

Perception of aggressive humor in relation to gelotophobia, gelotophilia, and katagelasticism

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Abstract

The present study investigates humor appreciation of aggressive cartoons in relation to gelotophobia, gelotophilia, and katagelasticism. These traits were described to have a peculiar relation to laughter-related phenomena, in particular to disparagement humor. 185 participants rated highly aggressive and non-aggressive humorous stimuli for funniness and aversiveness and their scores on the gelotophobia, gelotophilia and katagelasticism scales were measured. The cartoons were controlled for their structural basis, i.e., incongruity-resolution and nonsense humor, as these two types of humor strongly influence the appreciation of humorous stimuli. The results revealed that high scores on gelotophobia lead to higher aversion to aggressive humor, whereas high scores on katagelasticism lead to more enjoyment of aggressive humor with less aversion. Gelotophobia and katagelasticism lead to sensitivity to aggression in humor, which fits the overt behavior of reacting sensitively towards laughter (gelotophobia) and enjoying to laugh at others (katagelasticism). Gelotophilia did not predict reactions to either aggressive or non-aggressive humor but did predict more amusement in general: High scorers on gelotophilia seem to be relaxed towards any form of humor, even if it has an aggressive note. This study confirms the three dimensions to have peculiar responses to aggressive types of humor and opens up several questions to be explored in future research.

Key words: gelotophilia, gelotophobia, katagelasticism, humor, cartoon, aggression

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Three dimensions with a particular attitude towards laughter-related phenomena were recently described by Ruch and Proyer (2008a, 2008b, 2009): gelotophobia is the fear of being laughed at, gelotophilia describes the joy of being laughed at, and katagelasticism is the joy of laughing at others. As aggression, disparagement, and the feeling of superiority are described to be essential for laughter and humor in many philosophical approaches (see Morreall, 1987), this study examines the influence of the aggressiveness of cartoons on humor appreciation in relation to gelotophobia, gelotophilia, and katagelasticism.

The idea that laughter and humor have a certain relation to aggression or the feeling of superiority has its roots in early notions by Plato, Aristotle, and Hobbes (see Ferguson & Ford, 2008; Morreall, 1987). These ideas are the basis for research on the relationship between humor appreciation and more or less aggressive humorous stimuli. Whereas some studies found a positive relationship between aggression and humor appreciation (Epstein & Smith, 1956; McCauley, Woods, Coolidge & Kulick, 1983; Singer, Gollob & Levine, 1967), others found an inverted-U shaped function (e.g., Herzog & Anderson, 2000; Zillmann & Cantor, 1976). However, other studies could not confirm this, but showed the relationship between cruelty and appreciation to be moderated by gender (females portray a negative correlation; Herzog & Anderson 2000; Herzog, Harris, Kropscott & Fuller, 2006), emotional responsiveness (Herzog & Anderson, 2000) or several joke categories (e.g., Herzog & Bush, 1994; Herzog & Karafa, 1998).

More important than the aggressiveness or cruelty of the jokes were variables that were not related to the content of the joke but to its structure: surprise, incongruity, difficulty, and resolution (Herzog et al., 2006). Apart from one content-related factor, namely sexual humor (SEX), factorial analyses only found structure-related characteristics that seemed to influence humor appreciation (Ruch, 2007): incongruity-resolution (INC-RES) and nonsense (NON) humor. Whereas in INC-RES the incongruity of the joke can be almost completely resolved, the incongruity is only partially resolvable and open questions remain (i.e., high residual incongruity) in NON jokes. Therefore they differ regarding the resolvability of the incongruity. The preference for INC-RES and NON humor is influenced by several personality characteristics (e.g., Ruch, 2007), and neural correlates vary dependent on these two types of humor (Samson, Hempelmann, Huber & Zysset, 2009). Recently, Samson and Ruch (2005) found terms that described two factors of humorous stimuli: one can be seen as the cognitive dimension on which jokes differ (from astute to grotesque, bizarre, absurd). This dimension covers the continuum from INC-RES to NON jokes. The second factor reflects the more emotional tone of jokes and cartoons: from cute, playful, cheerful to macabre, pungent. However, the aggressiveness of a joke is not a strong predictor for humor appreciation, and aggression never emerged as an independent dimension of humorous stimuli in factorial analyses. Nevertheless, it can be assumed that aggressiveness (on the low end of the emotional dimension) plays a role in humor appreciation, in particular if certain individual differences and structural characteristics (the resolvability of the incongruity as the cognitive dimension) of jokes are taken into account.

Recently, gelotophobes were shown to experience fear and shame to a higher degree and for a longer duration and to simultaneously have less intense and shorter experiences of

happiness (Platt & Ruch, 2009) than non-gelotophobes. Furthermore, gelotophobes were shown to be less cheerful and to characterize their humor style as inept, socially cold, and mean-spirited (Ruch, Beermann & Proyer, 2009). They reported to use humor less frequently as a means of coping and to indulge in self-enhancing and social humor less often. Interestingly, gelotophobia was not related to aggressive humor (investigated by a self-report questionnaire: Humor Styles Questionnaire, HSQ, Martin, Puhlik-Doris, Larsen, Gray & Weir, 2003). Furthermore, gelotophobes showed slightly lower funniness ratings, but there was no correlation between gelotophobia and aversiveness to jokes and cartoons. Gelotophobia, gelotophilia, and katagelasticism were also investigated in relation to *humor production*: the ability to create humor tends to be positively correlated with gelotophilia and katagelasticism. However, sense of humor or humor appreciation have not yet been investigated in relation to gelotophilia and katagelasticism.

It can be assumed that aggression plays an important role in relation to gelotophobia, gelotophilia, and katagelasticism (in the form of ridicule, mocking, teasing, etc.). Accordingly, the present study addresses the appreciation of highly aggressive and non-aggressive humorous stimuli in relation to gelotophobia, gelotophilia, and katagelasticism. Instead of using self-report questionnaires, humor appreciation was analyzed by rating humorous cartoons. Cartoons and jokes not only provoke positive but also negative emotions, even simultaneously (Ruch, 2007; Samson & Ruch, 2005). Thus, they can be seen as ambiguous stimuli, in particular if they are of aggressive content.

The present study used verbal one-panel cartoons that are either low or high in aggression, but controlled for structural characteristics: INC-RES and NON humor. As gelotophobia was shown to be independent of the preference for INC-RES or NON humor (Ruch et al., 2009), it is possible that gelotophilia and katagelasticism are also not related to a preference for INC-RES or NON humor.

Method

Participants

In total, 185 subjects between 15 and 78 years ($M = 27.96$, $SD = 12.21$) with 59 males and 125 females (one did not indicate gender) participated in the study. Sample I (paper-and pencil version) consisted of 111 participants between 18 and 62 years ($M = 27.15$, $SD = 11.75$) with 38 males and 72 females. Seventy of them were students. Sample II (online version) consisted of 74 participants between 15 and 78 years ($M = 29.18$, $SD = 12.84$) with 21 males and 53 females; 42 of them were students.

Material

Stimuli

In order to find harmless/innocent and aggressive/macabre cartoons, controlled for their structural properties, i.e., INC-RES and NON humor, several steps were taken. First, 120 one-panel cartoons were found that were either innocent or aggressive. Jokes that ridicule someone's stupidity without necessarily being aggressive as well as cartoons perceived as ambiguous (cute and aggressive at the same time) were excluded. Next, 31 cartoons that were categorized by at least 5 of 6 raters as being harmless, innocent, non-aggressive, possibly cute and 31 cartoons as aggressive were presented to 25 subjects (12 females, 13 males, mean age: 30.28 years, range: 17 to 60). The cartoons had to be rated from 0 (not at all) to 5 (very) on grotesqueness (i.e., the absurdity or oddness of a stimulus) and residual incongruity (rINC, unintegrated information at the end of the joke, open questions) as along these ratings humorous stimuli are classifiable into INC-RES and NON humor (Hempelmann & Ruch 2005; Samson & Ruch 2005; Samson et al., 2009). In addition, the cartoons were rated for aggressiveness.

Cartoons initially rated as aggressive ($M = 3.05$, $SD = .87$) were indeed perceived as more aggressive than the non-aggressive cartoons ($M = .62$, $SD = .50$, $t(24) = 13.59$, $p < .001$). In the next step, the aim was to distinguish INC-RES and NON humor. As the aggressive cartoons were rated as more grotesque ($t(24) = 9.60$, $p < .001$) it was decided to compute a cluster analysis on the basis of the rINC rating only (for descriptive statistics see Table 1) in order to classify the cartoons into INC-RES and NON.

A 2 means cluster analysis (with 3 iterations) revealed two clusters. The final cluster centres are for rINC (cluster 1 with 47 cartoons: 1.23, cluster 2 with 15 cartoons: 2.22) significantly different ($F(1,60) = 105.09$, $p < .001$). As nonsense humor has higher rINC ratings, cluster 2 contains NON jokes and cluster 1 INC-RES jokes. The two clusters did not differ significantly regarding grotesqueness or aggressiveness ($F < 1$).

Finally, four groups resulted from the classification into aggressive and non-aggressive cartoons and INC-RES and NON humor. Seven cartoons for each group were selected (in total 28 cartoons). Table 2 shows their rINC and aggression ratings.

Table 1:

Means and standard deviations of the aggressive and non-aggressive cartoons regarding the two indicator variables grotesqueness and residual incongruity (rINC; 31 cartoons in each condition)

	aggressive cartoons M (SD)	non-aggressive cartoons M (SD)
grotesque	3.64 (.69)	2.57 (.83)
rINC	1.40 (.77)	1.54 (.87)

Note. $N = 25$.

Table 2:

Means and standard deviations for the ratings of aggression and residual incongruity (rINC) for the selected cartoons of the main experiment (7 cartoons in each category)

	non-aggressive cartoons		aggressive cartoons	
	INC-RES	NON	INC-RES	NON
rINC (M, SD)	.89 (.18)	2.45 (.45)	.96 (.09)	2.07 (.38)
aggression (M, SD)	.55 (.33)	.65 (.36)	3.38 (.67)	2.85 (.79)

Note. N = 25, INC-RES = incongruity-resolution humor, NON = nonsense humor.

Univariate variance analyses confirmed the correct selection and classification of the stimuli: With the factors aggressiveness (aggressive vs. non-aggressive) and incongruity (INC-RES vs. NON) a significant main effect regarding the ratings of rINC for the factor incongruity ($F(1, 28) = 126.30, p < .001$) was shown, but not for aggressiveness or the interaction. Regarding aggression ratings, only the factor aggressiveness had a significant effect ($F(1, 28) = 126.30, p < .001$), but not incongruity or the interaction. Descriptions of an example for each of the stimuli groups are given in the appendix.

Questionnaire

The *PhoPhiKat-45* (gelotophobia, gelotophilia, and katagelasticism; Ruch & Proyer, 2009) consists of 15 statements for the subjective assessment of *gelotophobia* (e.g., “When they laugh in my presence I get suspicious”), 15 for *gelotophilia* (e.g., “I seek situations in everyday life in which I can make other people laugh at me”), and 15 for *katagelasticism* (e.g., “I enjoy exposing others and I am happy when they get laughed at”). All items are positively keyed and a four-point answer scale is used (1 = strongly disagree; 2 = moderately disagree; 3 = moderately agree; 4 = strongly agree). Support for the validity stems from several other studies that used the *PhoPhiKat-45* (e.g., Platt, & Ruch, 2010, this issue; Proyer, Hempelmann, & Ruch, 2009; Proyer, & Ruch, 2010, this issue; Renner, & Heydasch, 2010, this issue)

Procedure

The participants were recruited by notices posted on campus, university email, and personal contact. 111 participants rated the cartoons and completed the *PhoPhiKat-45* (Ruch & Proyer, 2009) in a paper and pencil version given in booklet form. They were instructed to fill in the booklet at home and by themselves. First, they were given a short explanation of the purpose of the study and were asked for their gender, age, and profession. Then, the participants were instructed to rate 28 cartoons (plus one warm-up cartoon) as to whether they had understood their punch line (yes or no), how funny they found them (0 = “not funny at all” to 5 = “very funny”) and how high their aversion to the cartoons was (0 = “no aversion” to 5 = “high aversion”). Then the participants were asked to fill out the *PhoPhiKat-45*. The remaining 74 participants rated the cartoons and

filled out the questionnaire with the same instructions as above in an online version on their own computers.

Results

Incongruity-resolution vs. nonsense (INC) and aggressive vs. non-aggressive (AGR) cartoons

First, the comprehensibility (0-1) was computed based on all cartoons. In the next step, funniness (0-5) and aversion (0-5) ratings, only for the cartoons that were understood, were averaged for each individual in each of the four conditions (aggressive and non-aggressive INC-RES, aggressive and non-aggressive NON, see Table 3).

In order to investigate whether INC (INC-RES vs. NON) and AGR (non-aggressive vs. aggressive cartoons) influence the humor response independently of the scores on the *PhoPhiKat-45*, repeated measure analyses with the two within subject factors INC and AGR were computed for all three dependent variables separately. These revealed that INC ($F(1, 184) = 207.82, p < .001$), AGR ($F(1, 184) = 7.76, p < .01$), as well as the interaction ($F(1, 184) = 10.64, p < .01$) had an effect on comprehensibility, probably due to lower comprehensibility ratings of (non-aggressive) NON cartoons (see Table 3 for statistics). INC ($F(1, 184) = 38.74, p < .001$), AGR ($F(1, 184) = 4.93, p < .05$), and the interaction ($F(1, 184) = 50.22, p < .001$) had a significant effect on the funniness ratings. Furthermore, INC ($F(1, 184) = 36.75, p < .001$), AGR ($F(1, 184) = 262.39, p < .001$), as

Table 3:

Means and standard deviations for comprehensibility, funniness, and aversion ratings for the four cartoon categories ($N = 185$)

		non-aggressive cartoons		aggressive cartoons	
		INC-RES	NON	INC-RES	NON
Comprehensibility	male	1.00 (.03)	.88 (.15)	.99 (.06)	.92 (.12)
	female	.98 (.06)	.84 (.16)	.98 (.05)	.88 (.13)
	total	.99 (.05)	.85 (.16)	.98 (.05)	.89 (.13)
Funniness	male	2.57 (.84)	2.10 (.88)	2.90 (1.03)	2.83 (1.04)
	female	2.76 (.90)	2.27 (.86)	1.99 (1.10)	2.03 (1.10)
	total	2.70 (.88)	2.21 (.87)	2.27 (1.16)	2.28 (1.14)
Aversion	male	.32 (.49)	.47 (.71)	1.23 (1.16)	.99 (.96)
	female	.39 (.56)	.38 (.68)	2.23 (1.19)	1.75 (1.07)
	total	.36 (.54)	.41 (.69)	1.91 (1.27)	1.50 (1.10)

Note. Only the cartoons that were understood were used for averaged funniness and aversiveness scores. Comprehensibility (0=not understood, 1= understood), funniness (from 0 = not funny at all to 5 = very funny) and aversion (from 0 = no aversion at all to 5 = high aversion).

well as the interaction ($F(1, 184) = 63.92, p < .001$) had a significant effect on aversion ratings. This indicates that humor appreciation is not only influenced by structural characteristics but also by the aggressiveness of the stimuli.

Furthermore, a oneway ANOVA revealed that sample I had higher comprehensibility ratings ($M = .95, SD = .06$) than sample II ($M = .91, SD = .08, F(1, 184) = 15.107, p < .001$). The two samples did not differ in age ($F(1,183) = 1.22, p = .27$) or gender ($\chi^2(1) = .77, p = .38$). However, the two samples did not differ on funniness and aversion. Males comprehended the humorous stimuli better ($F(1, 184) = 6.22, p < .05$), and rated them as funnier ($F(1, 184) = 7.70, p < .01$) and as less aversive ($F(1, 184) = 16.83, p < .001$).

Gelotophobia, gelotophilia and katagelasticism

The descriptive statistics of the PhoPhiKat-45-scores can be seen in Table 4: The three scales proved to be satisfactorily reliable ($\alpha \geq .79$). Gelotophobia correlated negatively with gelotophilia ($r = -.19, p < .05$), and katagelasticism was highly correlated with gelotophilia ($r = -.54, p < .05$).

Sample I ($M = 2.45, SD = .45$) had higher scores on gelotophilia than sample II ($M = 2.19, SD = .54; F(1,184) = 12.38, p < .001$) and sample I ($M = 2.06, SD = .52$) had higher scores on katagelasticism than sample II ($M = 1.82, SD = .45; F(1,184) = 10.98, p < .001$). Furthermore One-way ANOVAs revealed that males ($M = 1.56, SD = .30$) had lower scores on gelotophobia than females ($M = 1.82, SD = .44, F(1, 183) = 16.47, p < .001$), males ($M = 2.50, SD = .51$) had higher scores on gelotophilia than females ($M = 2.27, SD = .49, F(1, 183) = 8.62, p < .01$), and males ($M = 2.20, SD = .55$) had higher scores on katagelasticism than females ($M = 1.85, SD = .44, F(1, 183) = 20.48, p < .001$). The latter had already been shown, whereas the differences in gelotophobia and gelotophilia are in contrast to previous findings (e.g., Ruch & Proyer, 2009). Due to the gender differences regarding comprehensibility, funniness and aversion (see above), and because males and females differed on the *PhoPhiKat-45*, it was decided to include gender as a between-subjects variable in further analyses. Finally, we found katagelasticism to decrease with age ($r = -.27, p < .05$), as had Ruch and Proyer (2009).

Table 4:

Descriptive statistics and reliability estimates for the three scales of the PhoPhiKat-45

	M	SD	Min	Max	α
Gelotophobia	1.73	.41	1.00	3.20	.77
Gelotophilia	2.34	.50	1.33	3.53	.85
Katagelasticism	1.96	.51	1.07	3.47	.86

Note. N = 185. M = mean; SD = standard deviation; α = Cronbach's alpha.

PhoPhiKat and humor appreciation

In order to find out which variables influence the perception of humor, 2 x 2 repeated measure analyses for INC (INC-RES vs. NON) and AGR (non-aggressive vs. aggressive cartoons) with gelotophobia, gelotophilia, and katagelasticism as covariates and gender as between-subject variable were computed for each dependent variable (comprehensibility, funniness, and aversion). Furthermore, in case one of the covariates had a differential effect on one of the factors, correlations were computed to clarify the nature of the relationship between them.

Comprehensibility: The results revealed that neither gelotophobia, gelotophilia, katagelasticism nor gender influenced the comprehensibility of aggressive and non-aggressive INC-RES and NON humor.

Funniness: The repeated measure analysis showed that non-aggressive cartoons were perceived to be funnier than aggressive cartoons ($F(1, 179) = 5.80, p < .05$; see Table 3). Furthermore, katagelasticism had a differential effect on the factor AGR ($F(1, 179) = 18.52, p < .001$). Correlational analyses showed that higher scores on katagelasticism led to higher funniness ratings in aggressive cartoons ($r = .41, p < .05$) whereas katagelasticism was unrelated to the funniness of non-aggressive cartoons. Gelotophobia and gelotophilia had no effect on the funniness ratings of aggressive or non-aggressive humor. However, the between-subjects analysis revealed that gelotophobia ($F(1, 179) = 7.45, p < .01$), gelotophilia ($F(1, 179) = 6.36, p < .05$) and gender ($F(1, 179) = 6.36, p < .05$) are related to overall funniness ratings: higher scores on gelotophobia lead to slightly higher funniness ratings in general ($r = .17, p < .05$). Also, higher scores on gelotophilia lead to higher funniness ratings ($r = .25, p < .05$). However, females rated the cartoons lower on funniness than males (Spearman's rho: $r = -.22, p < .05$). Interestingly, katagelasticism was generally not related to funniness ratings.

Aversion: The repeated measure analysis revealed that aggressive cartoons lead to more aversion than non-aggressive cartoons ($F(1, 179) = 12.31, p < .001$). Gelotophobia had a differential effect on the factor AGR ($F(1, 179) = 5.72, p < .05$): Correlational analyses showed that higher scores on gelotophobia correlated with higher aversion ratings in aggressive cartoons ($r = .19, p < .05$) whereas gelotophobia was not correlated with non-aggressive cartoons. Katagelasticism also had a differential effect on AGR ($F(1, 179) = 9.10, p < .01$): Interestingly, higher katagelasticism scores led to less aversion to aggressive cartoons ($r = -.34, p < .05$), but no correlation between katagelasticism and aversion to non-aggressive cartoons was found. Furthermore, the interaction between gender and AGR was significant as well ($F(1, 179) = 11.22, p < .001$) indicating that females rated aggressive cartoons higher in aversion than males (see Table 3). Between-subjects analysis revealed no effect of gelotophobia, gelotophilia, or katagelasticism on aversion ratings in general, but females showed higher aversion ratings than males ($F(1, 179) = 8.50, p < .01$; Spearman's rho: $r = .32, p < .05$).

Discussion

This is the first study that investigates humor appreciation in relation to gelotophobia, gelotophilia, and katagelasticism. The results of the present study revealed that high scorers on the gelotophobia and katagelasticism scale perceive aggressive and non-aggressive cartoons differently: High scores on gelotophobia lead to higher aversion to aggressive humor, whereas high scores on katagelasticism lead to more enjoyment of and less aversion to aggressive humor. Gelotophilia leads to higher amusement in general, independent of the aggressiveness of the humorous stimuli. Furthermore, gender is not only related to funniness and aversion ratings in general (males show higher enjoyment and lower aversion), but females react more sensitively to the aggressiveness of humorous stimuli than males: aggressive cartoons are perceived as less funny and more aversive than non-aggressive cartoons.

Although there was no correlation between funniness scores of aggressive cartoons and gelotophobia, the higher the scores on the gelotophobia scale the more aversion to aggressive cartoons is experienced. This means high scorers on gelotophobia distinguish – at least in their aversiveness – between innocent and aggressive humor. Therefore, not all humor seems to be bad to them. This could have been expected because gelotophobes do not differentiate between teasing and mocking (Platt, 2008; Platt et al., 2009), because gelotophobia correlated negatively with appreciation of the 3 WD stimuli (see Ruch et al., 2009), and because gelotophobes perceive even good-natured laughter as unpleasant (Ruch, Altfreder & Proyer, 2009). What seems to contradict previous results is that gelotophobia leads to more enjoyment of humorous stimuli in general. Further studies have to investigate how stable this result is.

However, it is intriguing that higher scores in gelotophobia lead to more aversion to aggressive humor as these effects were found even for “canned” humor only, i.e., cartoons, where there is no real “butt” of the joke. If this effect can even be found in cartoon ratings, how strong is then the effect in real-life situations in which aggressive humor occurs? Furthermore, it might be concluded from these results that the higher the scores on the gelotophobia scale, the more ambiguous emotions are triggered through aggressive humorous stimuli: If high scorers on the gelotophobia scale experience aggressive humor ambiguously (i.e., not necessarily unfunny but highly aversive), what consequences does this have on social situations in which gelotophobes are confronted with aggressive humor? This is an interesting field for further research.

This study shows that measuring aggressive humor experimentally might be a more adequate assessment of the perception of aggressive humor than using self-report questionnaires: A previous study reported the use of aggressive humor – measured with the HSQ – to be unrelated to gelotophobia (Ruch et al., 2009). However, in the same study, gelotophobes were reported to often indulge in a mean-spirited use of humor and less often in a benign one. Furthermore, the nouns they used to describe themselves related to mockery of others as well as being cynical and sarcastic. In order to get a more adequate picture of individual differences in relation to appreciation and production of aggressive

humor, it is advisable to use multiple methods such as self-report measures but also to experimentally measure the response to aggressive and innocent humor.

The present study also shows that the higher the scores on the katagelasticism scale are, the more enjoyment and less aversion is experienced if confronted with aggressive cartoons. As this fits well to the description of katagelasticism, these results might be seen as a confirmation of the scale and its validity.

It was shown that aggressive personality traits are related to the enjoyment of aggressive humorous stimuli (Byrne, 1956; Ullmann & Lim, 1962), whereas empathy leads to less enjoyment of disparagement humor (e.g., negative ethnic stereotyped jokes, see Forsyth et al., 1997) and less engagement in aggressive types of humor (Yip & Martin, 2006). This raises further questions that have to be addressed in further studies: Are people with high scores on the katagelasticism scale more aggressive and less empathic? Is katagelasticism related to lower emotional intersocial sensitivity or compassion?

Gelotophilia leads to more enjoyment of humorous stimuli in general without differentiation between aggressive and innocent cartoons. Is gelotophilia related to enjoyment of laughing in general without any differentiation as to what or who is being laughed at – even oneself? The results of the present study suggest that people with high scores in gelotophilia are more cheerful persons. According to Ruch and Proyer (2009) being laughed at is not negatively perceived by gelotophiles. The question emerges here, whether people with high scores on the gelotophilia scale enjoy situations in which they are being laughed at more than situations where people laugh *with* them (or where there is no obvious butt of the humor) or whether they are just insensitive regarding aggressive and put-down humor because everything seems to be funny to them. Our data revealed that people with high scores in gelotophilia, in contrast to high scorers on the gelotophobia and katagelasticism scale, do not seem to differentiate between aggressive and non-aggressive types of humor. This indeed suggests that they are generally more cheerful. That gelotophilia leads to more enjoyment in general might be interpreted in line with Mindess, Miller, Turek, Bender and Corbin (1985; see also Herzog & Bush, 1994) by a high sense of humor enabling the enjoyment even of sick humor, whereas someone with a low sense of humor does not have enough resources to enjoy sick jokes. However, as humor scholars do not agree upon what a “good sense of humor” means, this will have to be clarified first before it is possible to draw conclusions about the sense of humor of high scorers on the gelotophilia scale.

Whereas the aggressiveness of a humorous stimulus was shown to be related to the humor response of high scorers on the gelotophobia scale, and particularly of high scorers on the katagelasticism scale, the structure of the cartoons, i.e., incongruity-resolution and nonsense humor, did not seem to play a role in relation to any of the three concepts, gelotophobia, gelotophilia, or katagelasticism. Gelotophobes were already shown to not differentiate between incongruity-resolution and nonsense humor (Ruch et al., 2009). However, it cannot be concluded that aggressiveness as a content-related factor is more important than the resolvability of the incongruity in general, because the factor incongruity, as well as aggressiveness, had an effect on the dependent variables in the present study if the *PhoPhiKat-45* was not taken into account. Gelotophobia and particularly

katagelasticism seem to lead to sensitivity to the aggressiveness of humorous stimuli, whereas other personality characteristics such as experience seeking or tolerance towards ambiguity seem to lead to sensitivity rather to the structure of a humorous stimulus (e.g., Ruch, 1988; Forabosco & Ruch, 1994; Samson et al., 2009).

It would not only be interesting to extend research on realistic applications and more real life situations, but also on variables that moderate the appreciation of aggressive humor dependent on gelotophobia, gelotophilia, and katagelasticism: Previous research showed that appreciation of aggressive humor is moderated by the relationship of the recipient with the agent and the victim of the joke (e.g., McGhee & Lloyd, 1981; Zillmann & Cantor, 1976), or by the perceived pain of the victim in the joke (rather than the hostility of the aggressor, Deckers & Carr, 1986; Wicker, Thorelli, Barron & Ponder, 1981). Furthermore, humorous stimuli might be investigated that are superior (laughing about someone's stupidity) rather than aggressive: if the aggressiveness is more "subtle", will high scorers in gelotophobia and katagelasticism still react differently to such humorous stimuli?

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Appendix

Stimulus examples:

Non-aggressive incongruity-resolution humor: The cartoon shows two men standing in front of a map saying “you are here”. One of the men says: “It looks like we’re being observed.”

Aggressive incongruity-resolution humor: The cartoon shows two elderly ladies sitting on a bench in a park. A boy with a smoking gun is standing in front of the bench. A pair of feet of a person lying on the ground can be seen besides the child. One of the ladies asks: “Is he an only child?”. The second lady responds: “He is now”.

Non-aggressive nonsense humor: The cartoon shows two squids – a mother and a baby. The baby squid is riding a bike for the first time. His mother who is still holding him says: “I am going to let go of you now, Benjamin. Remember, you can’t fracture anything”. And the baby squid says: “My fear is not rational”.

Aggressive nonsense humor: The cartoon shows two men and a basket with a puppy and a carnivorous plant. One of the men says: “Of course you can raise them together. All you need is to buy two puppies first, so you can say ‘Bad carnivorous plant, don’t ever do that again’ ”.