Sex Differences in the Attractiveness Halo Effect in the Online Dating Environment

Peter Michael Bak

Hochschule Fresenius Köln

ABSTRACT

The following study with 113 participants analyzes the evaluation bias effects that happen when people are confronted with a typical profile of a online dating service that contains a false photo, i.e. a photo that obviously does not portray the profile owner. It is known that profile photos have a great impact how the profile owner is judged. As predicted by the attractiveness halo effect, an attractive photo leads to better evaluations of the displayed person than an unattractive photo. The results of this study show that even if the evaluator knows that the photo does not actually portray the profile owner, he is nevertheless influenced by the perceived attractiveness of the displayed person. But this is only the case for men judging women. Women seem to be more resistant against this automatic evaluation bias. The findings are fully in line with other empirical findings that support an evolutionary perspective, namely that men ascribe a higher value to physical attractiveness in judging women than women do in judging men.

1 Introduction

Nowadays social networks (SNS) like MySpace, Facebook, LinkedIn, or online dating services are used by millions of people. In 2010 Facebook already has more than 400 million active users (according to its own data, see http://www.facebook.com/press/info.php?statistics). The primary purposes of such online services is socialising and engaging in communication with friends (e.g., www.facebook.com), to establish business relevant contacts (e.g., www.linkedin.com) or to initiate completely new contacts and friendships (www.parship.com). In Germany, Austria and Switzerland, in 2007 more than 7 Million people used already online dating platforms (Pflitsch & Wiechers, 2008). Social network sites or dating services allow individuals to construct a more or less public profile that represents themselves, to invite other users as friends or contacts, and to look at the profiles of other users (for an overview see Boyd & Ellison, 2006). For this reason, users typically generate personal profiles including descriptors such as age, sex, hobbies, various preferences, interests, location, or professional background. Photos can also be added to the profile. Because photos (mostly of faces) are often displayed at a prominent place and faces generally attract attention automatically (e.g., Vuilleumier, 2000), they play a crucial role in forming the desired online self representation (e.g., Fiorie, Taylor, Mendelsohn, & Hearst, 2008; Young, 2009), a process that is known elsewhere as impression management (Goffman, 1959/1990). On the one hand, users can describe themselves in a favourable but also authentic way (e.g., Ellison, Heino, & Gibbs, 2006), accentuate their strengths, and represent themselves in a manner they think will attract attention. On the other hand, what the perceiver finds out about a person is not only a matter of all the information in the profile but instead which information is processed primarily. First sight information strongly influences what is perceived later in the profile. This phenomenon is called halo effect (Behrscheid & Walster, 1974; Kanning, 1999; Kelly, 1955; Thorndike, 1920). In online dating sites, where photos are an important source of impression formation, biased profile evaluations due to the occurrence of halo effects could be crucial.

1.1 The Attractiveness Halo Effect

The halo effect refers to the cognitive bias that the first feature we recognize in another person influences how we perceive that person later. Because visual cues are mostly the first we recognize (Bar, Neta, & Linz, 2006), they are important for such a halo effect. On basis of these visual cues, not only the visual attractiveness is obviously apparent, but inferences are also drawn with respect to the person's traits (Hassin & Trope, 2000; Kanning, 1999). Online profile photos provide such visual cues that give users the very first impression about profile owner's, weight, skin colour, hair colour, and eyes (Alley, 1988; Hermann, Zanna, & Higgins, 1986; Rhodes & Zebrowitz, 2002) and his attractiveness in general that will later influence the impression formation about the target person. It has often been shown that perceived attractiveness leads to a halo effect. People with attractive faces are judged more positively in general, are perceived as socially more competent, powerful, more intelligent, and even healthier (Eagly, Ashmore, Makhijani, & Longo,

1991; Langlois, Kalakanis, Rubenstein, Larson, Hallam, & Smoot, 2000; Zebrowitz, Hall, Murphy, & Rhodes, 2002; Zebrowitz & Rhodes, 2004). In light of these results, it follows that people in SNS are very conscious about selecting the right photo (e.g., Ellison, et al., 2006), especially if the desire is to get to know potential new friends or partners. Also, from an evolutionary perspective this makes perfect sense. It has been shown elsewhere that physical (facial) attractiveness is an important cue for mate choice (e.g. Walster, Aronson, & Abrahams, 1966), because it signals mate qualities such as health and intelligence (e.g., Rhodes, 2006; Zebrowitz, et al., 2002). Young (2009), for example, showed that SNS members mostly select "good- looking" photos or photos that express important personal attributes (see also Mikkola, 2008). Also, it is recommendable to select the best-looking photo if you expect to be contacted. This is completely in line with the results of Wang, Moon, Kwon, Evans, and Stefanone (2010) who recently demonstrated that both male and female subjects were more willing to initiate friendships with opposite-sex profile owners who had attractive photos. These results suggest that on the one hand, the more one is interested in serious new relationships, the more attractive but also authentic should be the generated profile including the photo. On the other hand, online dating sites give users not only the possibility to express themselves, but also the possibility to experiment with different identities (Whitty, 2007) or various forms of deception (e.g., Döring, 2000; Gonzales & Hancock, 2008; Hancock, Toma, & Ellison, 2007; Toma, Hancock, & Ellison, 2008), e.g. false or enhanced photos (e.g., Hancock & Toma, 2010; Toma & Hancock, 2010) or gender switching (e.g., Utz, 2005). It becomes clear that while playing with different roles and identities, different profiles and profile photos, e.g., celebrity photos are used to experiment with, namely what photos could be more successful in attracting others' attention (Whitty, 2007). In the face of these "identity games," the question arises if and how a false photo can also elicit attractiveness halo effects, i.e., if an attractive profile photo leads to a better evaluation of the profile owner than an unattractive photo. This could be hypothesized if one takes into account that impression formation processes are biased through halo's and are seen as effortless and are more or less automatic (e.g., Greenwald & Banaji, 1995; Nisbett & Wilson, 1977). In this case, also the false photo should automatically generate a biased perception by the target person.

1.2   Sex Differences in Valuing Attractiveness

There is some empirical evidence that there are sex differences with respect to the impact of attractiveness on evaluation of a target person which requires specifying the general assumption of an attractiveness halo when perceiving false photos. Kaplan (1978) for example found that the attractiveness halo does not occur for male target persons (see also Lucker, Beane, & Helmreich 1981). These results are in line with findings that men much more than women desire partners who are good looking and physically attractive (e.g., Buss, 1989; 2006; Fein-

gold, 1991). Todd, Penke, Fasolo, & Lenton, 2007 assume that for men all women above a certain attractiveness threshold can be proposed as a mate. Also, this can be due to evolutionary causes, because attractiveness judgements also reflect biological criteria (e.g., reproduction). Therefore, men should focus more than women on physical criteria when they judge potential partners (Jankowiak, Jill, & Donovan, 1992; Trivers, 1972). As Buss (2007) pointed out, men have a greater desire for a variety of sex partners than do women do: "The evolutionary logic for this sex difference is straightforward - men who succeeded in securing sexual access to a variety of women would have achieved greater reproductive success than men who did not. Ancestral women, in contrast, could not increase their reproductive output by having sex with many men" (Buss, 2007, p. 511). Newer brain physiological findings support this notion. Hamann, Herman, Nolan, and Wallen (2004) found generally more responsiveness to visual, sexually arousing stimuli for men than for women. Using the functional resonance imaging (fMRI) procedure, the authors found that the amygdale and hypothalamus were more activated in men than in women when viewing sexual stimuli (see also van Hooff, Crawford, & van Vugt, 2010). Fisman, Ivengar, Kamenica, and Simonson (2006) demonstrated in a Speed Dating – experiment that women put greater weight on the intelligence of the potential partner, while men respond more to physical attractiveness (see also Todd et al., 2007). Based on these findings, the hypothesis could be rendered more precisely, namely that a false but attractive photo lead to an attractiveness halo but especially for female target persons when judged by men and not for male target persons when judged by women. The following study was conducted to test this hypothesis in an online dating environment.

2   Methods and Data

2.1   Participants

A sample of college students at the Fresenius University of Applied Sciences in Cologne, Germany was recruited. A total of 113 students completed the survey (59 Males, 54 Females). The mean age for the sample was 24.4 years ($SD = 4.30$); participants age ranged from 18 to 40 years.

2.2   Materials

A typical female and male online dating profile was created, indicating e.g., age, sex, hobbies, a short self-description, preferred literature, cooking preferences, nationality, eye colour, hair colour (blond), weight and height. Besides, profile photos of an attractive and an unattractive man (black haired) and an attractive and an unattractive woman (black haired) were chosen from the publicly accessible website Beautycheck (http://www.beautycheck.de/; see Braun, Gründl, Marberger, and Scherber, 2001). These morphed photos are composites from various real people's photos and tested for their attractiveness. The female profile was once com-

bined with a photo of an attractive or unattractive woman, the mal profile with a photo of an attractive or unattractive man.

Furthermore, eight unmistakably positive valenced and eight unmistakably negative valenced trait items were used to measure respondent's evaluation of the profile owner (see Appendix 1). These attributes were taken from the norm list of 908 common German adjectives (Hager, Mecklenbräuker, Möller, & Westermann, 1985; Möller & Hager, 1991) with mean valence scores of 55.38 for positive and -59.38 for negative attributes. Responses ranged from 1 (strongly agree) to 7 (strongly disagree). One item was used to find out, if the participants were willing to get to know the profile owner better ("Would you like to get to know the profile owner better?"). Responses were "Yes", "No", "Maybe".

2.3 Procedure

Participants were invited to take part in the experiment via e-mail that included a link to the online survey. They were told that the study was to investigate a new partnership portal and they would be asked to consider a person's profile. Men would evaluate female profiles and women male profiles. Also participants were informed that they would see a profile photo that would for reasons of data privacy not show the profile's owner but a randomly assigned photo. It was also obvious that the profile description of hair colour (blond haired) did not match the hair colour of the displayed person (black haired). Participants were then exposed to one profile (either with an attractive or unattractive photo) and asked to answer an online questionnaire, comprised of different personality traits measuring their impression of the profile owner and their willingness to initiate contact with the profile owner. Men and women were randomly assigned to one of two experimental (attractive vs. unattractive photo) conditions.

3 Results

3.1 Wish to get to know the target person

Primarily, the wish to get to know the profile owner depending on owner and participant's sex was analyzed (see Table 1).

Table 1: Percentage of participants who want to get to know the profile owner ("Would you like to get to know the profile owner better?").

	Women			Men		
	Yes	No	Maybe	Yes	No	Maybe
Unattractive photo	14.29	62.86	22.86	15.00	57.50	31.03
Attractive photo	20.69	37.93	41.38	37.93	31.03	31.03

As can be seen in Table 1, there is quite a difference in the willingness to get to know a profile owner with an attractive respectively unattractive photo. Especially for men, the attractive photo heightened the desire to contact the target person. Females seem to be more cautious. Only a few of them have in face of the attractive photo the desire to initiate contact with the target person, but they answered much more "maybe" at least.

3.2 Attractiveness halo

To analyze the attractiveness halo a 2 (face attractiveness: attractive, unattractive) x 2 (evaluator sex: mal, female) x 2 (trait valence: positive, negative) ANOVA was conducted for the ratings of the profile owner. Before, ratings for positive traits and those for negative traits were aggregated. The significant trait valence effect ($F(1,109) = 77.35$, $p < .001$) shows that positive traits were generally more attributed than negative traits. This effect was also more prominent within the attractive face condition indicated by the significant interaction effect of face attractiveness and trait valence ($F(1,109) = 10.10$, $p < .01$). More important, there is an interaction effect of face attractiveness, trait valence and evaluator sex ($F(1,109) = 5.75$, $p < .05$). Separate analysis for female and male participants showed that whereas male participants evaluated the profile owner more positive and less negative when the photo showed an attractive woman in contrast to an unattractive woman ($F(1,57) = 16.50$, $p < .001$), there is no such effect for the female participants ($F(1,52) < 1$; n.s.; see Figure 1).
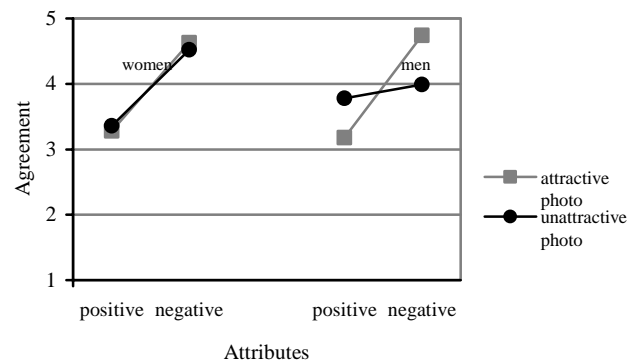
Figure 1: Profile evaluations for attractive and unattractive profile photos. Low values (ranging from 1 to 7) represent higher agreement.

4 Discussion

The goal of this study was to explore biased evaluation effects that can occur in an online dating environment triggered by photos that were explicitly marked as false photos, a fact that is not unusual. Based on many empirical findings, it was assumed that photos of human faces attract attention and automatically elicit an attractiveness halo effect. But, because there is some evidence, that physical attractiveness is evaluated differentially by men and women, it was hypothesized, that this bias should be stronger for men judging a woman than for women judging a man. The results fully confirmed the hypothesis. For

male participants, an attractive female photo led to a greater desire to get to know the profile owner and to more positive and less negative evaluations. For female participants, judging the male profile this was not the case. In sum, the results support the notion that the attractiveness halo occurs primarily for female target persons (Kaplan, 1978; Feingold, 1991) and that attractiveness judgements reflect biological criteria as proposed (Buss, 2006, 2007; Jankowiak et al., 1992). As the study of Wang et al. (2010) showed, men and women are equally influenced by an attractive profile owner, but the present research let us assume that for men in contrast to women, perceived physical attractiveness automatically overrides all other information available, also the information that the photo does not belong to the profile owner. Women apparently take this "male bias" into account when selecting a photo for their profile as suggested by the results of Siibak (2009) who found that girls in contrast to boys select primarily "good-looking" photos (see also Hancock & Toma, 2010).

It is a clear limitation of the present research that the participants were not online daters but a student sample. Therefore we do not know if the same effects will be observable in true online dating communication. Also we do not know which evaluation processes are initiated that could contaminate our results when information about the false photos are given. Further research should take these limitations into account and also take recourse to the findings of Buss (1989) who showed that men valued reproductive capacity more than did women, and women valued resource acquisition more than did men. From this perspective it could be interesting to investigate if women show an analogous evaluation bias if they perceive such a resource as for example potential earnings as do men if they perceive the physical attractiveness from the profile owners photo.

To sum up, the results of the present study shows the manipulative power of physical attractiveness deduced from online profile photos, especially for men even if it is obviously clear that the displayed information is completely false. The practical implication seems to be clear: male users of online dating platforms should be more carefully when judging a female profile showing a very attractive woman. But because each online platform has its own communication rules and is used for different reasons it remains an open question if the presented results even holds for every SNS or only in the online dating environment.

5   Bibliography

Alley, T. R. (1988). *Social and applied aspects of perceiving faces*. Hillsdale, NJ, USA: Erlbaum.

Bar, M., Neta, M., & Linz, H. (2006). Very first impressions. *Emotion, 6(2)*, 269-278.

Berscheid, E., & Walster, E. (1974). Physical attractiveness. In L. Berkowitz (ed.), *Advances in experimental social psychology* (Vol 7, pp 158-216). New York: Academic Press.

Boyd, D. M., & Ellison, N. B. (2007). Social Network Sites: Definition, history and scholarship. *Journal of Computer-Mediated Communication, 13(1)*, article 11.

Braun, C., Gründl, M., Marberger, C., Scherber, C. (2001) *Beautycheck: Ursachen und Folgen von Attraktivität*. PDF document available from http://www.beautycheck.de/english/bericht/bericht.htm

Buss, D. M. (1989). Sex differences in human mate preferences: evolutionary hypotheses tested in 37 Cultures. *Behavioral and Brain Sciences, 12*, 1-49.

Buss, D. M. (2006). Strategies of human mating. *Psychological Topics, 15(2)*, 239-260.

Buss, D. M. (2007). The evolution of human mating. *Acta Psychologica Sinica, 39(3)*, 502-512.

Döring, N. (2000). Identität + Internet = Virtuelle Identität? *forum medienethik, 2*, 65- 75.

Eagly, A. H., Ashmore, R. D., Makhijani, M. G., & Longo, L. C. (1991). What is beautiful is good, but. . .: A meta-analytic review of research on the physical attractiveness stereotype. *Psychological Bulletin, 110(1)*, 109-128.

Ellison, N., Heino, R., & Gibbs, J. (2006). Managing impressions online: self-presentation processes in the online dating environment. *Journal of Computer-Mediated Communication, 11(2)*, article 2.

Feingold, A. (1991). Sex differences in the effects of similarity and physical attractiveness on opposite-sex attraction. *Basic and Applied Social Psychology, 12(3)*, 357-367.

Fiore, A. T., Taylor, L. S., Mendelsohn, G. A., & Hearst, M. (2008). Assessing attractiveness in online dating profiles. *26th Annual CHI Conference on Human Factors in Computing Systems Vol 1 & 2*, Conference Proceedings, 797-806.

Fisman, R., Iyengar, S. S., Kamenica, E., & Simonson, I. (2006). Gender differences in mate selection: evidence from a speed dating experiment. *The Quarterly Journal of Economics, 121(2)*, 673-697.

Goffman, Erving (1959/1990): *The presentation of self in everyday life*, London, Penguin.

Gonzales, A. L., & Hancock, J. T. (2008). Identity shift in computer-mediated environ-

ments. *Media Psychology, 11(2)*, 167 — 185.

Greenwald, A. G., & Banaji, M. R. (1995). Implicit social cognition: attitudes, self-esteem, and stereotypes. *Psychological Review, 102(1)*, 4-27.

Hager, W., Mecklenbrauker, S., Moller, H., & Westermann, R. (1985). Emotionsgehalt, Bildhaftigkeit, Konkretheit und Bedeutungshaltigkeit von 580 Adjektiven: Ein Beitrag zur Normierung und zur Prüfung einiger Zusammenhangshypothesen [Emotionality, imageability, concreteness, and meaningfulness of 580 adjectives: A contribution to norming and test of correlations]. *Archiv für Psychologie, 137*, 75-97.

Hancock, J. T., Toma, C., & Ellison, N. (2007). The truth about lying in online dating profiles. *Annual CHI Conference on Human Factors in Computing Systems Vol 1 & 2*, San Jose, CA. Conference Proceedings, 449-452.

Hancock, J. T., & Toma, C. L. (2010). Putting your best face forward: the accuracy of online dating photographs. *Journal of Communication, 59(2)*, 367 - 386.

Hamann, S., Herman, R. A., Nolan, C. L., & Wallen, K. (2004). Men and women differ in amygdala response to visual sexual stimuli. *Nature Neuroscience, 7(4)*, 411-416.

Hassin, R., & Trope, Y. (2000). Facing faces: Studies on the cognitive aspects of physiognomy. *Journal of Personality and Social Psychology, 78(5)*, 837-852.

Hermann, C. P., Zanna, M. P., & Higgins, E. T. (1986). *Physical appearance, stigma, and social behavior: The Ontario Symposium*. Hillsdale, NJ, USA: Erlbaum.

Kanning, U. P. (1999). *Die Psychologie der Personenbeurteilung*. Göttingen: Hogrefe.

Jankowiak, W. R., Hill, E. M., & Donovan, J. M. (1992). The effects of sex and sexual orientation on attractiveness judgments: An evolutionary interpretation. *Ethology and Sociobiology, 13*, 73-85.

Lucker, G. W., Beane, W. E., & Helmreich, R. L. (1981). The Strength of the halo effect in physical attractiveness research. *Journal of Psychology: Interdisciplinary Applied, 107*, 69–75.

Nisbett, R. E., & Wilson, T. D. (1977). The halo effect: evidence for unconscious alteration of judgments. *Journal of Personality and Social Psychology, 35(4)*, 250-256.

Pflitsch, D. & Wiechers, H. (2008), *Der Online-Dating-Markt 2007-2008. Deutschland — Österreich — Schweiz*. Broschüre. http://www.singleboersen-vergleich.de/presse/online-dating-markt-2007-2008.pdf (10.06.2010).

Rhodes, G., & Zebrowitz, L. A. (2002). *Facial attractiveness: Evolutionary, cognitive, and social perspectives*. Norwood, NJ, USA: Ablex.

Kaplan, R. M. (1978). Is beauty talent? Sex interaction in the attractiveness halo effect. *Sex Roles, 4(2)*, 195-204.

Kelly, G. A. (1955). *The psychology of personal constructs* (Vols. 1 and 2). New York: Norton.

Langlois, J.H., Kalakanis, L., Rubenstein, A.J., Larson, A., Hallam, M., & Smoot, M. (2000). Maxims or myths of beauty? A meta-analytic and theoretical review. *Psychological Bulletin, 126*, 390–423.

Mikkola, H., Oinas, M., & Kumpulainen, K. (2008). Net-based identity and body image among young IRC-gallery users. In K. McFerrin et al. (Eds.), *Proceedings of Society for Information Technology and Teacher Education International Conference 2008* (pp. 3080-3085). Chesapeake, VA: AACE.

Möller, H., & Hager, W. (1991). Angenehmheit, Bedeutungshaltigkeit, Bildhaftigkeit und Konkretheit-Abstraktheit von 452 Adjektiven [Pleasantness, meaningfulness, imageability and concreteness of 452 adjectives], *Sprache und Kognition, 10*, 39-51.

Siibak, A. (2009). Constructing the self through the photo selection - visual impression management on social networking websites. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace, 3(1)*, article 1.

Thorndike, E. L. (1920). A constant error on psychological rating. *Journal of Applied Psychology, 4*, 25-29.

Todd, P. M., Penke, L., Fasolo, B., & Lenton, A., P. (2007). Different cognitive processes underlie human mate choices and mate preferences. *Proceedings of the National Academy of Sciences of the United States of America, 104(38)*, 15011-15016.

Toma, C. L., Hancock, J. T., & Ellison, N. B. (2008). Separating fact from fiction: An examination of deceptive self-presentation in online dating profiles. *Personality and Social Psychology Bulletin, 34(8)*, 1023-1036.

Toma, C. L., & Hancock, J. T. (2010). Looks and lies: The role of physical attractiveness in online dating self-presentation and deception. *Communication Research, 37(3)*, 335-351.

Trivers, R. L. (1972). Parental investment and sexual selection. In: B. Campbell (Ed.), *Sexual Selection and the Descent of Man, 1871-1971*, pp. 136-179, Chicago: Aldine.

Utz, S. (2005). Types of deception and underlying motivation. *Social Science Computer Review, 23(1)*, 49-56.

Hooff, J. C., Crawford, H. & Vugt, M. (2010). The wandering mind of men: ERP evidence for gender differences in attention bias towards attractive opposite sex faces. *Social Cognitive and Affective Neuroscience, first published online July 2, 2010 doi:10.1093/scan/nsq066*.

Vuilleumier, P. (2000). Faces call for attention: evidence from patients with visual extinction. *Neuropsychologia, 38*, 693-700.

Walster, E., Aronson, V., & Abrahams, D. (1966). Importance of physical attractiveness in dating behavior. Journal of *Personality and Social Psychology, 4(5)*, 508-516.

Wang, S. S., Moon, S.-I., Kwon, K. H., Evans, C. A., & Stefanone, M. A. (2010). Face off: Implications of visual cues on initiating friendship on Facebook. *Computers in Human Behavior, 26(2)*, 226-234.

Whitty, M. T. (2007). Revealing the 'real' me, searching for the 'actual' you: Presentations of self on an internet dating site. *Computers in Human Behavior, 24*, 1707-1723.

Young, K. (2009). Online social networking: An australian perspective. *International Journal of Emerging Technologies and Society, 7(1)*, 39-57.

Zebrowitz, L.A. & Rhodes, G. (2004). Sensitivity to 'bad genes' and the anomalous face overgeneralization effect: Accuracy, cue validity, and cue utilization in judging intelligence and health. *Journal of Nonverbal Behavior. 28*, 167-185.

Zebrowitz, L. A., Hall, J. A., Murphy, N. A., & Rhodes, G. (2002). Looking smart and looking good: facial cues to intelligence and their origins. *Personality and Social Psychology Bulletin, 28(2)*, 238-249.

6   Appendix 1

List of trait attributes used to describe the profile owner

Negative	Positive
Indecisive (unentschlossen)	Humprous (humorvoll)
Inactive (träge)	Attractive (attraktiv)
Lonely (einsam)	Perceptive (einfühlsam)
Pessimistic (pessimistisch)	Sociable (kontaktfreudig)
Egoistic (egoistisch)	Successful (erfolgreich)
Finical (pingelig)	Interesting (interessant)
Sparkish (angeberisch)	Warmhearted (warmherzig)
Avaricious (geizig)	Intelligent (intelligent)
Arrogant (arrogant)	Sympathetic (sympathisch)
Bourgeois (spießig)	Helpful (hilfsbereit)