

Approaches to the sense of humor: A historical review

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Humor and sense of humor

There seems to be general agreement, among humor researchers and laypersons alike, that there is considerable variability across individuals in the degree to which they possess a sense of humor. There is also general agreement that a sense of humor is a highly desirable trait to possess. As the American essayist Frank Moore Colby observed, "Men will confess to treason, murder, arson, false teeth, or a wig. How many of them will own up to a lack of humor?" (cited in Andrews 1993: 431). However, when we begin to ask what, exactly, researchers and laypeople *mean* by "sense of humor", and how they conceptualize individual differences in this trait, we encounter a great deal of disagreement. Although everyone seems to recognize a sense of humor when they see it, no one seems to agree on how to define or explain it. As Omwake (1939: 95) aptly put it nearly 60 years ago:

a very broad, flexible interpretation is commonly attributed to a 'sense of humor.' The term is used with reference to creative humor and to appreciation of jokes; to slapstick comedy and to intellectual wit; to humorous stimuli perceived through the eye or the ear, or even the muscles and cutaneous senses; to 'laughing over spilled milk.' ... The trait is so all-inclusive and highly prized that to say of another: 'He has a grand sense of humor' is almost synonymous with: 'He is intelligent, he's a good sport, and I like him immensely.'

What do we mean when we say that someone has a "sense of humor"? Eysenck (1972) pointed out three different possible meanings. First, we may mean that the person laughs at the same things that we do (conformist meaning). Second, we may mean that the person laughs a great deal and is easily amused (quantitative meaning). Third, we may mean that the person is the "life and soul of the party", telling funny stories and amusing other people (productive meaning). Eysenck went on to argue that these three different "senses of humor" are not necessarily correlated across individuals.

Hehl and Ruch (1985) expanded on Eysenck's list, noting that individual variation in sense of humor may relate to differences in: (1) the degree to which individuals *comprehend* jokes and other humorous stimuli; (2) the way in which they *express* humor and mirth, both quantitatively and qualitatively; (3) their ability to *create* humorous comments or perceptions; (4) their *appreciation* of various types of jokes, cartoons, and other humorous materials; (5) the degree to which they actively *seek out* sources that make them laugh; (6) their *memory* for jokes or funny events; and (7) their tendency to use humor as a *coping* mechanism. Babad (1974) also distinguished between humor *production* and *reproduction*, and showed that the two are uncorrelated in individuals. Yet another meaning commonly associated with sense of humor is the notion of *not taking oneself too seriously* and the ability to laugh at one's own foibles and weaknesses. These differences in the ways in which people use the term "sense of humor" in everyday life are also reflected in the wide range of theoretical approaches to sense of humor in the research literature.

A great many theories of humor, laughter, and comedy have been advanced by philosophers and theorists over the centuries, ranging from Plato and Aristotle to Hobbes, Descartes, and Kant, and, more recently, Freud and Bergson. Interestingly, however, the great majority of these theories have not specifically addressed individual variability in sense of humor. They have attempted to explain why we laugh at certain situations and not at others, and what kinds of mental, emotional, and motivational processes are involved in the perception and experience of humor. By and large, though, they have had little to say about why it is that some people laugh and engage in humor more than others, or why people differ in the sorts of things that amuse them. Although theorists occasionally make reference to the fact that some people show more humor than others, there has been surprisingly little systematic theoretical or empirical work done on developing a comprehensive definition and description of habitual humor behavior. Nonetheless, it is often possible to extrapolate from the various theories of humor to see how they might account for such individual differences.

The purpose of the present chapter is not to provide yet another comprehensive review of the various theories of humor that have been proposed. This has been ably done by others (e.g., Keith-Spiegel 1972; MacHovec 1988; Monro 1963; Piddington 1963). Rather, the aim here is to review the range of theoretical and empirical work that has sought to describe and explain *individual differences* in sense of humor. Thus, I am drawing a distinction here between "humor" and "sense of humor". The *Oxford English Dictionary* defines humor as "that quality of action, speech, or writing which excites amusement; oddity, jocularly, facetiousness, comicality, fun" (Simpson & Weiner 1989). The term "sense of humor" will be used here in a more specific sense, to refer to a personality trait or individual difference variable (or, more likely, a family of related traits or variables). Thus, sense of hu-

mor is viewed as a construct within the domain of personality psychology.

In order to ensure broad coverage of the relevant literature, I will use the term "sense of humor" in the widest sense, as a sort of catch-all term to refer to habitual individual differences in all sorts of behaviors, experiences, affects, attitudes, and abilities relating to amusement, laughter, jocularly, and so on. Sense of humor here includes all the various uses of the term outlined above, such as humor appreciation, creation, comprehension, and so on. In addition, "humor" here comprises a wide range of concepts such as amusement, wit, ridicule, comedy, whimsy, and satire, and no *a priori* evaluative assumptions are made concerning the desirability, adaptiveness, or healthiness of a sense of humor. I will attempt to use the term consistently in this broad sense, and will note where it is used in a more specific or narrow sense by authors of articles that I will discuss.

This is primarily a review of past approaches to sense of humor to provide a historical context for the more contemporary approaches that are set out in greater detail in the following chapters. This review will focus particularly on various theoretical approaches that have received at least some empirical investigation. The various methodological approaches taken to measure sense of humor will be noted, although the purpose here is not to provide a complete catalog of all existing sense of humor tests (see Ruch 1996 for reviews of recent humor tests, and the appendix of this book). In keeping with the focus on individual differences, studies that have made use of experimental manipulations of environmental variables, rather than assessing more stable personality traits, will not be included. Also, to keep the scope manageable, studies of national or ethnic group differences, sex differences, or developmental differences in children of different ages will not be included.

I will begin with a review of three broad categories of theories of humor in general, and will examine the approaches to individual differences in sense of humor that have been derived from them. I will then discuss a number of approaches to sense of humor that are not so clearly based on these traditional humor theories. Next, I will discuss several broader trait theories of personality to examine how they may account for individual differences in humor. Finally, I will briefly outline a proposed model for conceptualizing the major dimensions of sense of humor.

The place of individual differences in general theories of humor

Although a large number of different theories of humor have been devised, most of them can be placed into a few general categories. For example, Monro (1963) classified existing humor theories into four types, which he labeled superiority, incongruity, release from restraint, and ambivalence. Here I will briefly discuss three

main types of theories of humor that have been most influential in investigations of individual differences: psychoanalytic, incongruity, and superiority.

Psychoanalytic theory

Outline of the theory. Freud's theoretical writings on humor are contained in two publications: the book *Jokes and their relation to the unconscious* (Freud 1960 [1905]), and a short paper entitled "Humour" (Freud 1928). Freud distinguished among three different types or categories of mirthful experience: jokes (German *Witz*, sometimes inaccurately translated as "wit"), the comic, and humor. Each of these involves a saving or economizing of psychic energy which, having become unnecessary for its normal purposes, is dissipated in the form of laughter. *Jokes* make use of a number of cognitive "jokework" techniques, such as displacement, condensation, and unification, that allow an individual to briefly express unconscious aggressive and sexual impulses that normally would be repressed. The inhibitory energy that would normally be used to repress these libidinal impulses becomes redundant as a result of the joke, and is dissipated in the form of laughter. Freud referred to the release of libidinal drive as the *tendentious* element of jokes, while the cognitive techniques involved in the "jokework" were called the *non-tendentious* elements. Freud's second category of laughter-related phenomena, the *comic*, has to do with nonverbal sources of mirth, such as slapstick comedy and circus clowns. In such situations, according to Freud, the observer mobilizes a certain amount of mental or ideational energy in anticipation of what is expected to happen. When the expected does not occur, this mental energy becomes redundant and is released in laughter. Freud suggested that the comic involves delighted laughter at childish behavior in oneself or others, which he described as "the regained lost laughter of childhood" (Freud 1960: 224).

The third category, for which Freud reserved the term *humor*, occurs in situations in which persons would normally experience negative emotions such as fear, sadness, or anger, but the perception of amusing or incongruous elements in the situation provides them with an altered perspective on the situation and allows them to avoid experiencing this negative affect. The pleasure of humor (in this narrow sense) arises from the release of energy that would have been associated with this painful emotion but has now become redundant. Thus, it is important to note that Freud used the term "humor" in a very specific sense to refer to only one category of what most people would normally call humor. This distinction has often been ignored by researchers, who have tended to confuse Freud's theory of jokes with his theory of humor. According to Freud, humor (as distinct from jokes) is a sort of defense mechanism that allows one to face a difficult situation without becoming

overwhelmed by unpleasant emotion. Interestingly, Freud (1928: 5) viewed humor as the action of the parental superego attempting to comfort and reassure the anxious ego, asserting "Look here! This is all that this seemingly dangerous world amounts to. Child's play — the very thing to jest about!". Freud's theory of jokes, the comic, and humor has been further developed and modified by a number of psychoanalytic writers, including Kris (1938), Feldmann (1941), Bergler (1956), Grotjahn (1966), and Christie (1994).

Implications for individual differences. For the most part, Freud did not specifically discuss individual differences in his writings on jokes and humor, and he never actually used the term "sense of humor". Rather, he focused on the processes that he hypothesized to occur in all individuals when they are responding to mirthful situations. One exception is found at the end of his 1928 article, where he stated with regard to humor in his narrow sense: "... we note that it is not everyone who is capable of the humorous attitude: it is a rare and precious gift, and there are many people who have not even the capacity for deriving pleasure from humor when it is presented to them by others" (Freud 1928: 6). However, although Freud had little to say about individual variation in humor in general, various researchers have derived a number of hypotheses about individual differences from his writings. For example, Kline (1977) suggested that Freud's theory of jokes leads to the following hypotheses regarding individual differences:

- 1) Individuals finding aggressive jokes funniest will be those in whom aggression is normally repressed.
- 2) Individuals finding sexual jokes funniest will be those whose sexuality is normally repressed. Specifically: anal jokes will appeal to anally fixated, oral jokes to orally fixated, homosexual jokes to those with repressed homosexual tendencies, etc.
- 3) Those whose main defense mechanism is repression and who have a strong superego won't laugh at jokes.
- 4) Psychopaths should not find jokes amusing, as they have no need to lift their repression in this way.
- 5) Since most wit is hostile, wits will tend to have powerful unconscious aggression.
- 6) Wits will be more neurotic than the normal population.
- 7) Highly repressed individuals should prefer jokes with complex jokework to "simple" jokes.

In addition to the above hypotheses, which are based only on Freud's theory of jokes, I would suggest that other hypotheses may be derived from his theory of humor, as he narrowly defined it. For example, individuals with a greater sense of

humor (in Freud's specific sense) should show evidence of a less severe, critical, and demanding superego. They should also have experienced more positive, supportive, and reassuring parenting during childhood. Moreover, they should show evidence of making use of more mature, less neurotic defenses and coping mechanisms. In addition, they should be less adversely affected by adversity and stress, and should be better able to maintain a sense of well-being in the face of difficulties while maintaining a realistic outlook on the situation. Finally, Freud's theory of the comic suggests the following hypothesis: Individuals who enjoy the comic (e.g., slapstick, clowns, physical humor) should be ones who are readily able to regress to a "childish" or less serious frame of mind, and to (at least temporarily) cast off the constricting roles of adulthood.

Empirical investigations. A number of studies have investigated individual differences in sense of humor (broadly defined) based on Freudian theory, although not all the hypotheses listed above have been addressed. The majority of the research has focused on Freud's theory of jokes rather than humor, and his theory of the comic has been virtually ignored. In addition to the studies described here, some other research that is germane to Freud's theory of humor (in the narrow sense) will be discussed later in the section on humor as a coping mechanism.

Levine and his colleagues published a series of theoretical and empirical papers based on psychoanalytic theory. Laffal et al. (1953; cf. also Levine & Redlich 1955) presented an anxiety-reduction theory of humor, in which they reconceptualized Freud's notion of a saving in psychic energy in terms of anxiety reduction. They suggested that jokes that are perceived as funny touch on anxiety-arousing themes, such as aggression and sexuality, that are normally repressed or suppressed by the individual. Thus, a joke initially evokes feelings of anxiety, which are then suddenly reduced by the punch line. The pleasure of the joke derives from this sudden reduction in anxiety, and greater reductions in anxiety are associated with greater pleasure and mirth. If the anxiety produced by the joke is too great, however, the punch line will be inadequate for reducing it, and the response will be one of aversion, disgust, shame, or even horror. On the other hand, if the individual experiences no arousal of anxiety with a particular joke, the response will be one of indifference.

To investigate these hypotheses, Redlich et al. (1951) developed the Mirth Response Test as a means of assessing the types of humor that individuals prefer and thereby drawing inferences about their basic needs and conflicts. This test consisted of a series of 36 cartoons that were judged to tap a variety of themes, such as aggression against authority, sexuality, and so on. Subjects were presented each cartoon individually, and their spontaneous verbal and nonverbal responses were noted. They were subsequently asked to sort the cartoons according to the degree to which

they liked or disliked them or had a neutral response to them, and finally they were asked to explain the meaning of each cartoon. Jokes that elicited mirth and enjoyment were assumed to contain themes relating to the individual's underlying needs and conflicts, whereas those that were viewed with indifference contained themes that were irrelevant to the individual. Negative responses to jokes, particularly those associated with a failure to "get" the joke, were seen as indicative of powerful and threatening unresolved needs or conflicts in the individual.

Levine and Abelson (1959) used the Mirth Response Test in a study of 45 hospitalized schizophrenics, 27 hospitalized patients with anxiety disorders, and 24 normal controls. The cartoons were first rated by a number of psychiatrists for the degree to which they evoked potentially disturbing themes such as open aggression and sexuality. Among the patients (who presumably had a greater number of unresolved conflicts and repressed impulses) mirth responses to the cartoons were strongly negatively related to these clinician ratings of disturbingness ($r = -.73$), the least disturbing cartoons being viewed as most humorous and enjoyable. In contrast, the non-patient controls showed a curvilinear relationship between their mirth responses and disturbingness of the cartoons, preferring those that were moderately disturbing and disliking those that were either very low or very high in level of disturbingness. These results were taken to be supportive of psychoanalytic theory. Other studies by Levine and colleagues using this test include Abelson and Levine (1958), Levine and Rakusin (1959), and Levine and Redlich (1960).

A number of studies have examined Freud's hypothesis that enjoyment of hostile jokes is related to repressed aggressive drives. Contrary to psychoanalytic theory, most of these have found that aggressive humor is enjoyed more by individuals who express hostility and aggression rather than by those who suppress or repress it. For example, Byrne (1956) presented 16 cartoons that were judged to reflect hostility and 16 non-hostile cartoons to 45 male psychiatric patients who had been rated by staff as either overtly hostile, covertly hostile (passive-aggressive), or nonhostile (compliant). The results revealed that both overtly and covertly hostile patients, as compared to nonhostile patients, rated the hostile cartoons as more funny. Thus, individuals who exhibited hostile behavior in their interactions with others were more likely to enjoy cartoons that reflected hostile themes. Byrne argued that these results contradicted Freudian theory and were more consistent with learning theory. Similar conclusions were made by Ullmann and Lim (1962), who found greater appreciation of hostile cartoons among psychiatric patients categorized as "facilitators" (defined as acting out inappropriately and externalizing responsibility for problems) than among those labeled "inhibitors" (defined as suppressing impulses by means of denial and repression). Taking a somewhat different approach, Epstein and Smith (1956) found no relationship between the degree to which subjects repress hostility and their enjoyment of cartoons containing hostile or aggressive themes.

Other investigators have examined the hypothesis, derived from Freudian theory, that individuals who repress their sexual drives should be more likely to enjoy sexual humor. As with the research on aggressive humor, the results tend to contradict psychoanalytic theory, indicating instead that subjects who are *less* sexually inhibited are more likely to enjoy sexual humor. For example, Ruch and Hehl (1988a) administered measures of sexual attitudes and behaviors as well as a humor appreciation test (the 3 WD, described below) to 115 male and female university students. Contrary to predictions of psychoanalytic theory, they found that sexual cartoons were rated significantly funnier by subjects with more positive attitudes toward sexuality, greater sexual experience and enjoyment, higher sexual libido and excitement, and lower prudishness. Similarly, Prerost (1983a, 1984) found that both male and female subjects with higher levels of sexual experience and enjoyment showed greater enjoyment of sexual cartoons. Interestingly, these studies also showed that more sexually active individuals enjoy all types of humor, regardless of content, more than do less sexually active individuals. Thus, the expression and enjoyment of sexual activities, rather than repression of sexuality, seems to be associated with enjoyment of humor generally and sexual content humor in particular.

A study by Holmes (1969) bears on the psychoanalytic hypothesis that psychopaths will show less enjoyment of humor because they are less prone to inhibit unacceptable impulses. Male hospital employees' tendencies toward psychopathy were assessed by means of the Psychopathic Deviate scale (Pd) of the Minnesota Multiphasic Personality Inventory (MMPI). They were also shown a series of slides containing cartoons that had been identified by the researcher as hostile, sexual, or nonsense. The subjects' reaction times for "getting" each joke were obtained, as well as their ratings of funniness. The results indicated that those with greater psychopathic tendencies responded more quickly to the cartoons overall and enjoyed sexual and hostile cartoons more than nonsense. In contrast, those with lower psychopathic tendencies enjoyed all three types of cartoons equally. Thus, these findings also cast doubt on psychoanalytic theory, indicating that greater impulse expression, rather than suppression of impulses, is related to the enjoyment of humor involving impulse gratification.

However, Rosenwald (1964) criticized the rationale of these studies, arguing that overt expression of an impulse such as aggression does not necessarily mean that there are no inhibitions against that impulse. He suggested that enjoyment of a joke does not simply reflect unconscious conflicts or anxiety associated with the theme of the joke, but rather the degree to which the individual is able to relax inhibitions or defenses. If a person rigidifies inhibitions in response to a joke, he or she will not find it amusing, but if the person is able to momentarily release inhibitory energies, the joke will be found to be funny. Rosenwald administered the Thematic Apperception Test to 29 male high school students to assess their "ease of discharge

of inhibitions." In addition, he used the Mirth Response Test to assess their appreciation for hostile cartoons. The results showed that subjects with flexible inhibitions enjoyed hostile humor more than did either those with overly constricted inhibitions or those with impulsivity and lack of inhibitions. These findings were taken to be supportive of Freudian theory.

Other investigations based on psychoanalytic theory have focused on the relationship between humor appreciation and trait anxiety. Doris and Fierman (1956) administered the Mirth Response Test to college students who had been identified as either extremely high or extremely low on trait anxiety using a self-report scale. Highly anxious subjects rated aggressive cartoons as less funny than did those who were low on anxiety. These differences were particularly strong when subjects were tested by an experimenter of the opposite sex, in which case highly anxious subjects rated all forms of humor (sexual, aggressive, and nonsense) as less funny. Similarly, a study by Hammes and Wiggins (1962) found that male (but not female) subjects who were high on trait anxiety rated 30 *Peanuts* comic strips as less funny as compared to those who were low on trait anxiety. Spiegel et al. (1969), however, found a similar negative correlation between funniness ratings of cartoons and trait anxiety, but only in *female* subjects and only with nonsense cartoons. Trait anxiety was unrelated to funniness ratings of cartoons containing sexual themes in either males or females. Thus, the relationship between trait anxiety and humor appreciation remains unclear.

O'Connell (1960) criticized earlier studies inspired by psychoanalytic theory for their failure to distinguish between wit (i.e., jokes) and humor. He pointed out that, in Freudian theory, wit is seen as a means of indirect expression of latent hostile urges, whereas humor is "associated with empathy that still is not overwhelmed by the misfortunes of others, with suitably flexible emotionality, with little use of repression, and with tolerance for oneself and others" (O'Connell 1960: 263). He further distinguished between hostile ("tendentious") wit and nonsense ("nontendentious") wit, which relies on incongruity and play on words without containing hostile or aggressive themes. In order to assess individual differences in appreciation for these three different types of mirthful stimuli, O'Connell developed the Wit and Humor Appreciation Test (WHAT). This test was composed of 30 jokes, 10 of which were judged by a panel of clinical psychologists to represent hostile wit, 10 nonsense wit, and 10 humor. Subjects were instructed to rate the degree to which they liked or disliked each joke on a scale from 0 to 4. The test was administered in classrooms to 332 college students who had previously completed a measure of psychological adjustment. Half of the subjects completed the measure under conditions of stress, in which they were verbally berated and criticized by an instructor. The results showed some support for several hypotheses derived from psychoanalytic theory. Overall, well adjusted subjects showed greater appreciation for jokes

representing humor (as distinct from wit) than did maladjusted subjects. Among the males, as predicted, maladjusted subjects appreciated hostile wit more than did well adjusted subjects under nonstressful conditions, while well adjusted subjects showed greater appreciation for hostile wit than did maladjusted subjects under stressful conditions. However, the predictions were not borne out by the females, as well adjusted female subjects showed greater appreciation for hostile wit than did maladjusted ones, regardless of condition. A subsequent investigation by O'Connell (1969a) found a significant correlation between the appreciation of humor (as distinct from wit) on the WHAT and an impunitive orientation toward aggression in stories created by the subjects ($r = .26$). Other research using this measure is reviewed by O'Connell (1976).

Wilson and Patterson (1969) also investigated individual differences in humor from a psychoanalytic perspective. They hypothesized that people vary in the degree to which it is necessary for the sexual and aggressive content of jokes to be disguised in order for humorous affect to be evoked. They constructed a test composed of a number of cartoons that were judged to differ along a continuum of "tendentiousness," from those based on puns and simple incongruity to "sick" and overtly sexual humor. Subjects were asked to rate the funniness of these cartoons, and were also administered a test of conservatism, which may be seen as a measure of strictness of superego function or degree of internalization of societal rules. As predicted, conservative subjects were more likely to enjoy the "nontendentious" cartoons, whereas liberal subjects found the "tendentious" cartoons to be funnier.

Finally, Juni (1982) investigated the hypothesis, derived from Freudian theory, that appreciation of jokes varies directly with the degree to which the individual is fixated on the themes contained in the joke. He had 104 college students rate the funniness of 18 jokes in which the punch lines were judged to represent either oral, anal, or sadistic fixations. In addition, the subjects were administered the Rorschach inkblot test, and their responses were rated for the degree of fixation in each of these areas. In support of the psychoanalytic hypotheses, the results revealed (albeit only for females) that there were significant correlations between the funniness ratings of each of the three categories of jokes and the presence of corresponding themes in the Rorschach responses.

In summary, investigators who have examined individual differences from the psychoanalytic perspective have tended to focus on humor *appreciation*, defining sense of humor in terms of the *content* of the jokes and cartoons that people find most funny. In keeping with Freud's emphasis on libidinal drives, aggressive and sexual themes in the humor materials have been of particular interest. Although limited support has been found for some Freudian hypotheses, there is little evidence that the level of enjoyment of jokes and cartoons is directly related to the degree to which the impulses they convey are repressed. Instead, the bulk of the evi-

dence suggests that people laugh most at humor relating to impulses that they themselves *express* overtly in their behavior and attitudes, rather than repress. Investigations derived from psychoanalytic theory have generally made use of a variety of *ad hoc* measures composed of cartoons or jokes that were selected by the researchers or trained judges as representative of various content themes. Since different investigators have used different assessment instruments, it is difficult to compare results across studies. Attempts to validate the categorizations of the humor materials through methods such as factor analysis or multimethod approaches have generally not been made by psychoanalytically-oriented researchers. A study by Groch (1974a) highlights the questionable validity of these types of measures. She had college students complete O'Connell's Wit and Humor Appreciation Test, as well as rating the funniness of humorous photographs and literary selections. The results showed very little evidence of consistent individual differences in the types of humor that subjects preferred across the different types of media. In addition, Babad (1974) found no correlations between scores on a humor appreciation test and sociometric peer ratings of subjects' sense of humor.

Incongruity theories

Outline of the theory. Whereas psychoanalytic theory emphasizes emotion and motivation, incongruity theories focus on the cognitive elements of humor. According to this approach, humor involves the bringing together of two normally disparate ideas, concepts, or situations in a surprising or unexpected manner. Incongruity theories may be traced to the writings of Kant and Schopenhauer. According to Kant, "laughter is an affection arising from the sudden transformation of a strained expectation into nothing" (quoted by Piddington 1963: 168). In other words, that which is originally perceived in one (often serious) sense is suddenly viewed from a totally different (usually implausible or ludicrous) perspective, and the original expectation bursts like a bubble, resulting in a pleasurable experience accompanied by laughter. Similarly, Schopenhauer stated that "the cause of laughter in every case is simply the sudden perception of the incongruity between a concept and the real objects which have been thought through it in some relation, and laughter itself is just the expression of this incongruity. ... All laughter then is occasioned by a paradox." (quoted by Piddington 1963: 172).

Summarizing the cognitive elements involved in humor, Eysenck (1942: 307) stated that "laughter results from the sudden, insightful integration of contradictory or incongruous ideas, attitudes, or sentiments which are experienced objectively." The incongruity approach to humor was further elaborated by Koestler (1964), who coined the term "bisociation" to refer to the juxtaposition of two normally incon-

gruous frames of reference, or the discovery of various similarities or analogies implicit in concepts normally considered remote from each other. According to Koestler, the process of bisociation occurs in scientific discoveries and artistic creativity as well as in humor. Humor is thus seen as part of the creative activity of humans. There has been some debate among cognitively-oriented humor theorists as to whether incongruity alone is a necessary and sufficient condition for humor (e.g., Nerhardt 1976) or whether its resolution is also important (Suls 1983).

Implications for individual differences. With regard to individual differences, one implication of incongruity theories is that sense of humor is closely associated with creativity and, perhaps, intelligence. O'Connell (1976: 327) suggested that the individual with a sense of humor "is skilled in rapid perceptual-cognitive switches in frame of reference", an ability which is also presumably important in creativity more generally. Based on incongruity theory, sense of humor as a form or domain of creativity has been discussed by a number of writers, including Bleedorn (1982), Ferris (1972), Murdock and Ganim (1993), O'Connell (1969a), Treadwell (1970), Wicker (1985), and Ziv (1980). This approach is most congenial with definitions of sense of humor that emphasize humor production or comprehension rather than appreciation, and with measurement approaches that emphasize ability, performance, and behavioral observation rather than self-report. Measures of humor production typically involve having subjects create humorous captions for cartoons or improvise humorous monologues, which are subsequently rated by "expert judges" for degree of funniness or wittiness.

A second approach to applying incongruity theories of humor to individual differences conceptualizes sense of humor in terms of differences in cognitive style, including concepts such as cognitive complexity, tolerance of ambiguity, need for certainty, and so on. For example, the degree to which individuals enjoy humor in which the ambiguity is fully resolved, as opposed to nonsensical or highly incongruous humor, may be a function of the degree to which they more generally prefer structure, certainty, and predictability in their lives. Individuals who are more cognitively complex may enjoy humor with a more complex structure, whereas those who are more concrete in their cognitive orientation may prefer less ambiguous humor. Thus, sense of humor may be viewed as a form of cognitive trait. In contrast to the creativity-related approach, this approach to sense of humor places more emphasis on humor *appreciation* rather than production, and, in contrast to the psychoanalytic approach, it focuses particularly on the *structure* of the preferred humorous stimuli rather than their content or themes. Measurement of sense of humor in this context would take a "typical performance" rather than a "maximal performance" or ability approach. Research by Ruch and colleagues is particularly germane to this approach to sense of humor. As discussed below in the section on

factor analytic approaches, these researchers have found separate humor appreciation factors for nonsense and incongruity-resolution humor, which are in turn related to differences in traits relating to cognitive style and conservatism. This research is also presented in more detail in the chapter by Ruch and Hehl in this volume.

Empirical investigations. A number of researchers have investigated sense of humor as a form of creativity. Babad (1974) examined the degree to which general creativity is related to both humor appreciation and humor production. He had 77 subjects complete two tests of creativity, as well as a humor production test (creating humorous captions for cartoons), and a humor appreciation test (rating the funniness of a number of jokes and cartoons). As expected, scores on the creativity tests were significantly correlated with the rated funniness of subjects' humor productions, but not with humor appreciation scores.

Brodzinsky and Rubien (1976) had undergraduates complete the Remote Associates Test (RAT) as a measure of creativity or divergent thinking ability, along with a Humor Production Test. The latter was composed of 12 cartoons with captions removed, and subjects were instructed to make up humorous captions which were subsequently rated for funniness by trained judges. A significant correlation was found between creativity scores on the RAT and rated funniness of the cartoon captions. Clabby (1980) also defined sense of humor in terms of production. He had subjects complete a number of humor-production tasks, such as "write a funny presidential campaign slogan". The rated funniness of these responses was found to be significantly correlated with a measure of creativity that involved thinking of uncommon uses for five objects ($r = .33$). Rouff (1975) conceptualized sense of humor in terms of humor comprehension rather than production. Subjects were asked to explain the point of each of 20 cartoons, and these explanations were subsequently rated for the degree to which they indicated a grasp of the main incongruity in each cartoon. A significant correlation ($r = .37$) was found between this humor comprehension score and the RAT, even after controlling for intelligence.

Behavioral observations were used to assess sense of humor in a study by Fabrizi and Pollio (1987a). They observed classrooms of 7th and 11th graders and coded the amount of "humor behavior" of each child using their Humor Observation System. Subjects were judged to have created humor each time they said or did something that led to another person smiling or laughing. In addition, they obtained teacher ratings of each student's sense of humor as well as peer nominations for "the funniest person in the class". They measured creativity in the students by means of the Torrance Test of Creative Thinking, which provides scores for fluency, flexibility, originality, and elaboration. The students were also administered a self-esteem measure. The results indicated that, among 7th graders, humor production and peer rat-

ings of humor were not correlated with creativity, but were *negatively* correlated with self-esteem, indicating that children with lower self-esteem were more likely to do and say things that would make others laugh. In contrast, among 11th graders, humor production was positively correlated with the test of creativity, particularly originality and elaboration, but not with self-esteem. These authors concluded that "being funny may be a sign of creativity in a well-functioning and self-assured person; being funny may be a sign of acting out in a not so well-functioning or not so self-assured person" (Fabrizi & Pollio 1987a: 760).

A few investigators have also examined the relationship between sense of humor and intelligence. Whereas creativity is usually conceived as involving divergent thinking in which multiple solutions are acceptable, intelligence relates to convergent thinking abilities and is measured using tests in which only certain answers are accepted as correct. Intelligence is not related to general humor appreciation (Koppel & Sechrest 1970), but may be involved in humor comprehension and some aspects of humor production. Thus, Levine and Redlich (1960) found a strong correlation between intelligence and subjects' ability to explain the point of a series of jokes ($r = .75$). Similarly, Feingold and Mazzella (1991) found significant relationships between verbal intelligence and a construct that they called humor cognition, which was measured with tests of humor reasoning and joke comprehension. However, intelligence was unrelated to memory for humor. For a fuller discussion of the role of intelligence versus expertise in sense of humor, see the chapter by Derks et al. (this volume).

In summary, research derived from incongruity theory focuses on the cognitive aspects of sense of humor, and particularly the creative thought processes that are involved in humor production and comprehension. In addition, incongruity theory gives rise to conceptualizations of sense of humor that emphasize differences in cognitive styles. A considerable amount of research has found support for a close relationship between the ability to create humor and creative abilities more generally. Further research is needed, however, to elucidate the cognitive processes involved in the generation of humor as well as the antecedents and correlates of personality traits relating to humor creativity.

Superiority/disparagement theories

Outline of the theory. Superiority or disparagement theories are among the oldest theories of humor, dating back to Plato and Aristotle. Aristotle, for example, concluded that laughter arises primarily in response to weakness and ugliness. The superiority approach is epitomized in Thomas Hobbes' famous statement that "the passion of laughter is nothing else but some sudden glory arising from some sudden

conception of some eminence in ourselves, by comparison with the infirmity of others, or with our own formerly" (quoted by Piddington 1963: 160). Thus, humor is thought to result from a sense of superiority derived from the disparagement of another person or of one's own past blunders or foolishness. More modern theorists who have taken the superiority approach include Bain (1865), Bergson (1911), Leacock (1935), Ludovici (1932), and Sidis (1913). Gruner (1978, 1997) is one of the most outspoken contemporary champions of this approach. He stated that "*ridicule* is the basic component of all humorous material, and ... to understand a piece of humorous material it is necessary only to find out who is ridiculed, how, and why" (Gruner 1978: 14). He further proposed that "what is necessary and sufficient to cause laughter is a combination of a loser, a victim of derision or ridicule, with suddenness of loss" (Gruner 1978: 31). Gruner concurred with Rapp's (1949, 1951) phylogenetic theory which suggests that humor evolved in humans from the laughter of triumph in battle, through mockery and ridicule, to word-play, jokes and riddles. Gruner also rejected Freud's distinction between jokes and humor, arguing that, although there are some relative differences between the two, both are based on superiority and disparagement.

Implications for individual differences. Proponents of the superiority/disparagement approach to humor have not typically discussed individual differences in sense of humor, focusing instead on the dynamics that are presumed to occur in all individuals when they engage in humor and laughter. Indeed, LaFave et al. (1976) explicitly argued that there is no such thing as "sense of humor", referring to this concept as a "myopic illusion". Nonetheless, this approach suggests that differences in sense of humor relate to the kinds of things that people find amusing, which in turn have to do with their attitudes toward the target or "butt" of the humor. People are more likely to laugh at jokes that disparage or ridicule people whom they do not like, and less likely to laugh at jokes that disparage people with whom they identify. Thus, much like psychoanalytic theory, this theoretical approach leads to a focus on differences in the *content* of the humor that people *appreciate* or enjoy. Researchers who have taken this approach have tended to focus on group differences, examining the degree to which members of particular groups are amused by humor that disparages members of their own versus other groups. However, the approach could also be extended to individuals apart from their group memberships. A catalog of the types of "butts" or joke targets that an individual finds acceptable or unacceptable, as reflected in the degree of amusement shown, would presumably reflect that person's attitudes toward the various groups or categories of people.

Another possible implication of this theory would be that sense of humor is positively related to general traits of aggression, hostility, or dominance. If humor al-

ways involves some aggressive element, then those who enjoy and express humor most, regardless of the content or type of humor involved, would be expected to be most aggressive. However, researchers who have investigated the relationship between aggressive personality traits and humor appreciation have tended to focus more narrowly on the appreciation of aggressive or hostile humor in particular, rather than humor in general. Thus, they have tended to view superiority theory as applying to only a subgroup of humor rather than to all types of humor.

Empirical investigations. Investigators taking the group differences approach have hypothesized that people will find humor in the misfortunes of those toward whom they have some antipathy. Wolff et al. (1934) conducted early empirical work taking this approach. They distinguished between "affiliated objects" and "unaffiliated objects." Affiliated objects are "those objects towards which a subject adopts the same attitude as he does towards himself" (Wolff et al. 1934: 344), and include one's friends, place of habitation, race, native land, religion, and so on. According to Wolff and colleagues, humor derives from an enhancement of oneself and one's affiliated objects, and a disparagement of non-affiliated objects and people. Their basic formula for humor is contained in the thema "an unaffiliated object in a disparaging situation" (Wolff et al. 1934: 344). Wolff et al. tested out their hypotheses by presenting a series of anti-Jewish jokes to both Jewish and non-Jewish subjects. As predicted, the Jewish subjects, as compared to the non-Jews, displayed less appreciation for these jokes, as reflected in the amount of laughter displayed and in their spontaneous and elicited evaluations. In addition, men showed more appreciation for jokes ridiculing women than women did, while women exceeded men in their appreciation of jokes ridiculing men.

However, mere membership in a particular racial or religious group may not be sufficient for predicting a person's response to jokes concerning that group. Middleton (1959) found that, although Black subjects exceeded Whites in their appreciation of jokes disparaging Whites, Blacks and Whites did not differ in their appreciation of anti-Black jokes. He speculated that this was due to the fact that the Blacks in his sample, who were predominantly middle-class, may not have identified themselves with the stereotypical lower-class Blacks depicted in the jokes.

Based on these findings, Zillmann and Cantor (1976) emphasized the importance of assessing individuals' attitudes toward a target group, rather than relying merely on their group membership. They proposed a "dispositional model of humor", in which they posited that individuals' disposition toward other people or objects varies along a continuum from extreme positive affect through indifference to extreme negative affect. They hypothesized that "humor appreciation varies inversely with the favorableness of the disposition toward the agent or entity being disparaged, and varies directly with the favorableness of the disposition toward the agent

or entity disparaging it" (Zillmann & Cantor 1976: 100). According to these authors, an individual's disposition toward the target of a joke is not necessarily a permanent trait, but may be a temporary attitude evoked by the situation, including even features of the joke itself. Importantly, though, they emphasized that humor always involves disparagement of some form: "something malicious and potentially harmful must happen, or at least, the inferiority of someone or something must be implied, before a humor response can occur" (Zillmann & Cantor 1976: 101).

Zillmann and Cantor (1972) found evidence in support of this theory in a study in which a group of college students and a group of middle aged business and professional people were presented jokes involving people in superior-subordinate relationships (father-son, employer-employee, etc.). As predicted, students gave higher ratings of funniness to the jokes in which the subordinate disparaged his superior than to those in which the superior disparaged his subordinate, whereas the ratings of the professionals revealed the opposite relationship. In another study, Zillmann et al. (1974) found that subjects' enjoyment of cartoons disparaging various political candidates was correlated with their negative attitudes toward those candidates.

Research by LaFave and his colleagues (reviewed by LaFave et al. 1976) is also representative of the group-differences approach to superiority/disparagement theory. Their theory employed the concept of the "identification class," which is either a positive or negative attitude-belief system regarding a given class or category of persons. These authors also emphasized the importance of self-esteem in humor appreciation. Jokes that enhance a positively-valued identification class or disparage a negatively-valued identification class increase the individual's self-esteem and lead to greater mirth and enjoyment. LaFave et al. (1976) reviewed a series of five studies that provided general support for their theory. Each of these studies examined humor appreciation responses in subjects holding opposing views on different social issues, such as religious beliefs, women's liberation, and Canadian-American relations. The subjects were asked to rate the funniness of jokes in which individuals identified with one or the other of these opposing views were either the protagonist or the target of disparagement. As predicted, subjects rated the jokes as funnier when the protagonist was a member of a positively valued identification class and the target was a member of a negatively valued identification class.

Besides the group differences approach, investigations of individual differences in humor from the superiority/disparagement perspective have examined personality correlates of appreciation of hostile or disparagement humor. In this approach, rather than focusing on attitudes toward a particular target group, researchers have tended to examine more general personality traits and responses to a broader range of aggressive humor. The study by Murray (1934) is an early example of this type of investigation. Following up on the study of Wolff et al. (1934), Murray hypothe-

sized that subjects who respond positively to disparagement humor in general would be characterized by "a predominant disposition for aggression" (such as a need for destruction, combat, or sadism), or "at least a predominant disposition for ascendance (need for superiority, instinct for self-assertion, will to power)". To test this hypothesis, he developed one of the first humor tests, composed of 10 aggressive jokes, which disparaged people in general, and 6 non-aggressive control jokes. Responses to the jokes were measured in three ways: degree of laughter, spontaneous appraisal, and elicited appraisals. Thirteen subjects were administered this humor test as well as four self-report measures of aggression and self-reliance. The results revealed high correlations between the appreciation of the aggressive jokes and measures of egocentric, aggressive, and antisocial *attitudes*. However, much weaker correlations were found between the humor appreciation scores and measures of negativistic, aggressive, or irritable *behavior*. Drawing also on autobiographical reports of the subjects, Murray (1934: 81) concluded that enjoyment of aggressive jokes is an indication of "repressed malice, that is, of an unconscious need for destruction", rather than overt aggressive behaviors. He suggested that these findings were more supportive of psychoanalytic theory than of superiority theory.

Several other investigations in this domain were reviewed earlier in the discussion of psychoanalytic approaches. For example, the studies by Byrne (1956), Ullmann and Lim (1962), and Rosenwald (1964) investigated the relationship between the enjoyment of hostile or aggressive jokes and cartoons and the degree to which one expresses hostile impulses. Although they were conducted to test Freudian hypotheses, these studies may also be viewed as investigations of superiority/disparagement theory. Another study that examined the relationship between humor preferences and aggression is that of Hetherington and Wray (1964). Using standardized self-report scales, these authors identified subjects as high or low in need for aggression and need for approval (social desirability). Subjects were asked to rate the funniness of 15 aggressive and 15 nonsense cartoons either after having consumed alcohol or in a no-alcohol condition. The results indicated that, overall, highly aggressive subjects rated aggressive cartoons as funnier than nonsense cartoons. However, those who were high in aggression but also high in need for approval (suggesting a tendency to inhibit their aggression) showed enjoyment of the aggressive cartoons only when they were under the influence of alcohol. The authors concluded that the enjoyment of hostile or aggressive humor is related to aggressive personality characteristics, although the expression of aggressive humor preferences may be inhibited by a need for social approval in some aggressive individuals. This inhibition, in turn, may be attenuated by alcohol intake.

Taking a somewhat different approach, Gruner (1990; Gruner et al. 1991) has examined individual differences in the appreciation and understanding of satirical writing. These investigations have demonstrated correlations across subjects' ratings of

funniness of different satirical essays, suggesting a generalized "appreciation of satire" dimension. Although studies have not been conducted to determine the discriminant validity of this trait from appreciation of humor more generally, it has been found to be uncorrelated with a self-report measure of sense of humor. Gruner (1985) reported that the ability to understand the point of satirical writing is related to high verbal intelligence and low levels of dogmatism.

In summary, the superiority/disparagement approach leads to a focus on the ways in which negative or hostile *attitudes* are expressed through humor. Researchers taking this approach have varied in the degree to which they consider all humor to convey feelings of superiority or disparagement, or only a subset of humor. Although strict adherence to the theory would seem to suggest that enjoyment of humor generally should be associated with aggressive or dominant personality traits, most research has focused only on enjoyment of certain types of humor (disparagement humor). It appears to be fairly well established that people laugh more at jokes that disparage people toward whom they have negative attitudes and laugh less at jokes that disparage those with whom they identify. However, Suls (1977) has argued that disparagement humor may be accounted for by incongruity-resolution theory.

Approaches to the sense of humor

The previous section discussed three broad theoretical approaches to humor in general, and examined their implications for an understanding of individual differences in sense of humor. Investigations that were explicitly inspired by these theories were reviewed. In the present section, I examine several other theoretical approaches that have been taken by investigators of sense of humor that do not clearly fit into these broader humor theories. Rather than develop theories of humor generally, these researchers have tended to focus more specifically on sense of humor as a personality variable.

An early diary study approach

One of the earliest empirical investigations of individual differences in sense of humor was conducted by Kambouropoulou (1926, 1930). By having subjects record the daily experiences that caused them to laugh, she sought to determine whether there was any evidence of consistent individual differences in preferences for types of humor, and whether these differences were related to other personality dimensions. One hundred female students at Vassar College completed daily diaries of humor ex-

periences over seven days. They also filled out a self-report measure of introversion-extraversion (in the Jungian sense) and were rated by their friends for sense of humor. On average, the subjects reported 6 mirthful experiences per day. The descriptions of these experiences were subsequently classified into five categories: (1) laughter without humor (including nervous laughter and spontaneous social laughter); (2) laughter at the perceived inferiority of other people; (3) directed attempts at making people inferior (teasing, witty repartee, etc.); (4) incongruous situations; and (5) incongruous ideas. The second and third categories were further grouped into a personal superiority class, and the fourth and fifth into an impersonal incongruity class. The former class is reminiscent of superiority/disparagement theories of humor, whereas the latter relates to incongruity theories. Approximately 65% of the humor incidents were classified as belonging to the superiority category, while only 33% were of the incongruity type. Support for the notion of consistent individual differences in sense of humor was provided by the finding that subjects' ratings of the funniness of a number of jokes classified as reflecting superiority versus incongruity corresponded significantly with the proportions of humor events of the corresponding types recorded in their diaries ($r = .33$). Correlational analyses also revealed that the proportion of events involving incongruous ideas was positively related to the subjects' grade-point average, whereas laughter without humor was negatively related to academic success. Significant differences were also found in the humor preferences of introverted and extraverted subjects. Extraverts recorded a greater proportion of superiority humor events, whereas introverts preferred incongruity humor ($r = .59$). When extraversion was broken down into separate factors, the superiority type of humor was found to be most strongly related to social confidence rather than sociability. Extraverted subjects were also rated by their friends as having a greater sense of humor, and friends' ratings of humor were particularly related to the proportion of superiority humor rather than incongruity humor in the subjects' diaries. In sum, Kambouropoulou's research provided early evidence that individual differences in sense of humor can be identified and measured, and began to map out some of the correlates of these traits.

Factor analytic approaches to humor appreciation

As we saw earlier, a number of researchers have attempted to test various theories of humor by constructing tests in which subjects rate the funniness of a number of different types of jokes or cartoons. The categories of humorous stimuli used in these tests were derived *a priori* from the particular theories under investigation (e.g., hostile versus sexual jokes in psychoanalytic investigations). The groupings of the stimuli were made on a rational basis by the investigators themselves or by groups

of "trained judges." However, the validity of these tests is questionable. Since only a small number of jokes were usually selected by individual researchers on the basis of theory, it is unlikely that they were representative of the broad spectrum of humor. Also, as Eysenck (1972) pointed out, individuals vary considerably as to what aspects of a joke or cartoon they find salient and why they consider it to be funny or unfunny. Thus, the dimensions used by a researcher in categorizing humorous stimuli may not be relevant to the ways in which the subjects themselves perceive and respond to them. In this regard, Landis and Ross (1933) found no relationship between subjects' classifications of a number of jokes and the way they had been classified by the experimenters, even when subjects were provided with the categories and their definitions. An alternative approach to investigating individual differences in humor appreciation makes use of factor analysis techniques to develop a "taxonomy of humor". Rather than constructing a test based on a particular theory, this approach seeks to build a theory on the basis of empirically-derived factor dimensions. Proponents of this approach have argued that it is more scientifically valid and less dependent on philosophical conjecture.

Eysenck. Early in his research career, Eysenck (1942, 1943) turned his attention to the empirical investigation of individual differences in sense of humor (reviewed by Nias 1981). Noting that most theories of humor were developed by philosophers and based on speculation, Eysenck sought to develop a theory based on empirical evidence. In so doing he was one of the first researchers to apply factor analytic methods to determine categories of humor. Eysenck (1942) administered collections of verbal jokes, cartoons, and incongruous photographs to 16 subjects, who were asked to rank order them for funniness and to indicate which ones they enjoyed. Subjects' enjoyment ratings across the different types of humor stimuli (jokes, cartoons, photographs) were significantly correlated, indicating that those who enjoyed one type of humorous stimulus also tended to enjoy the others. Factor analyses of these groups of humorous stimuli revealed a small general factor, indicating that there is some agreement across individuals in ratings of the funniness of such stimuli. In addition, the analyses indicated three specific factors, which could be used to classify individuals' sense of humor along three dimensions of humor preference. These were labeled as: (1) liking for *sexual* as opposed to *non-sexual* jokes; (2) liking for *simple* as opposed to *complex* jokes; and (3) liking for *personal* as opposed to *impersonal* jokes. The subjects also completed a personality questionnaire, and their scores for various traits were correlated with their humor preference factor scores. Subjects with more extraverted traits (as measured by a social shyness scale) were found to prefer sexual ($r = .42$) and simple jokes ($r = .61$), while those with introverted traits preferred complex and non-sexual jokes. Eysenck suggested that these results cast doubt on the traditional notion that extraverts have a better sense

of humor than introverts, suggesting instead that differences between the two personality types have more to do with the type of humor that they enjoy. The factor analytic findings were generally replicated by Eysenck (1943) in a study in which he administered five sets of humorous stimuli, such as jokes, cartoons, and limericks, to 100 adults representing a broad cross-section of British society.

Based on these findings, Eysenck (1942) proposed a theory of humor suggesting that humor involves three components or facets: cognitive, conative, and affective. The cognitive aspects are emphasized in incongruity theories of humor, the conative in superiority/disparagement theories, and the affective in theories that stress the positive emotions associated with laughter. Freud's theory combines elements of all three components. Eysenck further combined the conative and affective components under the term "orectic", which has to do with the "joyful consciousness of superior adaptation" associated with humor. According to Eysenck, each of these aspects may be present in a given joke to varying degrees, and individual differences in sense of humor may be conceptualized in terms of the degree to which people enjoy humor containing these elements. For example, he suggested that introverts are more likely to enjoy humor in which the cognitive element predominates, whereas extraverts tend to prefer humor in which the orectic aspects are paramount. Further support for this view was provided by Wilson and Patterson (1969) who found a significant correlation between extraversion, as measured by the Eysenck Personality Inventory, and funniness ratings of sexual jokes. However, other researchers have failed to replicate this finding (cf. Ruch 1992).

Basing their study on Eysenck's theoretical framework, Grziwok and Scodel (1956) investigated personality correlates of humor preferences. They had college students rate the funniness of 40 cartoons that had been categorized as either "orectic" (containing sexual and aggressive themes) or "cognitive" (making use of exaggeration, parody, or incongruity). Preferences for orectic humor, as opposed to cognitive humor, were associated with more aggressive responses to the TAT, and more extraversion, less preoccupation with intellectual values, and less psychological complexity on the Allport-Vernon-Lindzey Study of Values.

Andrews. Andrews (1943) also applied factor analytic procedures in an attempt to develop an empirically based theory of sense of humor. He began with several hundred jokes, puns, limericks, and cartoons that seemed representative of a broad range of humor. These were reduced to 24 items on the basis of adequate variances found in initial funniness ratings by a small group of subjects. These 24 items were then administered to 300 subjects, whose funniness ratings were factor analyzed. No general factor of humor was obtained, a finding that Andrews suggested casts doubt on unidimensional humor theories. Instead, he found six orthogonal factors that appeared to account for most of the variance. Although the themes of the comic mate-

rials in these factors were not very clear-cut, Andrews provisionally labeled them as follows: 1) derision-superiority; 2) reaction to debauchery; 3) subtlety; 4) play on words and ideas; 5) sexual; and 6) ridiculous wise-cracks. Although he suggested that this factor structure might form the basis of a well-grounded theory of humor, Andrews made only a limited attempt in this direction.

Cattell and Luborsky. Inspired by Freudian humor theory, Cattell and Luborsky (1947) set out to identify a taxonomy of humor dimensions using factor analytic techniques. They amassed a set of 100 jokes (including 15 markers from Andrews 1943) that were considered to be representative of a broad range of humor and relatively free of cultural bias. A sample of 50 male and 50 female undergraduate students were asked to rate the funniness of each joke on two different occasions. Analyses revealed 13 clusters of jokes that appeared to have adequate internal consistency and test-retest reliability. Subjects' scores on each of these clusters were subsequently factor analyzed, resulting in five fairly orthogonal factors that were tentatively labeled as follows: 1) good-natured self-assertion; 2) rebellious dominance; 3) easy-going sensuality; 4) resigned derision; and 5) urbane sophistication. The authors suggested that these clusters and factors found in joke ratings might correspond to the 12 to 16 general personality factors identified by Cattell (1947).

In a subsequent study, Luborsky and Cattell (1947) examined correlations between 50 subjects' scores on the 13 joke clusters and their scores on 10 personality dimensions measured by the Guilford-Martin temperament inventory. Six of these personality dimensions were found to be correlated with various joke clusters, allowing for further refinement of the cluster labels. The authors were quite sanguine about the possibility of using measurement of these humor appreciation factors as a valid assessment of more general dimensions of personality. These ideas were incorporated into the IPAT Humor Test of Personality (Cattell & Tollefson 1966), which was designed to assess humor preferences in each of these factors as a means of indirectly measuring more general personality traits. However, there is considerable doubt about the reliability of the factors identified by Cattell and Luborsky. For example, Yarnold and Berkeley (1954), using a somewhat different approach, factor analyzed the funniness ratings of the same set of jokes and obtained an entirely different structure of seven factors.

Abelson and Levine. Abelson and Levine (1958) conducted a factor analysis of 106 psychiatric patients' responses to the Mirth Response Test (described earlier). Besides analyzing subjects' positive appreciation responses to the cartoons, they conducted a separate factor analysis of negative "disliking" responses. The appreciation responses resulted in three factors, which were labeled (1) interpersonal hostility; (2) voyeurism-exhibitionism; and (3) self-degradation. These were interpreted as relating

to Freud's distinction among aggressive, sexual-obscene, and cynical wit, and appreciation of each type of cartoon was seen as indicating a vicarious indulgence of these impulses. Four factors were found with the Dislike ratings, labeled: (1) uncivilized or hostile behavior; (2) victimization or trickery of others; (3) overt display of female sexuality; and (4) impudent disrespect for cherished institutions. These were seen as representing areas of superego prohibition, and negative reactions to cartoons of a given category were assumed to indicate psychologically forbidden activities.

Ruch. Although they provided some suggestive leads, most of the early factor analytic investigations of humor appreciation have doubtful reliability and validity. They tended to extract too many factors based on the specific content of the various humor materials used in the investigations, and were therefore not very stable or replicable. More recently, Ruch (reviewed by Ruch 1992) conducted a series of studies using more systematic and careful factor analytic procedures on a wide assortment of jokes and cartoons with a number of different samples of subjects spanning a broad range of ages, social classes, and nationalities (see also chapter by Ruch & Hehl this volume). Using ratings of both funniness and aversiveness of the humor stimuli, he has consistently found three stable factors of humor. Interestingly, two of these relate to the *structure* of the jokes and cartoons, rather than their *content*. These were defined as *incongruity-resolution* humor and *nonsense* humor. Incongruity-resolution jokes are ones in which the incongruity introduced by the joke is completely resolved and one has a sense of "getting the point", whereas nonsense jokes are those in which the incongruity is not completely resolved and one is left with a sense of absurdity or bizarreness. Thus, regardless of the thematic content of jokes and cartoons, subjects seem to consistently respond differentially to them on the basis of these structural characteristics. In contrast, the third factor that has consistently been found by Ruch does have to do with content, namely *sexual* themes. Although sexual humor may incorporate either incongruity-resolution or nonsense structure, it also appears to form a distinct content factor. Surprisingly, Ruch has found no evidence of a hostility factor in humor appreciation, despite the fact that this has long been assumed to be an important dimension by humor researchers. Ruch constructed the 3 WD (*Witz-Dimensionen*) humor test to assess the degree to which individuals respond favorably and unfavorably to jokes and cartoons in each of these three categories. In a large number of studies, he has investigated the personality correlates of these humor preference dimensions. A major finding has been that incongruity-resolution humor is preferred by individuals who are characterized by conservatism and avoidance and dislike of novel, complex, unfamiliar, and incongruous events. In addition, those who are high in sensation seeking (particularly experience seeking and boredom susceptibility) prefer nonsense over incongruity-

resolution humor. Finally, enjoyment of sexual humor has been found to be related to tough-minded attitudes, disinhibition, and sexual permissiveness.

Multidimensional models of sense of humor

Svebak. Svebak (1974a, b) was one of the first researchers to break with the tradition of focusing on humor appreciation using funniness ratings of jokes, and initiated the measurement of sense of humor using self-report questionnaires. In one of the earliest articles to specifically present a theory of sense of humor, Svebak (1974a) observed that smooth social functioning requires the construction of a shared, rational "social world" that can also be constraining. Sense of humor is "the ability to imagine ... irrational social worlds, and to behave according to such fantasies *within* the existing (real) social frame in such a way that the latter is not brought into a state of collapse" (Svebak 1974a: 99). Thus, "humor may be said to be a defense against the monotony of culture more than against bodily displeasure" (Svebak 1974a: 100). Svebak suggested that individual differences in sense of humor involve variations in three separate dimensions: (1) meta-message sensitivity, or the ability to take an irrational, mirthful perspective on situations, seeing the social world as it might be rather than as it is; (2) personal liking of the humorous role; and (3) emotional permissiveness. The first of these dimensions involves a cognitive ability related to intelligence or creativity, the second has to do with attitudes and defensiveness, and the third involves emotional temperament. Svebak (1974b) constructed a sense of humor questionnaire to measure differences on each of these dimensions, and a considerable amount of research has been conducted with this measure (for a review, see Svebak 1996).

Feingold and Mazzella. More recently, Feingold and Mazzella (1991, 1993) have developed a multidimensional model of "wittiness" that bears some similarity to Svebak's theory. Feingold and Mazzella (1993: 439) defined wittiness as "the ability to perceive in an ingeniously humorous manner the relationship between seemingly incongruous things". Wittiness is displayed in both social interaction (e.g., repartee) and verbal and nonverbal written communication (e.g., humorous fiction, cartoons). Thus, wittiness may be viewed as a narrower concept relating to the perception and communication of clever verbal humor, which may be one facet of the broader concept of sense of humor. These authors hypothesized three dimensions of wittiness: (1) humor motivation, (2) humor cognition, and (3) humor communication. Thus, individual differences in wittiness have to do not only with the person's ability to create humor, but also with the degree to which the person is motivated to be funny and is able to communicate the humor effectively. Humor motivation

and communication are assumed to be related to social and temperamental variables such as sociability and extraversion, whereas humor cognition is more of an intellectual variable related to intelligence and creativity. The authors developed measures of each facet of the model, which were generally found to correlate with each

other and with other variables as predicted.

In another presentation of the model, Feingold and Mazzella (1991) distinguished between two types of "verbal humor ability": (1) memory for humor (akin to crystallized intelligence), which is measured by tests of humor information and joke knowledge; and (2) humor cognition (comparable to fluid intelligence), measured with tests of humor reasoning and joke comprehension. Their research findings revealed significant correlations between traditional measures of verbal intelligence and the tests of humor cognition, whereas memory for humor was not strongly related to intelligence. Humor reasoning was also correlated with the Remote Associates Test, a measure of creative thinking. The authors concluded that humor ability can be distinguished from general intelligence.

Feingold and Mazzella's performance-based approach to testing distinguishes their work from most other approaches. Unlike most other research on individual differences in sense of humor, which has used measures of humor creativity or appreciation in which there are not specific correct answers, several of the measures developed by Feingold and Mazzella are performance tests in which only certain responses are scored as correct. Thus, according to this approach, at least some aspects of sense of humor are akin to performance dimensions such as intelligence rather than to traditional personality traits.

Thorson and Powell. Thorson and Powell (1993) have also recently developed a multidimensional model of sense of humor. In reviewing the humor literature, they identified six dimensions or "elements" that make up an individual's "humor repertoire": (1) recognition of self as a humorous person; (2) recognition of others' humor; (3) appreciation of humor; (4) laughing; (5) perspective; and (6) coping humor. They constructed a self-report test to measure each of these dimensions. Factor analyses of this measure revealed a structure somewhat different from the one they had hypothesized, although it did provide evidence for at least four dimensions of sense of humor.

Humor as liberation

The disparagement/superiority approach to humor, discussed earlier, seems to portray humor as a rather negative human activity, associated with aggression, hostile-

ity, and derision. However, several theoretical approaches to humor, although derived from the disparagement/superiority approach, have taken a more positive perspective, noting that humor enhances one's self-esteem and feelings of competence in the face of external threat. Rather than focusing on the hostile, sarcastic, and derisive aspects of superiority humor, this approach emphasizes the positive feelings of well-being and efficacy, and the sense of liberation and freedom from threat experienced when one is able to poke fun at other people or situations that would normally be viewed as threatening or constrictive. As Holland (1982: 45) pointed out, "we can state the disproportion the other way around, calling the purpose of laughter not so much a glorifying of the self as a minimizing of the distresses menacing the self". Similarly, Kallen (1968: 59) wrote, "I laugh at that which has endangered or degraded or has fought to suppress, enslave, or destroy what I cherish and has failed. My laughter signalizes its failure and my own liberation".

Other authors, such as Knox (1951) and Mindess (1971), have taken an existential approach, emphasizing that a sense of humor provides one with a sense of liberation or freedom from the constraints of life. Thus, Knox (1951: 543) defined humor as "playful chaos in a serious world," and stated that "humor is a species of liberation, and it is the liberation that comes to us as we experience the singular delight of beholding chaos that is playful and make-believe in a world that is serious and coercive" (Knox 1951: 541). Similarly, Mindess noted that our social roles require us to suppress and deny many of our impulses and desires and to conform to our surroundings and the expectations placed on us by others. Although these constraints and routines are beneficial for survival in society, they also lead to feelings of self-alienation and loss of spontaneity and authenticity. Humor, according to Mindess, is a means of coping with this paradox, allowing one to gain a sense of freedom, mastery, and self-respect while continuing to live within life's constraints.

Although proponents of this approach have not generally spoken in terms of individual differences in sense of humor, the approach seems to suggest that individuals with a sense of humor, as compared to their more serious counterparts, tend to be more nonconformist and iconoclastic, taking a more playfully rebellious approach to the most serious and sacred aspects of life, while continuing to embrace life despite its injustice, hypocrisy, and foolishness. An implication would also be that a sense of humor allows for more adaptive and authentic functioning because it helps the individual to avoid becoming overwhelmed by the constraints and demands of life. Unfortunately, this view of humor as liberation is based largely on philosophical speculation, and has not received much empirical investigation.

Sense of humor and psychological health

The notion that humor is associated with feelings of liberation, mastery, and increased self-esteem has led a number of authors to emphasize the importance of a sense of humor as a characteristic of psychological health. Many of these have pointed also to the cognitive aspects of humor as the basis for its salutary benefits. For example, O'Connell (1976) suggested that individuals with a strong sense of humor have the ability to rapidly shift their frame of reference or perspective on a situation. This ability, in turn, allows one to distance oneself from the immediate threat of a stressful situation and therefore reduces the often paralyzing feelings of anxiety and helplessness. May (1953: 54) took a similar approach by suggesting that a sense of humor has the function of "preserving the sense of self... It is the healthy way of feeling a 'distance' between one's self and the problem, a way of standing off and looking at one's problem with perspective." This emphasis on perspective-taking and distancing has also appeared in the writings of Frankl (1969) and Moody (1978). Frankl (1969: 16) asserted that "to detach oneself from even the worst conditions is a uniquely human capability" and that this distancing of oneself from the most aversive of situations derives "not only through heroism... but also through humor" (Frankl 1969: 17). Moody (1978: 4) referred to this ability to detach or distance oneself as intrinsic to humor: "A person with a 'good sense of humor' is one who can see himself and others in the world in a somewhat distant and detached way. He views life from an altered perspective in which he can laugh at, yet remain in contact with and emotionally involved with people and events in a positive way."

Writing from a psychoanalytic perspective, Christie (1994) also extolled the beneficial effects of a "reasonably mature sense of humor." Noting the relationship between humor and creativity, he suggested that humor, through playful regression, allows for the expression and working through of repressed material and facilitates ego-integration and a broader perspective and understanding. Through humor, wrote Christie (1994: 483–484), "the ego is able to allow an 'adaptive regression' (i.e., an active unmasking of unconscious thoughts, feelings, and motives), is able to tolerate the anxiety this may entail, and is then able, through play, to facilitate new creative structuring of the material".

Allport (1961) also discussed sense of humor as a characteristic of the healthy or mature personality. He considered the mature personality to be characterized by a positive and integrated sense of self, warm relationships with others, realistic perceptions, a unifying philosophy of life, and insight. He viewed a mature sense of humor as being closely related to insight, as it involves the ability to laugh at oneself while maintaining a sense of self-acceptance. Quoting the novelist Meredith, Allport (1961: 292) described a healthy sense of humor as "the ability to laugh at the things one loves (including, of course, oneself and all that pertains to oneself), and still to love them". In his study of prejudice, Allport (1954: 437) also discussed

sense of humor as a characteristic of the unprejudiced or tolerant personality. He stated that "one who can laugh at oneself is unlikely to feel greatly superior to others." Allport drew a sharp distinction between such a mature sense of humor and what he referred to as "the cruder sense of the comic", which is more commonly seen in most people, children as well as adults. This more immature form of humor is the sort commonly encountered in the mass media, involving laughter at absurdity, horse play, puns, and jokes that express aggressive and sexual themes. Thus, like Freud, Allport distinguished between a sense of humor that is associated with psychological health and maturity, and humor that is less healthy and more vulgar (and also more common). For Freud, a healthy sense of humor involved the ability to find amusement in threats to one's well-being, whereas for Allport, the focus was more on the ability to find amusement in the incongruities and absurdities within oneself.

Maslow (1954) also described the sense of humor of persons that he characterized as "self-actualizing". He investigated the personality characteristics of a number of historical and contemporary people that he considered to display a particularly high degree of psychological health. These were people who seemed to make full use of their talents and potentialities, and who "felt safe and unanxious, accepted, loved and loving, respect-worthy and respected, and ... had worked out their philosophical, religious, or axiological bearings" (Maslow 1954: 201). Maslow noted that all of the self-actualizing individuals that he studied were characterized by a "philosophical, unhostile" sense of humor that was quite different from that of most people. For example, they did not laugh at hostile, superiority, or "smutty" humor, but rather at non-masochistic self-deprecating humor and humor that pokes fun at human pretentiousness generally. They also tended to avoid engaging in humor for its own sake, but instead produced humor that arose intrinsically from the situation or made a philosophical or pedagogical point. "Punning, joking, witty remarks, gay repartee, persiflage of the ordinary sort is much less often seen than the rather thoughtful, philosophical humor that elicits a smile more usually than a laugh" (Maslow 1954: 222). Thus, unlike those who seem to take the approach that "more is always better" when it comes to humor and laughter, Maslow's (1954: 223) description of the healthy personality portrays someone who would likely be perceived by the average person as "rather on the sober and serious side".

Priest and Wilhelm (1974) conducted a study to investigate Maslow's hypothesis that more self-actualized individuals should prefer philosophical, nonhostile humor rather than sexist humor. They assessed subjects' level of self-actualization by means of the Personal Orientation Inventory (POI; Shostrom 1966), and had them rate the funniness of 20 jokes that had been judged to be philosophical and nonhostile and 20 jokes that were considered to be sexist and moderately hostile. Overall, no differences were found between those with high versus low scores on the POI in

preferences for the two types of humor. However, there was some tendency for self-actualizing individuals, both male and female, to be less amused by anti-female jokes. The authors concluded that their results provided only limited support for Maslow's views, and suggested that Maslow may have portrayed self-actualizing individuals as more serious than they really are.

Humor as a coping mechanism

Besides viewing a sense of humor as a characteristic of psychological health generally, several theorists have focused on the beneficial effects of sense of humor as a coping strategy or defense mechanism. As noted earlier, Freud viewed humor (as distinct from jokes, or wit) as the highest of the defense mechanisms. Mishkinsky (1977) referred to humor as a "courage mechanism", suggesting that, like defense mechanisms, humor serves as a device for contending with unpleasant aspects of reality; however, unlike defense mechanisms, it is based on cognitive processes that do not reject or ignore the demands of reality. Humor allows one to shift one's point of view, illuminating the paradoxical or absurd aspects of reality, without making use of pathogenic processes.

The psychoanalytic concept of defense mechanisms has been further refined and investigated by Vaillant (1992, 1993). He distinguished among psychotic, immature, neurotic, and mature defenses, and suggested that, whereas wit is associated with the less adaptive mechanism of displacement, humor is a more mature defense, comparable to altruism, sublimation, and suppression. According to Vaillant (1992: 242), humor allows for the "overt expression of feelings without personal discomfort or immobilization and without unpleasant effect on others." In longitudinal studies of several samples of men and women spanning more than 50 years (reviewed by Vaillant & Vaillant 1992), mature defenses, including sense of humor, were found to be predictive of greater levels of mental and physical health, life satisfaction, job success, and marital stability.

Martin and colleagues (Martin & Lefcourt 1983; Lefcourt & Martin 1986; Martin et al. 1993) have investigated sense of humor as a moderator of life stress. They developed two self-report questionnaires to measure individual differences in sense of humor. The Situational Humor Response Questionnaire (SHRQ) defines sense of humor as the tendency to laugh and smile in a wide range of situations. The Coping Humor Scale (CHS) was designed to assess more specifically respondents' tendency to make use of humor as a strategy for coping with stress. Martin and Lefcourt (1983) found a significant interaction between these tests of sense of humor and a measure of stressful life events in predicting levels of mood disturbance, such as depression, anxiety, and tension. Examination of the direction of these interactions

revealed that, as stressful life events increased, individuals with higher scores on the humor measures showed less of an increase in disturbed moods. Martin and Dobbin (1988) extended these findings in an investigation of the effects of life stress on immunity, as measured by levels of immunoglobulin A (IgA), an antibody that is important in the body's defense against upper respiratory infections. Subjects with higher scores on the humor scales revealed less of a tendency for IgA levels to decrease with increased stress.

Subsequent studies have examined correlates of humor that might provide greater understanding of the mechanisms by which sense of humor attenuates the adverse effects of stress. For example, Kuiper et al. (1993) studied the cognitive appraisals of subjects before and after a midterm examination. They found that subjects with high, as opposed to low, coping humor scores were more likely to appraise the upcoming exam as a positive challenge rather than a negative threat, and, following the exam, they were more likely to adjust their expectations about the next exam in a more realistic direction. In addition, Kuiper and Martin (1993) found that individuals with higher scores on the SHRQ and CHS had higher levels of self-esteem, less discrepancy between their actual and ideal self-concepts, and greater stability in their self-concepts over time. Other research using these measures has indicated significant relationships between sense of humor and optimism, sense of coherence, and intimacy (for a review see Martin 1996). Overall, these studies have provided support for the view that sense of humor is related to more effective coping with stress (see also chapter by Lefcourt & Thomas this volume).

Proponents of the view that humor is a form of coping are not always clear about whether they view sense of humor as a sort of ability or a habitual behavioral style or trait. If it is conceptualized as an ability or skill, then this would mean that individuals vary in their capacity to use humor as a coping strategy, and it might lend itself to a performance testing approach to assessment. In contrast, a habitual style or trait view would imply that, although all individuals may have the ability to use humor in coping, they vary in their habitual tendency to do so, and in this case a trait measurement approach would be more appropriate. Clarification of this issue would be helpful, as it also has implications for the approaches taken in therapeutic efforts to increase people's sense of humor to help them cope more effectively with stress.

Sense of humor as emotion-based temperament

Some approaches to sense of humor have emphasized the importance of emotional rather than cognitive factors. For example, Leventhal and Safer (1977) suggested that what we generally think of as sense of humor may be more meaningfully con-

ceptualized in terms of individual differences in emotional experience and expression. Thus, to say that someone has a "sense of humor" may mean primarily that the person tends to maintain a cheerful, happy mood much of the time. Leventhal and Safer argued that theories of sense of humor should pay more attention to broader theories of emotion. Ruch (1993a) has pursued this line of thinking by developing the concept of "exhilaration" as a positive affective response that integrates behavior, physiology, and emotional experience. Exhilaration, a broader concept than amusement or mirth, is related to joy and cheerfulness, and occurs in response to a wide range of laughter- and joy-provoking stimuli besides humor. In his recent work on "trait cheerfulness", Ruch (1994a) has further extended these ideas, suggesting that differences in sense of humor may be largely accounted for by the tendency to be cheerful, happy, and light-hearted much of the time, as opposed to being in a bad mood or serious frame of mind (see Ruch & Köhler this volume).

A number of humor theorists have emphasized the biological-evolutionary basis of humor, viewing it as an innate characteristic in humans that is shared, to some degree, by other animals. For example, Darwin ([1989]) considered laughter to be an innate expression of joy or happiness that has survival value as a mechanism of social communication. This genetic view of humor was also championed by Eastman (1972). McDougall (1903) also emphasized the instinctual nature of laughter, viewing it as a method for avoiding the emotional pain that would normally be experienced from empathizing too closely with the minor misfortunes of others.

The presumed biological basis of humor has prompted some investigators to examine whether individual differences in sense of humor may have a genetic basis. Using the classical twin study technique, Nias and Wilson (1977) studied 100 pairs of identical and fraternal twins to compare the relative importance of heredity and environment in the development of humor preferences. The subjects were asked to rate the funniness of 48 cartoons that had been categorized as nonsense, satirical, aggressive, or sexual. The correlations between the pairs of twins for each category of humor averaged about .45, but did not differ between the fraternal and identical twins, indicating that individual differences in the appreciation of these humor categories do not appear to have a genetic basis. Wilson et al. (1977) conducted more detailed analyses of the same data, with similar conclusions. Since other research has demonstrated a considerable genetic component for variables that are correlated with sense of humor, such as personality traits and social attitudes, the authors expressed surprise that the results of this study did not reveal a similar genetic contribution for humor. As Nias (1981: 309) commented, "unless replication studies provide different results, we must conclude that humour preferences are one of the few psychological variables that have not been shown to involve a genetic component." However, it should be noted that this study defined sense of humor only in terms of humor appreciation, and investigations of the genetic basis of other aspects of sense

of humor, such as the propensity to create humor and amuse others, have not been carried out (see Manke this volume, for a genetic analysis of adolescents' humor use).

Sense of humor from a reversal theory perspective

Apter and Smith (1977) proposed a theory of humor based on reversal theory, a more general model of personality and motivation (cf. Apter 1982). Rejecting the popular notion of an inverted-U relationship between arousal and pleasure (that is, optimal arousal theory), reversal theory suggests that the hedonic tone associated with different levels of arousal depends on the "metamotivational state" that the individual happens to be in at the time. Although the theory posits a number of different pairs of metamotivational states or modes, the pair most relevant to humor are the telic and paratelic. It is assumed that individuals are in one or the other of these two bi-stable states at all times. In the telic state the person is goal-oriented and serious-minded, whereas the individual in the paratelic state is focusing on ongoing activity rather than the ultimate goal of the activity, and is more playful. In the telic state, arousal is experienced as unpleasant and distressing because it is perceived as interfering with the attainment of one's goals. On the other hand, in the paratelic state arousal is experienced as pleasurable and exciting because it enhances one's experience of the current activity. According to reversal theory, humor involves both an increase in arousal and a reversal from the telic to the paratelic mode of functioning. This state reversal is accomplished by means of "identity synergies", or playful, illogical, incongruous oppositions of ideas. The function of laughter is to increase physiological arousal while one is in the paratelic state, since increases in arousal are experienced as pleasurable in this state. The implication of reversal theory for understanding individual differences in sense of humor would be that people with a better sense of humor are those who more readily switch into the paratelic mode, and therefore are more apt to seek out pleasurable arousal, to engage in laughter and fun, and generally to enjoy humorous activity. Indeed, according to the theory, there are fairly stable differences in the degree to which individuals are likely to reverse into one state or the other, referred to as telic versus paratelic dominance. In support of this hypothesis, Ruch (1994b) found significant correlations between a measure of telic/paratelic dominance and several self-report measures of sense of humor, indicating that individuals with a greater sense of humor tend more often to be in the paratelic state.

Case studies of comedians and clowns

Fisher and Fisher (1981) investigated the personality characteristics of professional comedians and circus clowns, to whom they referred collectively as "comics". Although they focused on a select group of individuals who had made a career out of comedy, rather than studying the broader concept of sense of humor, their findings may have implications for sense of humor more generally. In particular, they were interested in identifying possible familial and childhood antecedents of comic proclivities. Their findings may relate more generally to individuals who are perceived by their peers to be particularly humorous and entertaining, and not just to those who have made a career out of their humorous tendencies. They administered a semi-structured interview, the Rorschach, the TAT, and several questionnaires to 43 comics and a matched comparison group of 41 professional actors. As compared to the actors, the comics' responses to the projective tests revealed a significantly greater preoccupation with themes of good and evil, unworthiness, self-deprecation, duty and responsibility, concealment, and smallness. In addition, the comics described their fathers in more positive terms and their mothers in a more negative manner, as compared to the actors. In order to investigate further the possible childhood dynamics of comics, Fisher and Fisher also compared the personality characteristics of parents of 31 children identified as "class clowns" or "schlemiels" with parents of 31 children who did not show these comic characteristics. As compared to the mothers of non-comic children, personality testing revealed that the mothers of the comic children were less kind, less sympathetic, less close and intimately involved with their children, and more selfish and controlling, and that they wanted their children to take responsibility and grow up more quickly. For their part, the fathers of the comic children were more passive than those of the non-comic children.

On the basis of their findings, Fisher and Fisher theorized that comics develop their humor skills in childhood as a means of entertaining others, gaining approval, and asserting their goodness, in the context of an uncongenial family environment characterized by limited maternal affection and warmth, a need to take on adult responsibilities at an early age, and a sense that things often are not what they appear to be on the surface. Moreover, as children they tend to take on a parentified healing role, learning to provide, through humor, psychological support and reassurance to their parents. Thus, humor in these individuals seems to be a means of coping with feelings of anxiety and anger associated with a generally harsh and uncongenial environment. This view is also consistent with the findings of Fabrizi and Pollio (1987a), discussed earlier, indicating that clowning in the classroom was correlated with lower self-esteem in 7th graders. Overall, then, this research lends support to the view that humor serves as a defense or coping mechanism for dealing with adversity in life, and that individuals with a greater tendency to produce humor for the

amusement of others may be doing so as a means of compensating for earlier losses and difficulties.

The location of humor in trait models of personality

Several general theories of personality attempt to provide a comprehensive taxonomy of personality traits or dimensions. In these theories, it is assumed that all psychologically relevant traits that distinguish people from one another may be located within a "factor space" that is defined by a limited number of superordinate dimensions. These approaches to personality make use of factor analytic techniques to identify the major trait dimensions. The theories differ in the number of dimensions that are thought to be needed to adequately account for differences in personality. These differences are due in large part to differences in the factor analytic methods employed and the item pool upon which the analyses are carried out (Guilford 1975). If sense of humor is viewed as a personality trait, then it should also be locatable within these broader taxonomies. The following is a brief review of some of these models of personality, and the ways in which they may account for individual differences in humor. Interestingly, two of the best-known trait theorists (Cattell and Eysenck) also conducted early investigations on humor, which were reviewed earlier.

Guilford

Description of the model and location of sense of humor. In a series of studies in the 1930's, Guilford and colleagues (reviewed by Guilford et al. 1976) conducted factor analyses on a broad range of personality questionnaire items to identify the primary dimensions underlying personality. Thirteen primary personality factors were identified in these investigations, and these were subsequently incorporated into two widely-used personality inventories: the Guilford-Martin Inventory (Guilford & Martin 1943) and the Guilford-Zimmerman Temperament Survey (Guilford & Zimmerman 1949). The factor that seems particularly relevant to humor was Factor R (labeled Rhathymia, and later renamed Restraint). This factor was described as relating to a happy-go-lucky disposition, impulsiveness, and lack of serious-mindedness. Items that loaded highly on this factor included: "Would you rate yourself as a happy-go-lucky individual?" and "Are you ordinarily a carefree individual?" Besides an easy-going and carefree approach to life, this factor contained an element of impulsiveness and sensation-seeking, as revealed by items relating to "does not stop to

think things over before acting," "often craves excitement," "prefers athletics to intellectual pursuits," and "is unconcerned about the future."

Empirical investigations. As noted earlier, Luborsky and Cattell (1947) examined correlations between their humor appreciation factors and the Guilford-Martin Inventory. They found a significant relationship between their "debonair sexuality" humor factor and the Guilford-Martin Rhathymia factor ($r = .49$), confirming the location assigned to humor in the Guilford model. Several other correlations were also found between humor and personality factors. For example, the humor factor labeled "bringing another bluntly to reality" was significantly related ($r = .33$) to Guilford-Martin Factor T (inclination to meditative thinking, philosophizing, analyzing oneself and others; introspective disposition). These findings were taken as evidence that preferences for various factor analytically-derived humor categories reflect more basic personality dimensions that were also identified through factor analysis.

Cattell

Description of the model and location of sense of humor. Cattell also sought to derive a comprehensive taxonomy of personality dimensions through factor analysis (reviewed by Cattell 1973; Cattell & Kline 1977). He began with a list of some 4500 trait terms, and eventually narrowed them down to 35 clusters. Ratings of individuals on these clusters were subsequently factor analyzed, revealing 12 primary factors. In subsequent analyses of questionnaire items and behavioral ratings, an additional four factors were found, yielding a total of 16. The 16PF (Cattell et al. 1970) is a questionnaire designed to measure these 16 primary factors. Of Cattell's original 35 trait clusters, the one that appears most related to sense of humor was labeled "cheerful, enthusiastic, and witty." In the original study by Cattell (1945), this cluster loaded on three of the primary factors: Factor A ("Cyclothyme vs. Paranoid Schizothyme"), Factor F ("Surgency vs. Melancholy, Shy, Desurgency"), and (more weakly) Factor H ("Charitable, Adventurous Surgency vs. Inhibited, Insecure Desurgency"). In a subsequent study of behavioral ratings (Cattell 1947), a humor-related "cheerful" cluster was again identified. Individuals high on this dimension were described as generally bubbling over with good cheer, optimistic, enthusiastic, prone to witty remarks, and "laughterful". In this study, the "cheerful" cluster loaded once again on Factor F, but this time it was also related to the submissiveness pole of Factor E ("Dominance vs. Submissiveness"). In the final version of the 16PF, sense of humor seems most closely related to Factors A and F. Factor A was later relabeled "Sizia vs. Affectia", referring to a dimension characterized by traits such as outgoing, warmhearted, easygoing, and participating, on the one pole, and reserved, detached, critical, aloof, and stiff, on the other. Besides reflecting a sociability or

gregariousness dimension, this factor relates to the degree to which one freely expresses one's emotions rather than being emotionally inhibited. Factor F, labeled "Desurgency vs. Surgency", relates to traits such as talkative, cheerful, happy-go-lucky, optimistic, confident, enthusiastic, quick, and alert, as opposed to silent, full of cares, reflective, and incommunicative. This trait is closely related to introversion-extraversion in other systems, although it also seems to contain an element of neuroticism.

Empirical investigations. Two studies have examined the relationship between the 16PF factors and funniness ratings of various categories of cartoons, neither of which confirmed the place of humor in the 16PF system suggested above. Using a sample of 39 undergraduates, Terry and Ertel (1974) correlated the 16PF and funniness ratings for cartoons that had been categorized as sexual, hostile, or nonsense. Very few significant correlations were found, although enjoyment of sexual cartoons was found to be significantly related to "toughmindedness" (Factor I: tough-minded versus sensitive) and to "group dependency" (Factor Q2: group dependent versus self sufficient), particularly in male subjects. No relationships were found between liking of hostile cartoons and any of the 16PF factors. Hehl and Ruch (1985) administered the 16PF and the 3 WD humor test to 105 undergraduate students. Factor A of the 16PF was related only to funniness scores for incongruity-resolution humor ($r = .23$) and Factor F was related only to funniness of nonsense humor. A fairly complex pattern of relationships was found between several of the other factors of the 16PF and funniness and aversiveness ratings of the 3 WD humor factors. These findings fit well with other findings with the 3 WD, indicating that incongruity-resolution jokes are preferred by conventional and conservative individuals, while nonsense jokes are enjoyed by tough-minded people. It is important to note, however, that these studies examined only one aspect of sense of humor in relation to the 16PF, namely appreciation of various categories of jokes and cartoons. Research examining sense of humor defined in terms of habitual tendencies to create humor and amuse others may be more likely to show the relationships with Factors A and F proposed above. The limited findings that are available suggest that different aspects or definitions of sense of humor are likely located on quite different dimensions in the personality factor space defined by the 16PF.

The five factor model of personality

Description of the model. Critics of the factor structures developed by Guilford and Cattell have argued that they extracted too many factors which have limited stability and generality. An alternative taxonomic system that has more recently gained wide

acceptance has come to be known as the five factor model of personality (FFM) because it contains five dimensions that are considered adequate for describing all the important personality traits (for a review see John 1990). Beginning with the trait dimensions originally used by Cattell, Tupes and Christal (1961) factor analyzed data from eight different samples representing a wide range of subject groups, and found five relatively strong and consistent factors. They labeled these factors as follows: (I) Surgency (talkative, assertive, energetic); (II) Agreeableness (good-natured, cooperative, trustful); (III) Dependability (conscientious, responsible, orderly); (IV) Emotional Stability (calm, not neurotic, not easily upset); and (V) Culture (intellectual, cultured, polished, independent-minded). Essentially the same five factors have been replicated in a number of subsequent investigations using a wide range of trait descriptors and subject samples (e.g., McCrae & Costa 1987; Norman 1963; DeRaad et al. 1992).

Location of sense of humor and empirical investigations. In the FFM, sense of humor appears to be particularly related to Factors I and V and, less so, to Factor II. Factor I (Surgency, or Extraversion) is characterized by traits such as talkative, assertive, energetic, outgoing, enthusiastic, show-off, sociable, and adventurous. Humor-related traits that have been found to load on this factor include "funny" and "witty" (John 1990). In addition, McCrae et al. (1986), in a factor analysis of the California Q-Sort, found loadings on this factor for the items "skilled in play and humor" and "initiates humor." Thus, as has been found in many other investigations, sense of humor seems to be primarily related to extraversion.

Factor V (Openness to Experience, Culture, or Intellect) refers to traits such as imaginative, intelligent, original, creative, insightful, and curious. With regard to humor, this factor seems to relate particularly to the cognitive aspects of humor that involve creativity and wittiness. In a study of responses to a sentence completion test, McCrae and Costa (1980) found that "a playful, sometimes odd, sense of humor" was a distinguishing characteristic of individuals who were high on this factor. Ruch (1994b; Ruch & Hehl this volume) also reported data indicating a relationship between humor structure preference on his 3 WD test and Openness to Experience, with subjects higher in Openness preferring nonsense (i.e., incongruity) based humor and those low in Openness preferring incongruity-resolution humor. Furthermore, Openness correlated positively with humor creation as assessed by a cartoon caption production test (see Ruch & Köhler this volume).

Finally, Factor II (Agreeableness) may also be relevant to sense of humor. This factor is characterized by traits like sympathetic, warm, generous, good-natured, and friendly. McCrae and colleagues (1986) found positive loadings on this factor for the trait description "responds to humor". One possibility is that this factor relates to an evaluative dimension of sense of humor, distinguishing hostile, sarcastic, or

disparaging from more positive, good-natured, and soft-hearted humor. This possibility warrants further investigation. In summary, from the perspective of the FFM, individuals who are typically thought of as having a "strong sense of humor" would be likely to be high on both Extraversion and Openness to Experience. In addition, the degree to which they express their humor in a disparaging versus prosocial manner would depend on where they are located on the Agreeableness dimension.

Eysenck's PEN model

Description of the model. Eysenck (e.g., Eysenck & Eysenck 1985) has long championed a biologically-based hierarchical model of personality or temperament. At the lowest level of the hierarchy are individual behaviors and transient emotional and cognitive states (Eysenck 1990). With regard to humor, this would relate to laughing, telling jokes, feeling mirthful, noticing incongruities in verbal expressions, and so on. At the next level are habitual behaviors and moods, which would relate to the tendency to laugh and smile in a wide range of situations, to enjoy certain types of humor rather than others, and to have a generally cheerful disposition. Next in the hierarchy are primary factors or traits, which are inferred constructs composed of consistent or habitual behavioral patterns that are intercorrelated. Here, for example, we can identify Eysenck's trait of *surgency*, which includes being cheerful, witty, liking to laugh, and so on. At the highest level are three superordinate factors or types, consisting of intercorrelated traits: (1) Extraversion (vs. Introversion), (2) Neuroticism (vs. Emotional Stability), and (3) Psychoticism (vs. Impulse Control). The Extraversion (E) type, which appears to be most closely related to sense of humor, is related to the tendency to experience positive moods, and is made up of traits like sociable, lively, active, assertive, sensation-seeking, carefree, dominant, surgent, and venturesome. Neuroticism (N) involves the tendency to experience negative moods, and is composed of traits such as anxious, depressed, guilt feelings, low self-esteem, tense, irrational, shy, moody, and emotional. The traits that intercorrelate to form Psychoticism (P) include aggressive, cold, egocentric, impersonal, impulsive, antisocial, unempathic, creative, and tough-minded. Taking the first initial of each of these higher-order factors, Eysenck's model is generally referred to as the PEN system. This model also assumes a causal, biological basis for the basic dimensions of personality. Individual differences in each of these dimensions are assumed to be due to genetically-based variability in cortical arousal mediated by the reticular formation (Extraversion), limbic system arousal mediated by the sympathetic nervous system (Neuroticism), and hormonal (e.g., testosterone) and neurotransmitter (e.g., monoamines) levels (Psychoticism; Eysenck 1990).

Location of sense of humor and empirical investigations. As noted above, Eysenck's theory suggests that sense of humor as a personality trait is most strongly linked with Extraversion. Eysenck and Eysenck (1975: 9) stated that extraverts tend to "laugh and be merry." A number of studies have provided support for this theoretical relationship. As we have seen, Kambouropoulou's (1930) early study of sense of humor found that extraverted subjects, as compared to introverts, were rated by their friends as having a greater sense of humor. In both German and American subjects, Ruch and Deckers (1993) found a significant correlation between extraversion and scores on the Situational Humor Response Questionnaire (SHRQ), which measures the degree to which subjects report smiling and laughing in a wide range of life situations. Weaker correlations were also found between this humor measure and psychoticism, suggesting that laughter at some of the situations in this measure reflects the impulsive, non-conforming, antisocial, and unempathic traits of the high P scorer.

Ruch (1994b) conducted a study of the relationship between the PEN factors and seven different sense of humor scales. In view of the greater susceptibility of extraverts (as opposed to introverts) for positive affect, smiling and laughter, enjoyment of entertaining others, carefreeness, and their lower degree of seriousness, Ruch predicted that they would also have higher scores on sense of humor questionnaires that emphasize these characteristics. As predicted, the highest loadings for all of these humor measures were on the Extraversion factor. The SHRQ and the Emotional Expressiveness (EE) scale of Svebak's (1974b) Sense of Humor Questionnaire also loaded to some extent on Psychoticism. The EE scale was also mildly related to Neuroticism, whereas the Metamessage Sensitivity scale of Svebak's measure had a mild negative loading on this factor.

In another study, Köhler and Ruch (1996) conducted a factor analysis of most of the current self-report humor tests, and found only two factors, which they labeled "cheerfulness" and "seriousness". These findings suggest that these various measures of sense of humor are only assessing two major dimensions of sense of humor. In relation to the PEN system, factor scores for the cheerfulness dimension of the humor scales were positively correlated with Extraversion ($r = .64$) and negatively with Neuroticism ($r = -.31$). The factor scores for seriousness were most strongly related (negatively) to Psychoticism ($r = -.53$) and less so to Extraversion ($r = -.23$). Summarizing the relation between the PEN system and aspects of sense of humor, Ruch (1994b: 233) concluded that "while the E-dimension determines the threshold of the positive affective response to a humor stimulus (covert amusement, smiling, or laughter), the P-dimension might relate to the ease or difficulty with which a humor-related stimulus gains attention and is processed adequately, that is, in a playful frame of mind." In addition, he suggested that "N might relate to the

aspects of losing one's sense of humor under stressful conditions ..., or being habitually predominantly ill-humored or sad" (Ruch 1994b: 234).

Although there is considerable evidence that extraverts tend to laugh and enjoy humor more than introverts overall, research examining the relationship between extraversion and the *appreciation* of various types of humor indicates that introverts are not entirely devoid of humor. In fact, such studies have generally not found significant correlations between extraversion and overall funniness ratings of jokes and cartoons (e.g., Koppel & Sechrest 1970; Landis & Ross 1933; Ruch 1992). Instead, it appears that introverts and extraverts enjoy different types of humor. Kambouropoulou (1930) found that extraverts derived greater enjoyment from personal superiority humor, whereas introverts preferred impersonal incongruity humor. Eysenck (1942) found that extraverts preferred simple jokes, whereas introverts enjoyed more complex jokes. Extraverts have also been found to enjoy sexual humor more than do introverts (Eysenck 1942; Grziwok & Scodel 1956; Wilson & Patterson 1969), although this finding has not been replicated by others (cf. Hehl & Ruch 1985). Craik et al. (1996) have also examined differences in styles of humor expression between introverts and extraverts as measured by the Myers-Briggs Type Indicator. They found evidence that, although socially constructive uses of humor were important for both psychological types, humor competence was more important in the introverts' notion of sense of humor, whereas extraverts were more likely to consider themselves as having a good sense of humor when their humorous style was relatively free of vulgarity. In addition, extraverts were found to have more "socially warm" but "boorish" humorous styles, being more likely to use humor both to maintain group morale and in a competitive way. On the other hand, introverts had a more "cold" and "reflective" humorous style, smiling more grudgingly and taking pleasure in bemused reflections on self and others.

Ruch (1994b) also suggested that dimensions of sense of humor related to *comprehension* or *creation* of humor are likely to be located outside the PEN system. These seem to involve aspects of ability rather than temperament, touching on such domains as general intelligence, verbal ability, or creativity (cf. Feingold & Mazzella 1991). However, Köhler and Ruch (1996) found evidence that humor creation is at least partly subsumed within the PEN system. They included a measure of humor creation that required subjects to generate captions for a number of cartoons, which were subsequently rated on several scales including wittiness, originality, and fantasy. The results revealed that the scores for quality of humor production were weakly correlated with Psychoticism ($r = .20$ to $.26$), which includes divergent or creative thinking style as one of its facets. In addition, Extraversion was correlated with the number of cartoon captions created ($r = .25$), as well as the rated richness of fantasy revealed in the captions ($r = .20$). Thus, besides involving cognitive abilities that

lie outside the PEN system, humor creation seems to involve the temperamental dimensions of Psychoticism and, to a lesser degree, Extraversion.

Conclusion: Towards a conceptual framework

Where we have come

As this review of the literature has demonstrated, investigators of sense of humor have taken a number of different approaches to conceptualizing and measuring this construct. Much of the research prior to the 1970's focused on humor *appreciation*. Based largely on psychoanalytic theory, these investigations examined individual differences in the *content* of the jokes and cartoons that people prefer and find funny. In the humor appreciation approach, subjects are typically shown a number of jokes and/or cartoons and are asked to rate them for funniness, aversiveness, and so on. The assumption of much of this research is that the types of humor that people enjoy reveal some aspects of their personality or repressed impulses. This approach reflects Pagnol's dictum, "Tell me what you laugh at, and I will tell you who you are" (quoted by Holland 1982: 75). Overall, these studies provided little support for Freudian hypotheses, but instead confirmed that people tend to enjoy and laugh at humor that reflects themes and attitudes that are in agreement with their own attitudes, interests, and behavior. Factor analytic work on humor appreciation initiated by Eysenck and developed more fully by Ruch indicates that aspects of the *structure* of jokes and cartoons (incongruity-resolution versus nonsense) are at least as important as content in understanding individual differences. Various personality traits (most notably conservative social attitudes) have been found to correlate with preferences for one type of humor structure over another.

In the past two decades, researchers have broadened their focus, moving beyond humor appreciation to humor *production* and a general tendency to express, create, and enjoy humor in daily life. A few studies have investigated humor production or creation as a type of ability akin to general creativity or intelligence. These sorts of abilities have been assessed by means of various performance tests, in which subjects are instructed to make up humorous monologues or provide funny captions for cartoons that are then rated for funniness. The past two decades have also witnessed the proliferation of self-report tests of sense of humor composed of self-descriptive statements relating to laughter, humor enjoyment, humor production, and so on. However, systematic work on the psychometric refinement of these measures has generally not been done, and their reliabilities and validities are often questionable.

There is also increasing recognition that sense of humor is a multidimensional phenomenon, and various self-report questionnaires have been developed to assess specific dimensions. However, factor analytic studies such as those by Ruch and colleagues indicate that most of these scales reflect only one or two factor dimensions, relating to general cheerfulness and extraversion. Thus, these measures still seem to be capturing only a limited aspect of sense of humor.

Where we need to go

In sum, there is still no standard conception of sense of humor or theoretical framework upon which researchers generally agree. This situation is quite different from that of some other psychological constructs (e.g., extraversion, intelligence), where researchers generally have a common understanding of the phenomena they are investigating, even though they may use different measures or research approaches. This lack of common agreement in the humor field is likely due to the fact that, like concepts such as creativity or love, it is derived from a long tradition of folk psychology rather than being "invented" by psychologists. Thus, different researchers bring to the study of humor their own theoretical views, assumptions, and biases regarding personality and human nature in general, and apply the methodologies and techniques that they have learned in other fields of study. One could argue that this is not such a bad thing, as it provides the potential for a richer understanding of humor. However, it also leads to a confusing babel of voices and little productive interchange among researchers from different theoretical traditions. Rather than facilitating a coherent accumulation of knowledge, the current plethora of approaches makes for a hodge-podge of diverse and often conflicting findings that are not easily integrated with one another.

In sum, a considerable amount of work is still needed in order to bring research on sense of humor to the same level of sophistication as established personality constructs such as extraversion or intelligence. We still need a comprehensive, agreed-upon definition of the construct and identification of its structure or component dimensions. Psychometrically sound measures of the construct and its dimensions are still largely lacking. Theoretical models about the dynamics of the various dimensions of sense of humor are needed, which would allow for derivation of hypotheses from the model rather than simply from everyday observations.

Outline of a proposed three-dimensional model

Although it is generally agreed that sense of humor is multidimensional, there is still no consensus as to what the relevant dimensions are. If a taxonomy of dimensions could be agreed upon, this might provide at least a starting point to bring some much needed coherence to the field. Then, although different researchers might continue to take widely different approaches in their investigations, they might at least have some basis for communicating their findings and relating them to a common framework. Eysenck's (1942) tripartite model of humor still seems to be a useful place to begin in searching for such a taxonomy. Although his model was meant to categorize the themes of jokes and cartoons, it might also be useful in conceptualizing the major dimensions of sense of humor in terms of cognitive, emotional, and conative (motivational) elements.

The *cognitive* dimension of sense of humor might be conceived as relating to individual differences in the ability to perceive, create, and comprehend humor. Sensitivity to incongruities and the ability to shift perspective are likely important aspects. Like verbal intelligence and creativity, this seems to be primarily an ability factor that is probably best assessed by means of performance tests, rather than self-report measures. However, it may also involve individual differences in cognitive style, tolerance of ambiguity, need for certainty, and so on, which, as we have seen, may be reflected in the structural characteristics of preferred humor. Systematic research is needed to map out this cognitive domain, develop standardized assessment procedures, and determine its relationship to other abilities and personality traits. For example, this facet of sense of humor is likely to be related to other cognitive abilities and to "social intelligence" generally (cf. Bell et al. 1986). In terms of Eysenck's PEN system, it is not likely to be related to Extraversion or Neuroticism, although there is evidence that it may load to some extent on Psychoticism, which involves creativity as one of its facets. In the FFM, it is likely most strongly related to Openness. In Ruch's model of exhilaratability, this dimension would relate to the seriousness factor, which has been found to be correlated with humor creation and appreciation, and is seen as being more cognitive than emotional in nature (see Ruch & Köhler this volume).

In the *emotional* dimension of sense of humor, we find general tendencies to be in a happy, cheerful and playful mood, and to have a low threshold for laughter. Ruch's recent investigations of exhilaratability suggest that cheerfulness and bad mood form two separate but negatively correlated dimensions within this emotional domain. This emotional dimension of sense of humor also seems to be the one that is most clearly measured by current self-report humor measures. It also appears to be quite strongly related to Extraversion, which has been found in recent research to be correlated with positive moods generally. Thus, in addition to positive moods, this dimension is likely related to trait descriptors such as gregarious, outgoing, and friendly. As Leventhal and Safer (1977) have suggested, the emotional dimension

seems to be an important aspect of what most people consider to be a sense of humor.

The *motivational* dimension might be thought of as relating to the sorts of things the person laughs at or finds amusing. Eysenck associated the "conative" dimension with superiority/disparagement elements in humor. Compared to the other two dimensions, this one may be more clearly bipolar in nature, relating to the degree to which humor is used by the individual as a means of disparaging others as opposed to expressing a sense of identification with humanity. More generally, it may involve a healthy-unhealthy dimension, relating also to Freud's distinction between jokes and humor. At one pole we find cynicism, sarcasm, derision, and humor that is used as a means of creating a distance from others and avoiding dealing with problems, while at the other pole we find humor that is more whimsical and tolerant of self and others. It is tempting to relate this dimension to Neuroticism, which would complete the correspondence between these three putative sense of humor dimensions and the PEN system. In the FFM, it would likely relate to Agreeableness as well as perhaps Emotional Stability. It is difficult to know whether this is a unitary dimension, or whether we are attempting to combine too many concepts here. Nonetheless, this seems to reflect an important theme that emerges in a number of theoretical approaches to humor, including the superiority/disparagement view, Freudian theory, humanistic theories (e.g., May, Maslow, Frankl), and the approaches that view humor as a defense or coping mechanism. This dimension also reflects the recognition that humor is not always used in a healthy or adaptive way. Although enthusiasts of the "humor-and-health" perspective generally acknowledge this point, very little research has been done to clarify the distinction between humor that is conducive to psychological health and humor that is less healthy.

The foregoing is offered as a starting point for developing a framework for conceptualizing the major dimensions of sense of humor. It is still broad enough to allow for considerable diversity of approach, yet might be useful as a guide for locating individual investigations and relating them to one another. Many of the aspects of sense of humor that have emerged in previous work may fit into this framework. For example, the tendency to respond to humor created by others is likely related to the emotional dimension, whereas humor creation or production belongs on the cognitive dimension. This framework also allows for categorizing different types of sense of humor in terms of different combinations of levels on these dimensions, taking a sort of "profile" approach. For example, the individual who has a dry, sardonic sense of wit might be high on the cognitive dimension and toward the "unhealthy" pole of the motivational dimension, but low on the emotional dimension. In contrast, the person who is good-natured and laughs at everyone else's jokes without creating much humor himself would be high on the emotional dimension,

towards the "healthy" end of the motivational dimension, but low on the cognitive dimension.

One possible limitation of this framework is that it does not readily lend itself to categorizations of the *content* of humor that the person enjoys, such as sexual, ethnic, "off-the-wall", or sick humor. This aspect has been the focus of much past humor research, and clearly it needs to be included in any comprehensive model of sense of humor. It is possible, though, that content preferences relate to the motivational dimension of this framework or perhaps to various combinations of all three dimensions. In any case, further work is obviously needed to flesh out the details of this framework and to determine whether these three dimensions are adequate for describing individual differences in humor. In sum, although considerable progress has been made in clarifying our understanding of sense of humor over the past century, there are still many unanswered questions.

