example satisfies all the previously stated criteria for an extraction, we have learned from experience that this will probably not be rated reliably. Further, an attribution such as this one has the effect of transforming a bad event into a good event (Peterson, 1983).

Here is another problematic example, a good event with a “bad” explanation:

E: I have been less depressed lately
A: Because my allergies are so bad I'm thinking only about them.

Here the “bad” attribution transforms what seems to be a good event into a bad one, creating ambiguity about how to regard this material.

In the best of circumstances, an identified event and explanation should include enough information for the rater to be able to rate the internality, stability, and globality of the cause. This may not always be possible, and if the extracted material contains so little information that raters need to guess about the status of the cause with respect to two or three dimensions, then it is best to pass over this material.

When an event has multiple explanations, we treat each explanation separately. For example, the phrase, “I didn’t do well on my job because I didn’t sleep well last night and because my ankle is sprained,” would yield two extractions:

E: I didn’t do well on my job
A: Because I didn’t sleep well last night.
E: I didn’t do well on my job
A: Because my ankle is sprained.

However, if the multiple explanations are interrelated and separating them removes important context and thereby makes it more difficult to understand the extraction, we prefer not to separate them.

A factor mentioned in one explanation may also be an event that itself is explained. For example:
E: I haven’t been sleeping well
A: Because I’m worried about paying my bills.
E: I’m worried about paying my bills
A: [Because] the finance charge on my credit card is outrageous.

We suggest a stringent criterion in deciding that a causal statement should be extracted, granting the cascading problems caused by ambiguity of the event or the cause. Usually even brief samples of verbal material contain several acceptable causal explanations as characterized here, so a stringent criterion is not the limitation it might seem.

When a suitable event-attribution unit is located, we write it verbatim on an index card (along with an identifying code number). Both the event and attribution are presented to judges to be rated, along with enough contextual information to allow the raters to proceed sensibly. In this instance, added information is provided within brackets:

E: I got it [a permanent job]
A: [Because] I did an internship with him [the personnel director].

Note, though, that the event and the causal attribution should be copied verbatim.

We find that independent judges using the stringent criterion we suggest agree more than 90% of the time that a particular causal explanation is present (e.g., Peterson, Bettes, & Seligman, 1985). Thus, judges are able to reliably extract attributions from verbatim material. Because extraction is necessarily tedious, especially if a great deal of material must be scanned, we usually use but a single researcher to do the extractions.

**RATING THE EXTRACTED CAUSAL EXPLANATIONS**

When presenting a series of event-attribution units to raters, it is important to randomize the extractions within and between subjects. This is important so that the raters are not biased by previous ratings for the same subject and do not fall into entrenched rating patterns. We usually use four or five independent judges as raters, blind to each other as well as to outcome measures for the subjects.

Extracted attributions are rated by these judges on 7-point scales according to their internality versus externality, stability versus instability, and globality versus specificity. The “7” represents the most internal, stable, and global explanations, and the “1” the most external, unstable, and specific explanations. All of these ratings are made from the individual’s point of view about the internality, stability, and globality of the cause of concern—not from the rater’s perspective. Let us elaborate on some of the considerations that go into these ratings (Schulman, Castellon, & Seligman, 1989).

**Scoring for explanatory style**

**Internality versus externality**

The reformulated learned helplessness theory proposes that this dimension is related to self-esteem. This dimension, therefore, is an attempt to measure the extent to which individuals blame themselves for bad events or credit themselves for good events. Other researchers have assessed related individual differences such as locus of control (Peterson & Stunkard, 1989), but we focus solely on the degree of blame or credit.

We see the 7-point scale for internality versus externality as divided into three regions:

A. Scale point 1, where the individual attributes blame or credit to someone or something completely external to the self.
B. Scale points 2 to 6, where the individual attributes the cause of an event to some combination or interaction of internal and external factors.
C. Scale point 7, where the individual attributes causality to a behavioral, physical, or mental characteristic solely internal to the self.

Examples of a 1 rating include causes that mention another person’s actions or characteristics, the difficulty or ease of a task, time, a natural disaster, circumstances, the weather, and so on. Ratings between 2 and 6 are made when explanations divide blame or credit between the self and another person or between the self and the environment. Examples of a 7 rating include causes that refer to the individual’s own traits, behavior, decisions, (in)ability, motivation, knowledge, disability, illness, injury, age, and social or political or demographic classifications (such as being a widow, conservative, old, or a Christian).

Following are some examples:
E: I did well on the paper
A: Because the assignment was easy. [Rating = 1]
E: I didn’t get the job
A: Because they are disorganized. [Rating = 1]
E: I’m having problems with my wife
A: Because she can’t accept my ambition. [Rating = 2 or 3]
E: We’re getting a divorce.
A: We’re just not made for each other. [Rating = 4]
E: I’m tongue-tied
A: When I get overheated. [Rating = 4]
E: I need surgery on my elbow.
A: It’s getting worse from tennis. [Rating = 4]
E: I did well on the medical boards
A: Because I studied hard. [Rating = 7]
E: I didn’t get the job
A: Because I’m too young. [Rating = 7]

**Stability versus instability**

This dimension reflects the persistence of a cause, whether it is chronic (stable) or transient (unstable). Remember that the stability of the cause is
of interest, not the stability of the event. Given the event, whatever its nature, how long-lasting or transient is the attributed cause? We explicitly remind our raters of how the analogous question on the Attributional Style Questionnaire is phrased: "In the future when this event occurs, will this cause again be present?" Response choices range from 1 ("will never again be present") to 7 ("will always be present").

There are four related considerations that determine how this dimension is rated. First is the tense of the attributed cause. If the cause of an event is phrased in the past tense, then the rating should be less stable than if the cause is phrased in the present tense. Second is the probability that the cause will occur in the future (from the viewpoint of the subject). A cause unlikely to occur again should be less stable than a cause that is likely to occur again. Third is whether the attributed cause is intermittent or continuous. For example, bad weather is intermittent, and is therefore less stable than a continuous cause, such as a trait. Finally, is the attributed cause characterological or behavioral in nature (cf. Peterson, Schwartz, & Seligman, 1981)? Character traits (e.g., "I am smart, lazy, decisive") should be more stable than particular behaviors (e.g., "I did a smart thing, a lazy thing, a decisive thing").

Following are some examples, with annotations, of how extracted causes are rated on the stability-instability dimension:

E: I can't restrain my appetite
A: When I see food on the table. [Rating = 4]

(This cause is in the present tense, is likely to occur again, and is intermittent, i.e., situation-specific.)

E: It's difficult for me to express gratitude.
A: That's just the way I was raised. [Rating = 5]

(This cause occurred in the past but still exerts an ongoing influence on behavior.)

E: I'm not doing well in my career
A: Because I'm such a lazy person. [Rating = 5 or 6]

(This cause is in the present tense, will probably occur again, and is characterological.)

E: I didn't get the job
A: Because I'm a woman. [Rating = 7]

(This cause is unalterable and continuous.)

**Globality versus specificity**

The third dimension we rate reflects the extent to which a cause affects an individual's life, whether it affects many areas (global) or just a few (specific). This dimension often proves the most difficult to rate because there may not be enough information to indicate how widespread the effects of the cause might be, granted the unique composition of an individual's life. A sprained ankle would have a greater impact for a professional athlete than a sportswriter, but we may not always know which profession a speaker has chosen.

In the absence of detailed knowledge about an individual, we ask how the attributed cause would affect the scope of a generic individual's life. We distinguish two broad categories of events in someone's life - achievement and affiliation. Each is obviously of numerous subcategories, and often these intermingle. So, this distinction is artificial and is not crisp. We do find it valuable heuristically because it helps the rater to avoid applying his or her idiosyncratic sense of globality versus specificity to other people's attributions.

Achievement, as we see it, subsumes occupational or academic success, one's acquisition of knowledge or skills, attainment of a sense of individuality or independence, and economic or social status. Affiliation includes the quality of intimate relationships, one's sense of belongingness or societal integration, sex, play, and marital or family well-being. These are just a few examples. Causes can affect some or many events in one or both of these
broad categories. The greater the impact of the cause, the higher the globality rating.

It sometimes is helpful to look at the event itself for clues about the globality of the attributed cause; after all, the event is one of the possible effects. We do not, however, rate just the effects mentioned in the event, because the cause may have broader consequences. We primarily rate the globality of the cause and only secondarily look at the event as one of the effects of the cause.

Following are some examples, with annotations:

E: I got a reckless driving ticket.
A: I guess the cop had to fill his quota for the day. [Rating = 1]

(This cause affects one situation.)

E: My relationships are handicapped
A: By my fear of intimacy. [Rating = 2 or 3]

(This cause affects part of the affiliation category and possibly part of the achievement category.)

E: My self-image has gotten worse
A: Since my hair fell out. [Rating = 4 or 5]

(This cause affects parts of both categories.)

E: I’ve had to cut back on my level of activity
A: Because of my stroke. [Rating = 4 or 5]

(This cause affects parts of both categories.)

E: I’ve lost all zest. I’ve felt devastated
A: Since my wife died. [Rating = 6 or 7]

(Most of both categories affected by this cause.)

General considerations

Here are some general pointers about rating, regardless of the particular dimension. First, if there is insufficient information to assign a rating, we deem the cause in question a 4, to avoid skewing the overall ratings. Second, each dimension should be rated independently of the other dimensions. Stability and globality, for example, often overlap in people’s causal attributions (Peterson & Villanova, 1988), but they must be disentangled for rating. Third, our suggested guidelines are not inflexible rules. Grammatical nuances and each phrase’s rich context must be taken into account. The particulars of an explanation may help in rating such ambiguous and difficult to rate causes as age, sickness, injury, and social classification. For example:

Scoring for explanatory style

E: I couldn’t finish the race
A: Because my body just gave up on me.

Although the individual quoted here is blaming her body, the way that she does implies a dissociation of herself from her body. She is not really blaming herself, just a “body” that is not who she is. Researchers who use the CAVE technique to study attributions concerning illness and injury must be particularly sensitive to such subtleties.

Our judges are given training and practice, as well as periodic calibration. Reading about explanatory style is important, as is seeing examples of extracted event-attribution units and how they are rated. We find that when the ratings of four or five judges are combined, reliabilities of the individual dimensions, as estimated by Cronbach’s (1951) coefficient alpha, approach .90. Obviously, the more judges, the higher the reliability. Internality versus externality can usually be rated with greater reliability than the other two dimensions, because the endpoints have absolute meanings.

Once ratings are complete and reliability ascertained, we average them (within dimensions) across judges, then across events (keeping good and bad events separate). Depending on the purposes of the researcher, scores on the individual dimensions can be employed, or a further composite can be created by averaging across the three dimensions (cf. Carver, 1989).

Summary

To sum up the most important points we have presented about the CAVE technique, we suggest that the researcher ask the following questions:

1. Are the extracted events clearly good or bad from the subject’s point of view?
2. Do the extracted events directly affect the subject?
3. Are there clear cause-and-effect relationships between the extracted attributions and events?
4. When the event-attribution units are given to raters, do they have enough context to understand them?
5. Is there any doubt about the appropriateness of extracted units? If in doubt, throw it out.
6. Is there sufficient information for a particular rating?
7. Have the three dimensions been rated independently of one another?

Ratings of Practice Stories

We applied the CAVE technique to the practice stories that are included in appendix I of this volume. In appendix I, the “expert scoring” for explanatory style shows the extracted attributions for bad events, along with ratings by one of us (CP) of the stability and globality of these causes. Remember that these ratings are made on 7-point scales, where high
numbers correspond to more stable and more global attributions, and low numbers to more unstable and more specific attributions.

Some qualifications are in order. The suitability of projective material for the CAVE technique is unknown. Causal explanations can readily be extracted and rated, but we do not know what the resulting scores reveal about the person who told the story. According to theory and research, attributions about events befalling the self are critical (cf. Sweeney, Shaeffer, & Golin, 1982). Which character in a story, if any, corresponds to the self? In a few cases, a research subject responds to pictures in the first person, but otherwise we are in the dark. This is why the internality rating was not made in the practice stories.

We are currently planning a study to look systematically at the relationship between explanatory style as assessed by the ASQ and causal attributions extracted from thematic apperceptive protocols and rated via the CAVE technique. Not all stimuli are equally successful at eliciting bad events, so we will use those cards that our pilot work has shown are rated highly by judges with respect to negative content. Pending the completion of this study, it is best to regard the examples in appendix I simply as illustrations of the CAVE technique rather than a recommendation that the CAVE technique be used with verbal responses to projective stimuli.

Attribution and cognitive orientations:

27 Conceptual/integrative complexity

PETER SUEDFELD, PHILIP E. TETLOCK, AND SIEGFRIED STREUFERT

The development and current state of the construct

Theoretical origins

The conceptual/integrative complexity construct is a descendant of Kelly's (1955) personal construct theory. Generally, it fits within the cognitive styles approach. Because the emphasis of the work is on the structure of thought rather than on its content, the closest relatives of integrative complexity are cognitive complexity (Bieri, 1971) and cognitive structure (Scott, Osgood, & Peterson, 1979). More remote kinship – the remoteness being empirically demonstrated by low correlations (Schroder, Driver, & Streufert, 1967; Suedfeld, Tomkins, & Tucker, 1969; Vannoy, 1965) – exists with content-laden cognitive traits such as authoritarianism (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950), dogmatism (Rokeach, 1960), and field independence (Witkin, Dyk, Faterson, Goodenough, & Karp, 1962). The direct line of development proceeds through conceptual systems (Harvey, Hunt, & Schroder, 1961), conceptual complexity (Schroder et al., 1967), interactive complexity (Streufert & Streufert, 1978; Streufert & Swezy, 1987), to integrative complexity (Suedfeld & Tetlock, 1990) and metacomplexity (Streufert & Nogami, 1989).

Briefly, the successive versions of the theory focus on the complexity of information processing and decision making, complexity being defined and measured (usually on a 1–7 scale) in terms of degrees of differentiation and integration (cf. Streufert, 1970). Differentiation refers to the perception of different dimensions within a stimulus domain, and to the taking of different perspectives when considering the domain. It is a necessary but not sufficient prerequisite for integration, which is the development of conceptual connections among differentiated dimensions or perspectives. Such connections are inferred from references to trade-offs between alternatives, a synthesis between them, a reference to a higher-order concept that subsumes them,