

# CORRIGENDUM

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## Sensation Seeking, General Aesthetic Preferences, and Humor Appreciation as Predictors of Liking of the Grotesque

[JLT 3:2 (2009), 333–352]

### 1. Introduction

Many disciplines contribute to the understanding of humor, or its proper name: the »funny«. As psychology is about people, the psychology of humor refers to the study of humor and people, not the study of humorous material only. People may, for example, perceive, interpret, and react to humor or produce it. Psychology often pays more attention to the mechanisms or the process of, say, appreciating humor than to the elements of the humor that is appreciated. The ingredients of humor are analyzed as well but mostly only to the extent that it is of relevance to the lay people studied. I tried to explain this to American linguists in humor research a while ago using the famous joke about the four Viennese attempting to order their preferred type of coffee in a café in Berlin (Der Kellner nimmt die Bestellung entgegen: »Ein kleiner Brauner, ein Einspänner, ein verlängerter Schwarzer und ein Espresso«. Danach geht er zur Theke und bestellt »Vier Kaffee«). This order is in vain, as the waiter transfers this all down to »coffee«. Viennese coffee-house culture produces a variety of coffees, while in Germany »Kaffee« is the only coffee type drink available, or at least used to be. Thus, whatever variety might exist for some, it may be irrelevant for others.

Joke recipients are often like the German waiter. Slight variations in a joke might not be relevant to them, no matter how important these might be to specialists. In fact, in psychological research we often lump similar, but not identical stimuli (in the case presented here jokes and cartoons) together. This helps to get more reliable measurements and the theories typically are about types of humor (i. e., developed for the level of aggregates), not individual jokes.

The loss of precision when involving real people is balanced by a gain in the breadth of variables that may be studied together. In particular, this is the case when we look into individual differences. The study of personality is one area of psychology, and here we look into differences among people. We define basic personality traits that predict individual differences in all kinds of observable behavior, such as, for example, appreciation of humor. This is based on the obser-

vation that individual differences in many observable behaviors covary, and this covariation can be statistically explained by common underlying variables.

Personality studies of humor appreciation have a long tradition in humor research. As early as 1942 the famous psychologist Hans-Jürgen Eysenck found that extraverts preferred sexual humor and his colleague Raymond B. Cattell claimed to be able to measure personality traits through a test of humor appreciation (Cattell/Tollefson 1966). Thus empirical studies find strong correlations between personality traits (as measured through questionnaires, self- or peer-ratings, or objective tests) and the individual dimensions of a humor test (i. e., liking of individual jokes and cartoons bundled together to meaningful clusters). So the abstract question here is: what is funny to whom, and why? What personality characteristics are conducive to finding nonsense humor funny, and why is this the case? What personality traits predispose a person to find sexual humor aversive? Such research first established a model of humor appreciation, which clarified what humor categories need to be distinguished and what is the nature of the responses to humor. Then one looks for personality traits that might relate to aspects of humor appreciation and for a theory that makes these predictions. The present article will develop the argument that common factors run through different domains of aesthetics, and that this allows the prediction that humor appreciation, liking of the grotesque and appreciation of visual arts share variance with each other, and that one common denominator is the avoidance vs. enjoyment of stimulus uncertainty (in the information theory sense, i. e., ambiguity, novelty, complexity, asymmetry). This underlies art as well as more general personality traits like conservatism, openness to experience or sensation seeking.

### 1.1. An Empirically Derived Model of Humor Appreciation

Starting with Eysenck (1942) several authors used the mathematical-statistical method of factor analysis to derive a model of humor appreciation. Ruch (1981) proposed that a comprehensive assessment of humor should not only cover a classification of humor stimuli but also of the responses to humor and a typology of the receiver. The taxonomy of humor stimuli was achieved by a set of factor analytic studies of differing but overlapping sets of jokes and cartoons. This classification was first made using Austrian and German participants, but later its cross-cultural stability was tested using the same jokes and cartoons, translated into different languages (e. g., English, French, Hebrew, Russian, Turkish) (see, Ruch/Hehl 2007). More recently, the core elements were also replicated using entirely new jokes and cartoons (Carretero-Dios/Ruch forthcoming).

The responses to humor were less well studied. In a first step different aspects of the responses to humor were rated and subsequently clustered using correlational studies and factor analysis. In a second step the resulting factors were later validat-

ed against other levels of responses, such as facial expression, psycho-physiological responses, or mapping their location in general taxonomies of emotions. In the following, only the outcome is presented. For the details of the studies, and other prior literature and competing findings and models of other researchers the reader is referred to the original studies or earlier reviews (e. g., Ruch 1992, 2004, 2008; Ruch/Hehl 2007).

### *Response Dimensions*

Jokes are funny, and so the assessment of the degree of »funniness« of a joke on a five- or seven-point rating scale is the most frequently used way of assessing the perceived quality of a joke. Indeed, factor analyses (Ruch 1981; Ruch/Rath 1993) showed that all positive evaluations of jokes converge, be they more cognitive (or structure oriented) or affective, stimulus-oriented or emotion oriented. The scale of »funniness« represents the broad evaluation factor that is else loaded by aspects like *witty*, *exhilarated*, *amused*, or *original*. Experiments showed that jokes that are rated as highly funny, are also accompanied by a facial configuration called *enjoyment display*, the facial indicator of the emotion of joy. The other consistently emerging factor is one that combines all negative reaction, and this factor of aversiveness is orthogonal to funniness.

Thus, maximal appreciation of jokes and cartoons consists of high funniness and low aversiveness; while minimal appreciation occurs if the joke is not considered funny but is found aversive. However, a joke can also be considered not funny but be far from being aversive; or it can make one laugh although there are certain annoying aspects (e. g., one can consider the punch line original or clever but dislike the content of the joke).

### *A Bimodal Factor Model of Jokes and Cartoons*

Many ingredients were proposed to be essential in jokes (see the different contributions in Raskin 2008). However, the diversity of ingredients seen as relevant by experts is reduced when analyzed through the mind (or inferred through the affective responses) of the naïve recipient. Factor analyses of jokes and cartoons from Eysenck (1942) to Ruch (1992) have shown that content and structure have to be distinguished as two different sources of pleasure in humor as both produce individual differences. While intuitive and rational taxonomies typically distinguish only between content classes, factor analytic studies show that structural properties of jokes and cartoons are at least as important as their content, with two factors consistently appearing: namely, incongruity-resolution (INC-RES) humor and nonsense (NON) humor. Jokes and cartoons of these factors have different content (e. g., themes, targets) but are similar with respect to the structural properties and the way they are processed (Ruch 1992; Ruch/Hehl 2007).

In short, the INC-RES humor category contains jokes and cartoons that are characterized by punch lines, in which the surprising incongruity can be more

or less completely resolved. The jokes differ in content and also formal features but the common element in this type of humor is that the recipient first discovers an incongruity, which is then subjectively resolvable upon consideration of information available elsewhere in the joke or cartoon. There is a certain projective element in these jokes as essential things are not spelled out and have to be supplemented by the recipient; often resolving the incongruity requires attributing motives and traits (e.g., stingy, mean, stupid, absent-minded) to the acting characters. Although individuals might differ with respect to how they perceive and/or resolve the incongruity, they have the sense of having »gotten the point« or understood the joke once resolution information has been identified. Incongruity-resolution humor) was considered to be an appropriate label for that factor (Ruch 1981) as the two-stage structure in the process of perceiving and understanding humor described by Suls (1972) seemed to fit well to these jokes and cartoons. A later analysis of this humor through the lenses of the General Theory of Verbal Humor (GTVH) (Hempelmann/Ruch 2005) characterized this factor as medium in degree of incongruity and degree of residual incongruity, very simple to complex in terms of degree of resolution, and containing diverse script oppositions (SO) and logical mechanisms. The narrative strategies used involve text and cartoons with one panel, and frequently targets are involved.

Nonsense humor, or short NON, also has a surprising or incongruous punch line, however, »the punch line may 1) provide no resolution at all, 2) provide a partial resolution (leaving an essential part of the incongruity unresolved), or 3) actually create new absurdities or incongruities« (McGhee/Ruch/Hehl 1990, 124). In nonsense humor the resolution information gives the appearance of making sense out of incongruities without actually doing so. The recipient's ability to make sense or to solve problems is exploited; after detecting the incongruity he is misled to resolve it, only to later discover that what made sense for a moment is not really making sense. In terms of GTVH-parameters NON was characterized by high degree of incongruity, high degree of residual incongruity and the degree of resolution ranges from very simple to very complex. NON contains cartoons with an actual/not actual script opposition less frequently, while possible/impossible SOs occur more often. Targets are rarely involved and diverse logical mechanisms are used. Cartoons with a higher number of panels are typical (Hempelmann/Ruch 2005).

While both the incongruity-resolution and the nonsense structure can be the basis for harmless as well as tendentious content, only few contents seem to be salient enough to form independent factors. The pool of jokes and cartoons we analyzed contained different content areas (including aggression), but only sexual humor (SEX) formed a robust factor overpowering the structure variance.

### *The 3 WD Test of Humor Appreciation*

To assess funniness and aversiveness of jokes and cartoons of the three humor categories of incongruity-resolution humor, nonsense humor, and sexual humor the 3 WD (*3 Witz-Dimensionen*, 3 dimensions of jokes) humor test was designed. Initially three versions of the test (short form: 3 WD-K, parallel versions: 3 WD-A, and 3 WD-B) were constructed but then the best items were combined in the final 3 WD (Ruch 1992). The 3 WD contains 35 (forms A and B) jokes and cartoons, which are rated on »funniness« and »aversiveness« using two 7-point scales. The funniness rating ranges from »not at all funny« = 0 to »very funny« = 6 and the aversiveness scale ranges between »not at all aversive« = 0 to »very aversive« = -6. The first five items of each form are used for »warming up« and are not scored. The jokes and cartoons are presented in a test booklet with two or three items on a page. The instructions are typed on a separate answer sheet, which also contains the two sets of rating scales. Six scores can be derived from each form of the test: three for funniness of incongruity-resolution, nonsense and sexual humor (i. e.,  $INC-RES_f$ ,  $NON_f$ , and  $SEX_f$ ) and three for their aversiveness (i. e.,  $INC-RES_a$ ,  $NON_a$ , and  $SEX_a$ ). These six scores describe an individual's humor preference at a general level. Indices have been derived as well and were validated in several studies (Forabosco/Ruch 1994; Ruch 1992; Ruch/Hehl 1988). For example, a structure preference index was obtained by subtracting  $INC-RES_f$  from  $NON_f$ . Similarly, the funniness and aversiveness scores of a humor type could be combined to form a more general appreciation score. A review of studies of the psychometric properties shows that the reliability estimates may be regarded as satisfactory for the scales of all forms of the 3 WD (Ruch 1992). The internal consistency varies between .68 and .95, mostly exceeding .80.

## 1.2. Humor Appreciation and Personality

For more than 70 years psychologists have tried to link appreciation of humor with personality traits. Such research was often guided by personality theory with a simplistic view of humor, most often based on Freudian theory. It was acknowledged that humor is in the eye of the beholder and thus the identification of those variables that affect the perception of humor is essential. What determines that Person A finds a joke hilarious, Person B boring and Person C embarrassing? Many studies tried to answer the question of »what is funny to whom and why« and often enriched our understanding of both humor and personality.

Personality affects humor appreciation at many levels, such as generalized predispositions to certain types of responses and the preference to certain types of stimuli. The question is what type of personality traits can account for these tendencies. Ruch (1992) argued that the former relates to affective dispositions and the latter to cognitive styles and motivation. We can further distinguish among

traits closer to humor (e. g., other domains of aesthetics) and more general traits of personality (e. g., personality types or attitude).

#### *Individual Differences in Degree of Appreciation*

There is clear evidence that positive affectivity and negative affectivity are separate and orthogonal factors underlying emotional dispositions (e. g. Watson/Tellegen 1985). Moreover, the general personality trait of extraversion predicts individual differences in positive affect, and neuroticism accounts for individual differences in negative affect. Also funniness and aversiveness are orthogonal and they represent the intensity of positive (like) and negative (dislike) evaluations of humor. So can one assume that these generalized response tendencies will affect humor appreciation irrespective of appreciation of certain types of humor?

In a review Ruch (1992) summarized that there is, indeed, a consistent positive intercorrelation among appreciation for the three humor categories of the 3 WD which is low for funniness but relatively high for aversiveness. Accordingly, the effect of extraversion on generalized positive responses to humor was found to be relatively weak. However, there seem to be more generalized individual differences in aversiveness and they seem to be correlated with two clusters of predictors, namely neuroticism (or negative affectivity) and tendermindedness. The review found that not only scales of neuroticism yielded positive correlations, but also markers of neuroticism as well, such as trait-anxiety, depressivity, nervousness, guilt proneness, low ego strength, and even sexual dissatisfaction. The second cluster of variables related to tendermindedness and was found for different markers of that trait. Humor of all categories was found more aversive by tender than by tough minded subjects. Ruch and Hehl (1988) argued that the two groups of predictors might relate to different aspects of aversiveness. The tendermindedness complex might refer to the ease with which feelings are hurt or subjects feel offended by humor, whereas the neuroticism complex determines the threshold for a negatively toned response and its intensity.

#### *Humor Appreciation and Personality*

The predictors of appreciation of humor structure and content were identified through variables borrowed from experimental aesthetics (i. e., the collative variables that have a higher arousal potential leading to stronger orientation and attention; Berlyne 1960, 1971, 1972) and concepts from information theory (such as redundancy and uncertainty that describe collative variables) and the theory of conservatism (that used fear of stimulus uncertainty as the basis for conservatism; Wilson 1973). In short, the rationale for the prediction of personality correlates of appreciation of INC-RES and NON humor may be based on the fact that the two humor structures differ with respect to the degree of incongruity and the degree of resolution obtained: in incongruity-resolution humor the degree of incongruity is weaker and a complete resolution of the incongruity is possible. In nonsense

humor, however, there are residual traces of incongruity and the incongruity is stronger anyway. Thus, in INC-RES the resolution of incongruity contributes to appreciation whereas in NON appreciation is based on the existence of residual incongruity. Thus, appreciation of INC-RES is hypothesized to be a manifestation of a broader need of individuals for contact with structured, unambiguous, stable forms of stimulation (i. e., preference for redundancy), whereas appreciation of the nonsense structure in humor reflects a generalized need for uncertain, unpredictable, and ambiguous stimuli (i. e., preference for stimulus uncertainty) (Ruch/Hehl 2007).

Appreciation of incongruity-resolution humor yielded a broad set of predictors with conservatism, the major dimension underlying social attitudes, being the single most potent predictor. According to Wilson's (1973) dynamic theory of conservatism, this trait reflects a *generalized fear of both stimulus and response uncertainty*. This should lead more conservative individuals to show greater avoidance and dislike of novel, complex, unfamiliar, incongruous events and to prefer and seek out stimuli which are simpler, more familiar and congruent. This hypothesis was validated for visual art, poetry, and music. The hypothesis that conservatives find incongruity-resolution humor funnier than liberals do was confirmed in several studies comprising different countries (Ruch 1992; Ruch/Hehl 2007). Further sets of predictors were higher inhibitedness, lower depressivity, age and social desirability.

As a more specific predictor related domains of aesthetics were used. It was argued that the individual's stance towards stimulus uncertainty vs. redundancy could be more directly tested through behavioral tests and judgment or creation of art (Ruch/Hehl 2007). It turned out that incongruity-resolution humor is preferred by individuals who like simple and representational paintings, and like simple (such as a triangle, square, or cross) line drawings in the Barron Welsh Art Scale (BWAS; Barron/Welsh 1952).

Appreciation of nonsense humor is well understood but the correlations were lower. Somehow, the predictors are opposite to the ones of incongruity-resolution. The trait of sensation seeking, and in particular the component of experience seeking, represents the *seeking* of stimulus uncertainty (not only the tolerance, as low conservatism does). Experience seeking as defined by Zuckerman involves the seeking of stimulation through the mind and the senses, through art, travel, even psychedelic drugs, music, and the wish to live in an unconventional style, and there is evidence that it is closely related to the novelty and complexity dimensions of stimuli (Zuckerman 1994). This led to the hypothesis that experience seeking is positively related to appreciation of nonsense humor. This was confirmed in several studies incorporating different countries, such as Austria, Germany, Italy and Spain (Carretero-Dios/Ruch forthcoming; Ruch 1992). Likewise, a related but more general factor of personality, openness to experience, was found to be predictive of nonsense humor (Ruch/Hehl 2007).

Potent predictors for nonsense humor were also found from other domains of the aesthetics. The hypothesis that nonsense humor is appealing to those generally enjoying or searching for uncertainty was also substantiated in studies that showed that funniness of nonsense correlated positively with liking for complex and fantastic paintings (e. g. by Dalí), liking of complexity and asymmetry in freehand drawings and polygons, and also with producing complexity in black/white patterns and enjoying and enhancing visual incongruity when wearing prism glasses which distort the visual field (Ruch/Hehl 2007).

Sexual humor has two sets of predictors. One relates to the structural basis of humor and they are no different from the predictors of INC-RES and NON. The other set relates to the sexual content directly and here one can predict either a negative relationship (i. e., people repressing their sexual desires will be the ones appreciating sexual content in humor) when following Freudian ideas, or a positive relationship when following the more general salience theory (i. e., funniness of a particular content in humor will increase with increase in salience of this topic in real life). There is more evidence for the latter. Sexual content was more appreciated by individuals with stronger libido, more sexual experience and a more positive attitude towards sex. As extraversion is a predictor of sexual libido it is not surprising that studies from Eysenck (1942) to Ruch (1992) found a positive correlation between funniness of sexual humor and extraversion.

Thus, for all elements of humor appreciation predictors may be found that are more proximate to humor or more distant. The present study will expand the former by studying the relationship between humor appreciation and appreciation of the grotesque. As an art form it is described as an arbitrarily distorted, exaggerated representation, which seems ridiculous, absurd or scary, seems to involve a structural element (i. e. the exaggerated deviation from reality) and also content elements, like the fearful or disgusting. Both do add to the arousal potential of the text.

Despite the fact that fine examples of the grotesque in literature, art history, or architecture exist and were studied, there is no agreement on the definition of the grotesque (e. g., Connelly 2003; Steig 1970; Thomson 1972). The adjective »grotesque« refers to the strange, fantastic, ugly, incongruous, unpleasant, or disgusting. Theorists have highlighted relationships to the uncanny, absurd, abnormal and distinguished, but also proposed the grotesque to be a hybrid, for example, of the ludicrous and the fearsome (i. e. it simultaneously arouses reactions of fear and amusement in the observer), bizarreness and pity (i. e. simultaneously invoking in an audience a feeling of uncomfortable bizarreness as well as empathic pity), empathy and disgust, but also involving awe, and horror in addition to the ludicrous (see Connelly 2003; Kayser 1957; Thomson 1972). Also distinctions have been discussed as the satiric grotesque and the playful grotesque, and the span between it. To our knowledge there is no systematic account on what blends exist and no empirical study verifying it. There also does not seem to be systematic



empirical research relating humor and the grotesque, and we could not find any psychological research or links between personality and the grotesque.

Steig (1970) relates the attempts of a value-free reception of the grotesque to the general context of the 20<sup>th</sup> century: the severe troubles of world and mankind are getting obvious giving the old theme of fearful and ludicrous a new frame of understanding and estimation. Following Steig, the grotesque is a distinct indicator of modern thinking in literature across the centuries, e. g. to be found in the works of Rabelais, Lawrence Sterne, Jean Paul, Victor Hugo, Edgar Allen Poe, Lewis Carroll, and of course in many others, especially of later decades.

Common feature of a definition of the grotesque is an essential ambivalence as aforementioned: the ambivalence of horror and laughter, or feeling ludicrous and fearful at the same time (e. g., Ruskin 1851; Kayser 1957; Jennings 1963; Steig 1970). Kayser (1957) describes a process of alienation underlying the perception of grotesque literature, as the specific trace of horror in grotesque narration. The source of this estrangement is the exploration of absurdity. Things of everyday life, the beliefs of one's worldview are shown as non-relevant, non-existent. At this point grotesque needs laughter. To describe the grotesque laughter in opposition to comedy Kayser points out a certain distance being kept in comedy, the effect to the reader is feeling secure and even indifferent, whereas reading grotesque literature involves the reader, the absurdity of life concerns him, threatening him with fear and anxiety, and provoking the strange desire to laugh about it.

Connelly (2003) defines the grotesque by »what it does to boundaries, transgressing, merging, overflowing, destabilizing them« and states that the grotesque represents »a constant struggle with boundaries of the known, the conventional, the understood«. This confirms that the grotesque, compared to other texts, will have a higher arousal potential and will be appreciated by those who are capable and willing or even searching for the enjoyment of stretching boundaries. Experience seeking (or openness to experience) (Zuckerman 1994) is such a trait. Those who are not capable or willing to stretch the boundaries will experience the fear or other negative emotion inherent in the grotesque and perceive it as aversive and develop a strong dislike. Thus, it appears that the measurement of the grotesque should entail positive and negative responses and different levels need to be distinguished. Lowest appreciation will be represented by finding the grotesque simply aversive or disliking it. A higher appreciation will involve no or only low aversiveness, and some liking of the slightly grotesque. Finally, the highest form will involve strong liking of the highly grotesque not diminished by negative feelings (i. e., no aversiveness). The lack of basic research on the foundation of the grotesque is a pity, but it does not prevent using the grotesque in studies of personality. For the present study it will be important to have texts that are clearly identified as examples for the grotesque (ideally at different levels) and are not too far from the reading experience of the participants (i. e. examples are mainly taken from the 20<sup>th</sup> century literature to avoid further alienation because of formal aspects),

and then individual differences in appreciation of these texts will be related to text hypotheses.

### 1.3. Aim of the Present Study

The general aim of this study is to learn more about the relationship between humor appreciation and the individual's stance toward stimulus uncertainty in the field of the grotesque. More specifically, appreciation (decomposed into a liking and disliking element) of different levels of grotesqueness in a text will be empirically related to appreciation (funniness and aversiveness) of INC-RES and NON humor. As INC-RES represents a slight deviation from reality, a low level of grotesqueness might relate to funniness of INC-RES. Nonsense, representing higher intensity levels of incongruity and also higher levels of residual incongruity will be more strongly related with the grotesque. Ruch (1981) described the nonsense factor as absurd and found grotesque characters and situations. No prediction is made for sexual humor. Individuals finding humor aversive will also dislike the grotesque (i. e. find it aversive).

Furthermore, other indicators of liking of stimulus uncertainty will be employed to predict appreciation of the grotesque, namely the Barron Welsh Art Scale (Barron/Welsh 1952) and the trait of sensation seeking (Zuckerman 1994). The BWAS measures artistic perception, and two components are separated, the liking of simplicity and the liking of complexity. This figure-preference-test is well validated (for a review, see Gough/Hall/Bradley 1996) and was suggested for the assessment of complexity-simplicity as a personality dimension (Barron 1953). Ruch and Hehl (2007) found that liking of simple drawings correlated positively with funniness of incongruity-resolution humor and liking of complex drawings correlated with funniness of nonsense. Likewise, liking of complexity is expected to be a predictor of appreciation of the grotesque.

The trait of sensation seeking (SS) has been defined as »the need for varied, novel and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experience« (Zuckerman 1979, 10). Of the four components of sensation seeking, experience seeking (ES) is of special importance. ES represents the seeking of experience through the mind and senses, travel, art, music and a non-conforming lifestyle. ES presents components on the novelty and complexity dimensions of stimuli (Zuckerman 1994). Hence it might be the best predictor of appreciation of the grotesque. The Disinhibition (DIS) component of sensation seeking is related to the intensity dimension of stimulation, and hence it might be expected to be sensitive to differences in level of grotesqueness. It is assumed, that high disinhibitors tolerate stimulation by highly grotesque texts as they tolerate intensive stimulation by other objects (Litle/Zuckerman 1986). Boredom Susceptibility (BS) indicates an intolerance for repetitive experience of any kind, including routine work and boring people. High scorers have a high aversion

to boredom produced by the absence of stimulation and restlessness as a reaction to boredom. As the grotesque has a higher arousal potential it will be a positive predictor of the grotesque, just as ES and Thrill and Adventure Seeking (TAS). TAS represents the desire to engage in sports or other physically risky activities that provide unusual sensations of speed or defiance of gravity, such as scuba diving, parachuting, or skiing. The variables together will be used to examine how much of the variance in liking the grotesque (and finding it aversive) can be explained.

## 2. Method

### 2.1. Participants

The sample consisted of 110 German adults (44 males) in the ages between 19 and 77 years ( $M = 37.14$  years,  $SD = 13.46$  years). The sample was heterogeneous with regard to education and professions: 40 % of the participants were post-graduates, nearly 50 % had finished an apprenticeship or a vocational education, 10 % were without any professional graduation at the time of the study. Among the professions represented in the sample were medical (20 %), educational (17 %), economical (13 %), creative (13 %), technical (5 %) and academic (5 %) professions; all other groups were less than 5 %.

### 2.2. Material

The *Sensation Seeking Scale-Form IV* (SSS-IV; Zuckerman 1979) in a German translation by Unterweger (1980) was used. This questionnaire uses 56 items in a forced choice format to measure general sensation seeking (SS), plus the four components of sensation seeking, namely: Thrill and Adventure Seeking (TAS), Disinhibition (DIS), Experience Seeking (ES), and Boredom Susceptibility (BS).

3 *WD Humor Test* (Ruch 1983). The humor test consists of 35 jokes and cartoons, which are rated on two unipolar 7-point scales for »funniness« and »aversiveness«. Six scores can be derived: three for funniness of incongruity-resolution-, nonsense- and sex humor (i. e.  $INC-RES_f$ ,  $NON_f$ , and  $SEX_f$ ) and three for their aversiveness (i. e.  $INC-RES_a$ ,  $NON_a$ , and  $SEX_a$ ). The alpha coefficients were .89, .80, .89, .88, .88, and .92, respectively. Two structure preference indices were derived, one for funniness ( $SPI_f$ ; obtained by subtracting  $INC-RES_f$  from  $NON_f$ ) and one for aversiveness. They allow the assessment of the individual's relative preference for resolution in humor over unresolvable or residual incongruities and *vice versa*. Likewise,  $INC-RES_f$  was subtracted from  $SEX_f$  (and  $INC-RES_a$  from  $SEX_a$ ) to have an index for liking of sexual content in humor.

The *Test of Appreciation of the Grotesque* (TAG) was designed especially for this study. The TAG consists of 22 literary excerpts (grotesque texts) to be rated on two unipolar seven-point scales for *liking* (0 = »no liking at all« to 6 = »like the item very much«) and *aversiveness* (0 = »not at all aversive« to 6 = »very aversive«). The first four of the 22 items are given for warming up, the following 18 represent low, middle, and high grotesque texts in random order. Eight scores were computed; four representing liking of low, medium and highly grotesque texts (as well as a total score) and four for their aversiveness. The TAG was constructed on the basis of a pretest. To select the literary stimuli twelve experts (6 literary scholars, 6 non-scientific connoisseurs) were asked to judge 81 text excerpts taken from the work of literary authors being known to be relevant for the subject of the grotesque. The instruction introduced the term of the »grotesque« and the experts were asked to rate the degree of grotesqueness of each given excerpt on a scale ranging from 0 = »not at all« to 6 = »very much«. The inter-rater reliability was high and the total score was used to select six excerpts of low, middle and high level of grotesqueness for the main study. The texts retained were by Woody Allen, William Burroughs, Leonora Carrington, Daniil Charms, Heinz Ehrhardt, Robert Gernhardt, Eckhard Henscheid, Heinrich von Kleist, Christian Morgenstern, Herbert Rosendorfer, Helge Schneider, and Karl Valentin.

The *Barron-Welsh Art Scale* (Welsh 1959) is a collection of 84 line drawings (of approximately 2 by 3 inches) for which subjects indicate whether they »like« or »don't like« them. The total score (composed of 62 items) of *liking of complexity as opposed to simplicity* was used and it yielded a Cronbach alpha of .91. Furthermore, separate scores for *liking of complexity* (alpha = .87) and *liking of simplicity* (alpha = .95) were derived by summing up the relevant 24 »like« and 38 »don't like« items, respectively. Their intercorrelation was .09 indicating that liking of complex and simple drawings varied independent from each other.

### 2.3. Procedure

The participants received general instructions on how to work on the booklet with the instruments. In order to increase the likelihood that the texts were well received and appreciated by the participants a sample was selected for openness to culture. In particular, people that read a lot were chosen. Indeed, 90 % indicated that they read a lot and indicated that they read between 1 and 40 books in the last year. Thus, the sample of participants can be described as being slightly more heterogeneous than in typical psychological studies. Also the educational and professional backgrounds were more varied. The reported testing time ranged from 30 to about 50 minutes.

### 3. Results

First, the psychometric results of the TAG were examined. Means, standard deviations, the distribution statistics and Cronbach alpha for the three liking and three aversiveness scores but also the two total scores were computed and are presented in Table 1.

Table 1. Psychometric properties of the Test of Appreciation of the Grotesque

|                  | M     | SD    | Skewness | Kurtosis | Alpha |
|------------------|-------|-------|----------|----------|-------|
| Liking           |       |       |          |          |       |
| Low grotesque    | 15.31 | 6.53  | .02      | -.23     | .64   |
| Medium grotesque | 18.22 | 5.89  | -.54     | .29      | .54   |
| High grotesque   | 17.36 | 7.01  | -.40     | -.32     | .70   |
| Total            | 50.89 | 16.52 | -.55     | .24      | .83   |
| Aversiveness     |       |       |          |          |       |
| Low grotesque    | 9.88  | 7.90  | .58      | -.70     | .79   |
| Medium grotesque | 9.27  | 7.17  | .75      | -.02     | .77   |
| High grotesque   | 11.61 | 8.27  | .49      | -.48     | .80   |
| Total            | 30.76 | 21.12 | .64      | -.32     | .91   |

Note. N = 110.

Table 1 shows that liking and aversiveness of grotesque texts would be measured with satisfactory accuracy. Cronbach alpha for the levels of low, medium and high was good considering that there were only six items per category. The scores were normally distributed and the means for liking reveal that all three were about equal and degree of liking was average (i. e. at the scale midpoint of 3). Aversiveness was low but increased with increasing level of grotesqueness. The intercorrelation among appreciation (both liking and aversiveness ratings) of the three categories of grotesque texts were computed next and the results are presented in Table 2.

Table 2. Intercorrelation among the scales of appreciation of grotesqueness and the BWAS

| Level of grotesqueness | Liking |        |         | Aversive |        |      |
|------------------------|--------|--------|---------|----------|--------|------|
|                        | Low    | Medium | High    | Low      | Medium | High |
| Like low level         | 1.00   |        |         |          |        |      |
| Like medium level      | .62*** | 1.00   |         |          |        |      |
| Like high level        | .52*** | .62*** | 1.00    |          |        |      |
| Dislike low grotesque  | -.07   | -.04   | -.14    | 1.00     |        |      |
| Dislike grotesque      | .09    | -.27** | -.19*   | .74***   | 1.00   |      |
| Dislike very grotesque | .02    | -.12   | -.44*** | .71***   | .73*** | 1.00 |
| Complex                | .32*** | .31*** | .28**   | -.01     | -.01   | -.13 |
| Simple                 | .03    | -.01   | -.03    | -.02     | .00    | .01  |
| BWAS                   | .13    | .17#   | .17#    | .01      | .00    | -.07 |

Note. N = 110.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . #  $p < .05$  (one-tailed).

Table 2 shows a few peculiarities. First, the three liking ratings and the three aversiveness ratings formed separate but homogeneous blocks of intercorrelations. This means that the more one did like low level of grotesqueness, the more one also liked medium and high levels. Relatedly, disliking one category went along with disliking the other two. Second, for both like and aversiveness analyses the correlation was always numerically lowest for the comparison of low with high grotesqueness. This means that the more disparate levels were perceived as most distant. Third, the intercorrelations were higher on average for the aversiveness-ratings than for the like-rating. This means that participants differentiated less well among the three levels when they did not like the grotesque. For the degree of liking the level of grotesqueness played a stronger role. Fourth, the two blocks (of liking and disliking) were mostly uncorrelated from each other with the exception of medium and high level of grotesqueness where liking and disliking were negatively correlated. The correlations were higher for the high level. All in all this confirms that the level of positive evaluation and the degree of negative evaluation are orthogonal to each other, or only slightly negatively correlated.

Next, the predictors of appreciation of the grotesque were examined. Product moment correlations between the eight scores of the TAG (liking and aversiveness of the three levels plus the total score) and age, gender, the four sensation seeking subscales plus the total score, the BWAS complexity and simplicity scales, the total score, and the 3 WD scores were computed and are displayed in Table 3.

Table 3 shows that there was a tendency of older people to dislike grotesque texts and to have a lower degree of liking of texts of high level of grotesqueness. As expected, gender was not predictive. The pattern of correlations with sensation seeking showed a few peculiarities. First, the correlations are higher in magnitude for the aversiveness than for the like-ratings. Second, as expected it is mostly ES and BS that yielded correlations but not TAS. Third, the size of the correlations increased with level of grotesqueness. Fourth, the sensation seeking subscale that is sensitive to the intensity of stimulation, DIS (disinhibition), is only predictive of the highest levels of grotesqueness. Taken together, the results confirm that the general personality trait of sensation seeking is predictive of liking and disliking of grotesque texts.

Liking of complexity in visual art (BWAS) correlated with liking (but not disliking) of grotesque texts. There is no effect of level of grotesqueness as all three scales yielded comparable correlations. The total of all texts yields higher coefficients due to the higher reliability of the total score. Liking of simple drawings did not yield any significant correlation; appreciation of simplicity in visual art does not predict liking or disliking (aversiveness) of the texts. As a consequence, the BWAS total score only has marginally significant coefficients.

The correlation between grotesque texts and the 3 WD were of particular interest. The low grotesqueness text category did correlate positively with funniness of incongruity-resolution humor. This coefficient not only declined with increas-

Table 3. The prediction of appreciation of grotesque texts.

| Variables                    | Level of grotesqueness (liking) |        |        |        | Level of grotesqueness (aversive) |         |         |         |
|------------------------------|---------------------------------|--------|--------|--------|-----------------------------------|---------|---------|---------|
|                              | Low                             | Medium | High   | Total  | Low                               | Medium  | High    | Total   |
| Demographics                 |                                 |        |        |        |                                   |         |         |         |
| Age                          | .08                             | -.06   | -.20*  | -.07   | .17#                              | .22*    | .18#    | .21*    |
| Gender                       | .10                             | .07    | -.05   | .05    | .03                               | .11     | .14     | .10     |
| SSS-IV                       |                                 |        |        |        |                                   |         |         |         |
| TAS                          | -.07                            | .01    | .19*   | .06    | -.07                              | -.10    | -.14    | -.12    |
| DIS                          | -.06                            | .05    | .26**  | .11    | -.22*                             | -.35*** | -.42*** | -.37*** |
| ES                           | .15                             | .27**  | .35*** | .31**  | -.14                              | -.28**  | -.37*** | -.29**  |
| BS                           | .05                             | .17#   | .32*** | .22*   | -.18#                             | -.28**  | -.40*** | -.32*** |
| Total                        | .03                             | .16    | .35*** | .22*   | -.19#                             | -.31*** | -.41*** | -.34*** |
| BWAS                         |                                 |        |        |        |                                   |         |         |         |
| Like (complex)               | .32***                          | .31*** | .28**  | .36*** | -.01                              | -.01    | -.13    | -.06    |
| Dislike (simple)             | .03                             | -.01   | -.03   | -.01   | -.02                              | .00     | .01     | .00     |
| Total                        | .13                             | .17#   | .17#   | .18#   | .01                               | .00     | -.07    | -.03    |
| 3 WD                         |                                 |        |        |        |                                   |         |         |         |
| INC-RES <sub>f</sub>         | .29**                           | .14    | .07    | .20*   | .16#                              | .25**   | .30**   | .26**   |
| NON <sub>f</sub>             | .43***                          | .45*** | .41*** | .51*** | -.11                              | -.07    | -.08    | -.09    |
| SEX <sub>f</sub>             | .15                             | .02    | .19#   | .15    | -.11                              | .03     | -.03    | -.05    |
| INC-RES <sub>a</sub>         | -.06                            | -.02   | -.06   | -.06   | .49***                            | .40***  | .40***  | .47***  |
| NON <sub>a</sub>             | -.05                            | -.11   | -.26** | -.17#  | .53***                            | .51***  | .53***  | .58***  |
| SEX <sub>a</sub>             | .08                             | .06    | -.13   | .00    | .44***                            | .44***  | .52***  | .52***  |
| SPI <sub>f</sub>             | .06                             | .21*   | .25**  | .21*   | -.23*                             | -.29**  | -.34*** | -.32*** |
| SPI <sub>a</sub>             | .00                             | -.12   | -.28** | -.16#  | .18#                              | .24*    | .27**   | .25**   |
| (Sex - INC-RES) <sub>f</sub> | -.13                            | -.12   | .11    | -.05   | -.27**                            | -.22*   | -.32*** | -.30**  |
| (Sex - INC-RES) <sub>a</sub> | .14                             | .08    | -.11   | .04    | .18#                              | .23*    | .33***  | .28**   |
| Funniness                    | .37***                          | .25**  | .28**  | .35*** | -.02                              | .10     | .09     | .06     |
| Aversiveness                 | .01                             | -.02   | -.18#  | -.08   | .57***                            | .53***  | .58***  | .62***  |

Note. N = 108 - 110. SSS-IV = Sensation Seeking Scale-Form IV; TAS = Thrill and Adventure Seeking; DIS = Disinhibition; ES = Experience Seeking; BS = Boredom Susceptibility. BWAS = Barron-Welsh Art Scale. 3 WD = 3 WD Humor Test; SPI<sub>f</sub> = Structure preference index for funniness; SPI<sub>a</sub> = Structure preference index for aversiveness; Funniness = sum of INC-RES<sub>f</sub>, NON<sub>f</sub>, and SEX<sub>f</sub>; Aversiveness = sum of INC-RES<sub>a</sub> to SEX<sub>a</sub>.

ing level of grotesqueness but was also insignificant for medium and high levels of grotesqueness. Individuals finding INC-RES humor funny tended to dislike grotesque texts and the size of the correlations increased with level of grotesqueness. As expected, funniness of nonsense humor was a predictor of liking of grotesqueness. This did not vary with the level of grotesqueness and the total scores yielded a particularly high coefficient of .51. Funniness of NON was not related to aversiveness of the texts. Funniness of sexual humor, a content category of humor, was orthogonal to liking and disliking of the texts, with the possible exception of liking of high grotesque texts. This might be due to the structural basis of sexual humor, as a statistical control of the structural basis of sexual humor rendered this correlation insignificant.

As expected, the negative judgments converged more than the positive judgments. Aversiveness of all three humor categories correlated with aversiveness of grotesque texts with the coefficients ranging from .40 to .58 (median = .50). The correlations with NON appeared to be higher than the ones for INC-RES and SEX. Aversiveness of humor did not predict liking of the texts with the exception of the fact that individuals that like highly grotesque texts also do not find nonsense humor aversive.

The structure preference index for funniness and aversiveness shows the essence of the relationship between humor and grotesque texts. The relative preference of nonsense over incongruity-resolution is a function of liking of the grotesqueness of texts. At the lowest level of grotesqueness INC-RES and NON were about equally funny and equally aversive. The liking of a intermittent level of grotesqueness went along with preferring NON over INC-RES in terms of funniness, and liking the highest level of grotesqueness goes along with appreciating (funniness high, aversiveness low) nonsense humor more than incongruity-resolution based humor. Disliking grotesque texts went along with preferring INC-RES to NON (both in terms of funniness and aversiveness) and these correlations increased with level of grotesqueness as well.

There was considerable overlap among the predictors; i. e., they were intercorrelated themselves. In order to account for this overlap and to estimate the total amount of variance in appreciation of the grotesque, two step-wise regression analyses were computed. Age, gender, the four sensation seeking subscales, the BWA complexity and simplicity scales, and the 3 WD scores were used as predictors, and liking and aversiveness of the grotesque served as criteria.

The multiple correlation was .57 for the analysis of the liking scores allowing for a significant prediction,  $F(2, 107) = 25.170, p < .0001$ . Funniness of nonsense ( $\beta = .48$ ) and Experience Seeking ( $\beta = .38$ ) entered the equation. Liking of complex visual art just failed to enter as a third variable but had a significant zero-order correlation. Finding the grotesque aversive was significantly and highly predicted, too,  $F(3, 104) = 24.345, p < .0001$ . Aversiveness of nonsense humor ( $\beta = .38$ )



and of sexual humor ( $\beta = .28$ ) and ES ( $\beta = -.17$ ) entered the equation and yielded a high multiple correlation of .64.

#### 4. Discussion

The present study extends a line of research that started some decades ago. The most important finding of this study is that appreciation of the grotesque is closely linked with liking of humor, in particular of nonsense humor, and with liking of complexity in visual art. This can be interpreted as confirmation that similar factors run through different domains of aesthetics. For nonsense humor the correlation was clear, much less so for incongruity-resolution based humor and not at all for sexual content. Thus, different levels of deviation from reality are differently challenging to different people, and variables like experience seeking (but also low conservatism or openness to experience) are predictive of this. The degree of incongruity (low for INC-RES, high for NON) and the degree of residual incongruity (low for INC-RES, high for NON) contribute to the arousal potential of jokes and cartoons. Individuals who do not want to deviate much from what is known, familiar, simple etc., will find humor aversive, a higher tolerance might go along with liking of INC-RES humor (as funniness of INC-RES correlated positively with liking of a *low* level of the grotesque). Higher tolerance or even enjoyment of information (in the information theory sense; i.e., novelty, complexity, asymmetry) will result in finding nonsense humor funny. Conservatives are people who avoid stimulus and response uncertainty and they were found to prefer INC-RES humor. Experience Seeking and Openness to Experience (Ruch 1988; Ruch/Hehl 2007) were found to be predictive of both the redundancy seeking (as in funniness of INC-RES) and enjoyment of uncertainty (as in funniness of NON) element of humor. This can also be generalized to the grotesque; in the present study Experience Seeking predicted liking of the grotesque and the correlations were higher for higher levels of grotesqueness. This fits nicely to the prior study of Ruch and Hehl (2007) using various tasks of visual art, and in a current master thesis similar results were found for appreciation of music (Savary 2010).

Like with emotions in general, for appreciation of humor and appreciation of the grotesque, the degree of the positive and negative evaluation (or, more generally, positive and negative affect) is orthogonal to each other. The liking scale covers the enjoyment of the grotesqueness and it ranges from no enjoyment to high enjoyment. The negative response ranges from no to high negative evaluation. While the two are statistically orthogonal to each other they still relate to the same predictors. Experience seeking and funniness/aversiveness of nonsense humor did predict the liking/aversiveness of the grotesque. It is known that the inclination to positive affect (a component of the personality trait of extraversion)

overlays the funniness/liking rating and the inclination to strong negative affect (a component of the personality trait of neuroticism) will overlay the aversiveness ratings. Combinations of liking and disliking might be of interest – just as it is with humor. There one might find a joke aversive (e. g., due to the put-down content) but at the same time funny (e. g., due to the clever punch line). Maybe similar results will be found for the grotesque.

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### Acknowledgements

The help of Dipl.-Psych. Sarah Auerbach, Pete Derks and MSc. Tracey Platt in the preparation of the article is gratefully acknowledged.

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