reactions. Of course, participants did not know this was part of the experiment and were deceived about the real experimental purpose in this respect. At first glance, this study seems to be an intriguing example of what could be called an unacceptable deception of participants. But further examination shows that two aspects are intertwined here that should be kept separate: What might be considered obnoxious in this way of treating volunteer participants is the treatment (calling them "assholes") rather than the act of deceiving. One can hardly imagine somebody expressing scrupulosity if the treatment had consisted of a friend passing by saying "hello" even if participants were deceived about the real purpose of the experiment in the same way (i.e., measuring emotional reactions). The acceptability of treatment and of deception about the purpose of an experiment are different things and must be evaluated separately with respect to ethical appropriateness. So Ortmann and Hertwig's claim for abandoning deception completely means "throwing the baby out with the bath water."

Is Deception Needed in Psychological Research?

Deception may be defined as concealing or camouflaging the real purpose of an experiment (i.e., the data in which the scientist is interested) to avoid conscious reactivity of participants that would make these data worthless. In fact, memory research in large areas would be impossible if this kind of deception was not allowed. Consider the research on incidental learning. Participants are told to rate stimuli on some emotional dimensions or to do some other (often irrelevant) task on them, certainly not knowing that a memory test will follow. If they were told about this fact in advance, it would not be a study on incidental learning by definition. Plausible, but necessarily deceptive, cover stories have to be used in these cases. In studies of cognitive illusions (e.g., hindsight bias or misleading postevent information effect), it is a necessity to conceal the true nature of the experiment. These are only two of numerous examples. The ethical question concerning deception in this research therefore cannot be whether deception is necessary within this research (because it is) but rather whether this research is necessary. This must of course be the topic of public discussion in which psychologists will have to defend their claims about the relevance of their research. But this is the case for every empirical science. It is of no help for cognitive psychologists when Ortmann and Hertwig (1997) noted that "in experimental economics, for example, professional conventions categorically prohibit deception" (p. 747) because deception may not be necessary in most studies on economic decisions. So economists easily can do without this tool, whereas psychologists often cannot.

Do Participants Become Uncooperative?

This last section is based on my experience as a participant as well as an experimenter. My impression is that most people participating in psychological experiments are very interested in the purpose of these studies. Psychological research results are relevant for almost everyone. If participants are carefully informed about the purpose of the experiment and the necessity of deception (e.g., in cognitive illusion research), most of them will accept this deception as an indispensable tool. This is reflected in the fact that most of the participants in studies conducted at our department agreed to participate again in other experiments even after having been debriefed and informed about the real purpose of the studies. Because they are volunteers, they easily could terminate the sequence that Ortmann and Hertwig (1997) called a "repeated prisoners' dilemma game." In fact, most of them do not withdraw. It should go without saying that participants must be debriefed about every experimental manipulation, including deception. If this is carefully done, I do not expect the dramatic image loss of psychology as a profession in general, which Ortmann and Hertwig expect.

Interestingly, Ortmann and Hertwig's (1997) line of argument is in no way ethical but purely pragmatic. Despite this fact, I agree with the authors about the importance of careful ethical considerations of any treatment in psychological research. As in any empirical science, the trade-off between possible harms of interventions (costs) and scientific relevance (benefit) should be a matter of public discussion. I would like to endorse that deception should be avoided whenever possible, but in some cases (e.g., incidental learning), this cannot be done without sacrificing the purpose of research. The most problematic point in Ortmann and Hertwig's arguments is their confounding of treatment and deception by simply citing one example that is not very typical for experimental psychology in general. By doing this, they evoke the image of psychological laboratories being places where Milgram studies are commonplace. Most psychologists would agree that this is far from the truth. Not clarifying the distinction between the acceptability of a treatment and the acceptability of deception, Ortmann and Hertwig might cause a greater (and undeserved) image loss of psychology than deception itself.

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The Question Remains: Is Deception Acceptable?

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In response to our comment titled "Is Deception Acceptable?" (Ortmann & Hertwig, July 1997), Kimmel (1998, this issue) and Korn (1998, this issue) question our assertion that the use of deception in psychological experiments has increased since the early 1960s. Korn cites two of his own studies as showing that "during the 1970s, there was an increase in deceptive research; but from then through 1994, there appears to have been a decrease" (p. 805). His results conflict with those of Sieber, Iannuzzo, and Rodriguez (1995), who reported that in the top-ranking social psychology journal, *Journal of Personality and Social Psychology* (which Nicks, Korn, & Mainieri, 1997, also analyzed), the percentage of studies using deception has remained essentially the same since the 1970s, despite a dip in the mid-1980s (47% in 1978, 32% in 1986, and 47% in 1992). The discrepany between their results could stem from definitions of deception that differ in inclusiveness.

Whether there has been a decline in the number of studies using deception (by any definition) in recent decades, however, is irrelevant to our argument. Even if its use is less frequent and less dramatic than in the past, deception can strongly affect the reputation of individual labs and the profession,

thus contaminating the participant pool. If participants arrive at an experiment knowing that they may be deceived, distrusting the experimenter as a result, then control over the experimental conditions is compromised. The question is not whether one has less of a bad thing but whether one has a bad thing at all.

Of course, whether deception is a bad thing methodologically (never mind ethically) is a question open to dispute. We believe that deception significantly influences the behavior of participants, whereas Kimmel (1998), Bröder (1998, this issue), and others do not. Kimmel cites several studies that seem to suggest that participants have a positive attitude toward the use of deception in psychological experiments. Unfortunately, all of them measured participants' attitudes rather than their actual behavior. Even if one believes the finding in these studies that participants do not mind deception, one cannot therefore assume that they behave cooperatively in experiments in which they expect to be deceived. In fact, there is evidence that they do not (e.g., MacCoun & Kerr, 1987; Newberry, 1973; Taylor & Shepperd, 1996). Still, the question of whether deception matters deserves further inquiry.

In closing, we would like to note that our definition of deception does not coincide with that intimated by Bröder (1998). To us, not telling participants the purpose of an experiment is not necessarily deception; telling participants things that are not true necessarily is.

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