To blush, or not to blush
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CHAPTER 8

Discussion
The empirical section of this thesis consists of three parts. The first part (chapter 2 and 3) was designed to test the signaling properties of the blush from the observer’s perspective. In these chapters we examined whether blushing affects the observer’s appreciation of the blushing actor both in terms of subjective judgment and actual behavior. The use of photographs in these studies enabled us to isolate the blush from the other features of an appeasement display. The second part of this thesis (chapters 4, 5, and 6) examined the signaling properties of the blush from the blushing actor’s perspective, and tested how participants expected to be judged when displaying a blush in various contexts. As a central theme of these experiments, we explored whether fear of blushing is characterized by an overestimation of the undesirable interpersonal effects of displaying a blush. As the third and final part, the study in chapter 7 was set up as an attempt to obtain a better understanding of the requisites for the blush response to occur and investigated if direct visual attention of an observing other is necessary for a blush to occur.

**Empirical findings**

*The blush’s signal value*

Using photographs of blushing and non-blushing women, the two experiments in chapter 2 examined if blushing is a functional signal that can positively affect an observer’s judgment of the blushing actor after a clear-cut mishap or transgression. Besides testing the effects of displaying a blush on a neutral expression, the experiments also investigated whether blushing increased the remedial properties of shameful and embarrassed expressions. Participants were asked to read a short vignette describing either a transgression or a mishap. After the vignette they saw pictures of women displaying the various emotions with or without a blush, and rated them on dimensions such as sympathy and trustworthiness. The results showed that in the context of straightforward transgressions and mishaps, displaying a blush on a neutral face positively affected the observers’ judgment of the blushing actor. Specifically in the context of transgressions, blushing also significantly improved the observers’ judgments when the blush was displayed on top of shame. This clearly indicates that blushing has remedial value after a clear-cut predicament.

However, the blush’s remedial value will be demonstrated more convincingly if people not only report that they like the blushing actor more, but also display behavior indicating that the social relationship has been restored. Therefore, the study in chapter 3 was set up to test not only the influence of the blush on the observer’s subjective judgment but also on the observer’s behavior towards the blushing actor. Furthermore, earlier studies showed that
uncertainty about the opponent’s motives led to the perception that the blush indicates the worst possible motives (de Jong, Peters, & De Cremer, 2003; de Jong, Peters, De Cremer, & Vranken, 2002). Therefore, this study also tested the influence of ambiguity about the actor’s motives on these outcomes.

In the study, participants played a morally framed prisoner’s dilemma game (PDG) with a virtual opponent. A PDG is always played with two participants who can either cooperate or defect. Mutual cooperation provides payoffs for each player that are better than the payoffs from mutual defection. However, if one player defects while the other cooperates, the defector earns a payoff that is better than that obtained by mutual cooperation. In a morally framed PDG, cooperation is depicted as the moral option. For all participants, the virtual opponent defected during the second round of the PDG. Only the cooperating participants were selected for the analyses because the defection of the opponent might not be regarded as a transgression when the participant already defected him/herself. To test the effect of ambiguity, half of the participants were informed that the opponent was forced to defect (non-ambiguous condition), whereas for the other half this information was omitted (ambiguous condition). After the defection, the computer randomly showed a photograph of the virtual opponent with one of four possible displays: a neutral face, a neutral blushing face, an embarrassed face, or an embarrassed blushing face. To test the effect of the blush on the participant’s behavior, the PDG was followed by a trust task. In this task, participants decided how much money (0 to 10 euros) they wanted to give to the virtual opponent. They were further informed that the amount of money that the opponent received would be tripled, and that the opponent could return to the participant any amount of the money that she had just earned. The amount of money a participant gives to the opponent can be seen as an index of how much he/she trusts the opponent (to give a fair amount of money back).

In further evidence of the blush’ remedial value, the results showed that blushing restored the trustworthiness of the virtual opponent after she defected in the PDG: Participants entrusted the opponent with more money in the subsequent trust task when she blushed than when she did not blush. The PDG study, however, could not replicate the finding that ambiguity about the opponent’s motives led to the perception that the blush indicates the worst possible motives (de Jong, et al., 2002; 2003). That is, when the participants were informed that the opponent was obliged to defect, as well as when they did not receive this information, a blush led to a more positive judgment of the virtual opponent. This clearly differs from the study that tested the effect of blushing in a morally framed PDG in an interaction-context (de Jong, et al., 2002).
One possible explanation is that in the more real life setting of the earlier study by de Jong and colleagues (2002), the concomitant behaviors of the blushing person, and not the blush itself, negatively affected the judgment of the observer. This directly points towards a limitation of the studies in chapters 2 and 3. Testing the communicative value of the blush using virtual games or vignettes and photographs enabled us to control the social context as well as the expression of the blushing person. The studies, however, did not test which behaviors and expressions normally coincide with the blush. For example, naturally blushing persons may infrequently have a neutral facial expression. Also, the blush has been associated with a cognitive blur (Darwin, 1989/1872; Crozier, 2006), which might cause people to behave differently when they blush than when they do not blush. To obtain a better understanding of the communicative value of the blush it is necessary to explore how blushing and concomitant displays occur in more real life settings. Then, when more is known about the exact behaviors that coincide with the blush response in a particular context, the effect of blushing on top of these other displays can be examined. Thereby, it might be helpful to isolate the blush from the other display features with movies instead of pictures, because a blush normally rises within a few seconds rather than immediately, and likewise emotions such as shame and embarrassment, which might coincide with the blush, consist of a number of successive displays rather than one still.

Nevertheless, the pattern of findings from the studies in chapter 2 and 3 indicates that blushing indeed has signal value in addition to other facial expressions and sustains the tenability of the hypothesis that blushing can function as a signal that recuperates likeability and trustworthiness after a social transgression. In this way, blushing might contribute to the prevention of social exclusion after a transgression (e.g., Castelfranchi & Poggi, 1990; Leary & Meadows, 1991; de Jong, 1999). Results of chapter 3 further showed that blushing positively affected the expectations of the opponent’s future behavior. That is, by blushing the opponent appeared to show that, although she could not present herself as irreproachable on this occasion, she was at least disturbed by the transgression and may be cooperative some other time (cf. Goffman, 1959). Furthermore, the results of chapter 2 reveal a first hint as to how the blush receives its appeasing properties. A regression analysis showed that the perceived intensity of the emotion mediated the appeasing effect of the blush. In other words, the blushing women were perceived as being more ashamed/embarrassed and this led to a more positive judgment. However, it is conceivable that the blush has communicative properties that extend beyond augmenting the intensity of the emotion. The study described in chapter 3 showed that the blush let to an increase in perceived sincerity of the actor’s regret. This finding suggests that the blush adds to the sincerity of the
emotional display, perhaps because of the uncontrollability of the blush (cf. Frank, 1988). This might also work the other way around: since the blush can not be suppressed, the failure to convey the signal might even be taken as a sign that one is not concerned (cf. Frank, 1988; Beer, Heery, Keltner, Scabini & Knight, 2003).

Judgmental Biases for the Consequences of Blushing.

In apparent contrast with the blush’s remedial function following a mishap or moral transgression, some people develop intense fear of their blushing (e.g., Mulkens, Bögels, de Jong, & Louwers, 2001). Why some individuals live in fear of blushing is not well-understood. To gain more insight, the study in chapter 4 investigated the interpersonal consequences that participants expect from their blushing. That is, the effect of blushing depends on the context in which one blushes (cf. de Jong, et al. 2003); and people often blush in situations in which it is conceivable that blushing does not have appeasing properties. In the study, participants were asked to imagine that they blushed or did not blush, in two of these types of blush-eliciting situations: while being in the center of attention (Leary, Britt, Cutlip, & Templeton, 1992), or when a personal/taboo subject was brought up that had to remain a secret (Crozier, 2004). After hearing the vignette on a tape that described the situation, the participants were asked to indicate their expectations of an observer’s judgment of, e.g., their social skills and likeability. The results showed that participants generally anticipated that blushing in these situations would negatively affect an observer’s judgment. However, this negative anticipation was not especially pronounced in blushing-fearfuls. Meanwhile, high-fearfuls did report a relatively high subjective probability of displaying a blush in these situations. For social anxiety, it has been suggested that the anxiety is marked especially by a judgmental bias for the costs of social situations (e.g., Foa, Franklin, Perry & Herbert, 1996). The results of the study in chapter 4, however, suggest that fear of blushing might be characterized more by a judgmental bias for probability than for costs. Nevertheless, the finding that all people generally consider blushing to have costs in some contexts, together with the finding that blushing fearful individuals expect to actually blush more easily/intensely in these contexts, may explain their fear of blushing.

The study, however, had several limitations. First, although the mean BTS-Q score for the high-fear group in the present study is similar to that reported for treatment-seeking groups (e.g., Mulkens et al., 2001), the participants were high fearful students rather than people who actively sought help for their fears. Second, the study used common blush eliciting situations. Thus, situations in which it is quite normal and appropriate to blush (cf.
Shields, Mallory, & Simon, 1990). Yet, blushing-fearfuls often mention that they are typically bothered by blushing in very ordinary, everyday situations, in which people normally would not blush (for example on www.esfbchannel.com a woman mentions that their worst case scenario is to blush when meeting a lot of old friends in a supermarket). Building on this, the study in chapter 5 tested whether blushing in ordinary, everyday situations does give rise to an enhanced expectation of a negative evaluation in high blushing-fearful individuals (i.e., costs). This time, high fearful participants were sampled through a web-based self-report measure that was linked to a German internet forum for people with fear of blushing. This set-up enabled us to reach many blushing-fearful participants. The results showed that, in line with the study described in chapter 4, blushing-fearful individuals expected to blush relatively easily and anticipated a negative judgment from others when blushing in these ordinary situations. Yet this time, blushing-fearful individuals did show an exaggeration of this anticipated negative judgment. Thus in contrast with situations in which blushing is quite common and appropriate, blushing-fearful individuals do hold judgmental biases for both the probability and costs of blushing in ordinary situations, in which it is not common to blush.

The results of chapter 5 support the role of both an overestimation of costs as well as probability of blushing in fear of blushing. However, the available evidence also leaves room for the possibility that also in the situations that are used in chapter 4 blushing-fearfuls overestimate the costs of blushing. That is, besides the difference in sampling method (internet vs. students), the studies in chapter 4 and 5 had one other difference in experimental set up. In chapter 4 participants where asked to imagine that they blushed or asked to imagine that they did not blush for each of the situations, whereas in chapter 5 participants were asked to imagine both for every situation. This last set up more explicitly contrasts people’s considerations about blushing with those about not blushing. Perhaps also for the type of situations in chapter 4, blushing-fearfuls will show judgmental biases for costs when this same set up is used. Therefore, we are currently testing the anticipated effects of blushing while being in the center of attention, during the exposure of something secret and in neutral situations, using vignettes followed by both the request to imagine that you blushed in this situation and the request to imagine you did not blush. To ensure that the fearful participants in this study are people that are really bothered by their blushing, our high-fear group consists of people that applied for a psycho-educational treatment for fear of blushing.

Furthermore, the study we are currently undertaking also tests the effects of blushing in these situations from an observer’s perspective. This enables us to examine if the anticipated negative effects are biased or based on a correct view. That is, in line with what has been found for socially-anxious individuals,
it could be that blushing-fearfuls show an enhanced bias in terms of the discrepancy between the actual judgment they obtain and the judgment they expect (e.g., Rapee & Lim, 1992; Voncken & Bögels, 2008).

The study in chapter 6 also allowed investigating whether there is a discrepancy between the actual judgment people obtain and the judgment they expect. The study was designed to test the costs that are attributed to displaying a blush in a more real-life, yet controlled setting. Using such an approach prevented the drawback of vignette studies that it remains questionable whether individuals are always able to accurately predict how they would react (e.g., Parkinson & Manstead, 1993). Individuals with and without fear of blushing were invited to have a short conversation with two confederates who were unknown to them (Öst, Jerremalm, & Johansson, 1981). During the conversation, half of the individuals received the feedback that they were blushing intensely (cf. Drummond, 2001; Wild, Clark, Ehlers, & McManus, 2008). If people indeed expect that blushing has costs, then participants who receive the feedback that they are blushing during a conversation with two confederates expect that these confederates will judge them less favorably than people who do not receive this feedback. Furthermore, to test if the expected judgment is biased, we also measured the confederates’ actual judgment of the participant. It turned out that people indeed believe that blushing has costs: in line with the study that tested the anticipated consequences of blushing in blush eliciting situations (chapter 4), independent of fear of blushing, participants in the false blush-feedback condition expected the confederates to judge them relatively negatively. Furthermore, both high-fearful and low fearful participants expected a poorer judgment than they actually received from the confederate; high blushing-fearful individuals did, however, not show an enhanced discrepancy between the anticipated and actual observers’ judgments.

In addition, the “in vivo” set up of chapter 6 has allowed us to investigate the physiological blush-response during the social task. The results showed that high-fearfuls showed enhanced facial coloration when they received the false blush-feedback but also when they did not receive such feedback. In contrast, low-fearful participants only showed enhanced blush responses in the false feedback condition. In apparent conflict with previous findings (e.g., Mulkens, et al., 1999), this might indicate that the blushing-fearfuls are (at least partly) correct in their enhanced expectations to blush or believe to have blushed. However, when comparing the physiological measure with the subjective measure (which was also measured), it appeared that the discrepancy between the subjective blush experience and the physiological blush was related to fear of blushing. The more people feared blushing, the more they overestimated their physiological blush. Thus, there appears to be
evidence for both mechanisms: blushing-fearfuls do blush more easily than low-fearfuls, but at the same time they also overestimate (in comparison to non-fearful participants) the intensity of their blush.

It remains unclear why people with blushing phobia do sometimes blush more often/intensely. It has been suggested that expecting to blush causes enhanced self-consciousness that, in its turn, elicits the blush response (Drummond, Camacho, Formentin, Heffernan, Williams, & Zekas, 2003). However, whether self-consciousness indeed gives rise to a blush response is still a matter of debate (see e.g., Crozier, 2004; Edelmann, 2001). As an alternative, Darwin (1989/1872) proposed that blushing is caused by visual attention directed to parts of the body. In line with this idea, a recent study showed that the location of an audience affects the intensity of the blush response; people blushed more on the observed than on the unobserved site of their face (Drummond & Mirco, 2004). To gain more insight into mechanisms that eventually give rise to the blush, the study in chapter 7 undertook an attempt to investigate the necessary preconditions for the blush to occur. It examined if visual attention from a social interaction partner is such a requisite; and explored the role of imagined attention from others on blushing.

The blush’s requisite

In the study described in chapter 7, participants used MSN to chat with a confederate chat-partner, with or without a webcam. During the chat-session the physiological blush response was measured. The results showed that the participants blushed irrespective of the presence of a webcam. This indicates that direct visual attention from another person is no requisite for a blush to occur. However, this particular set up does have a limitation. Although the participants who chatted without a webcam did not receive actual visual attention, by measuring the blush using a plethysmograph the area did get attention from other people. That is, participants knew that the response was being watched, or would be analyzed, by the experimenter. Furthermore, the results from a questionnaire after the chat-session indicated that in both conditions the participants thought equally about the impression they made on the chat partner and had an equal experience with regard to seeing themselves through the eyes of the other. In other words, the experience of social attention was the same with and without the webcam. Thus, the study does not allow ruling out that the subjective experience of receiving social attention might already be a sufficient precondition for people to blush. In order to gain more insight in the role of actual visual attention vs. the subjective experience of receiving attention on blushing, a future study should measure blushing secretly (for example with the aid of infrared thermography; e.g., Ferreira, Mendonça, Nunes, Filho, Rebelatto, & Salvini, 2008) and in the experimental
set up both the subjective experience of receiving social attention (or “the thinking of what others think of us” [Darwin, 1872]) and actual visual attention from others that are present need to be manipulated separately.

**Implications**

The popularity among phobic individuals of applying for a surgical treatment to remove the possibility to blush altogether is growing (Drott, Claes, & Rex, 2002; Nicolaou, Paes & Wakelin, 2006). The results of the studies in chapter 2 and 3 indicate that it would be very unwise to do so, because it takes away from people a potentially helpful communicative tool. Blushing after a transgression positively affected the judgment of the blusher and resulted in more trust-related behavior towards the blushing actor. This is in line with the suggestion that blushing is part of a non-verbal appeasement display that helps to restore/maintain social relations (Keltner, Young, & Buswell, 1997).

The positive communicative value of the blush response appears to contradict the negative expectations of the participants about the interpersonal consequences of the blush (chapters 4-6). However, in these latter studies different types of situations have been used; situations in which there was nothing to appease. Future research should reveal if blushing while being in the center of attention, during the exposure of something secret, or in neutral situations, might indeed have a negative effect on an observer’s judgment (cf. de Jong, et al. 2003). Note however, that even if blushing does have an immediate negative effect, this does not imply that blushing cannot be of positive value for the blusher. In interacting with others, individuals can coordinate their actions based upon an ongoing assessment of the motivational-emotional state of the other, and it makes sense that good senders who are relatively easy to “read” emotionally will be favored (Boone & Buck, 2003). Or in Frank’s (1988, p.9) words: a blush may reveal a lie and cause embarrassment at the moment, but in circumstances that require trust there can be an advantage in being known to be a blusher.

In spite of the alleged affiliating functions of the blush, most people do consider blushing an unpleasant experience which they try to conceal (Shields, et al., 1990). In an attempt to improve our understanding of fear of blushing, in chapter 6 the following cognitive model of fear of blushing was presented. (Note a small change has been made: the expectation to blush is added to the model). As the figure shows, both the enhanced belief/expectation to blush as well as the judgmental biases for cost of blushing are integrated as a trigger stimulus of the model. The studies in chapter 4 and 5 showed that people who fear blushing have enhanced ratings of the probability of blushing in the various situations (cf. Neto, 1996; Bögels,
Alberts & de Jong, 1996); and the study in chapter 6 showed that the more people feared blushing, the more they overestimated the subjective blush relative to the physiological blush (cf. Mulkens, et al. 2001). As was evidenced by the results of chapter 4, 5, and 6 this belief or expectation to blush gives rise to negative and dysfunctional beliefs about the (interpersonal) consequences of blushing. That is, people expect blushing to have social costs. They expected others to evaluate them as less socially skillful, less likeable and less positive (chapters 4, 5 and 6). It is highly conceivable that these expected negative consequences of the blush, together with the belief that one actually will blush, may cause fear of blushing. This fear might then further fuel the vicious circle. That is, fearful concerns about visible reddening will likely lead to more self focused attention, which in turn will cause a quicker detection of small temperature differences in the blushing part of the face, thereby leading to an enhanced belief to blush (Mulkens, de Jong, Dobbelaar, & Bögels, 1999).

Furthermore, because concerns about others’ evaluations are assumed to elicit blushing (e.g., Leary et al., 1992; Drummond, 2001), it is conceivable that the combination of fear and the acute awareness of ones public self may indeed enhance the physiological blush response. In line with this, the physiological blush measure in chapter 6 showed that low-fearfuls who were given blush-feedback showed more facial coloration than those without the feedback; it is likely that the blush-feedback caused social fears and acute awareness of the public self which enhanced the blush response. The high blushing-fearfuls in chapter 6 showed equally high blush responses in both conditions, probably because they experience such emotions regardless of the external blush-feedback.

![Figure 1. Cognitive model of fear of blushing.](image-url)
Note that the proposed model is context dependent. As mentioned above, people do not expect a negative evaluation of others due to their blushing in ambiguous situations (de Jong, & Peters, 2005; de Jong, Peters, Dijk, Nieuwenhuis, Kempe, & Oelerink, 2006). Also an earlier study showed that people sometimes act as if they know that their blushing has appeasing value (Leary, Landel, & Patton, 1996). In this study participants had the embarrassing task of singing an emotional song. Participants who thought that the researcher did not interpret their blushing as a sign of embarrassment subsequently presented themselves more positively on a subsequent questionnaire than participants who thought that the researcher had seen them blush. The former group used the questionnaire to compensate the unfavorable impression whereas the latter acted as if they knew that the blush already had compensated. Nevertheless, the studies in the present thesis (chapter 4, 5, and 6) showed that when the context does not make people conscious of the appeasing or remedial properties of the blush (i.e., when nothing went wrong), people expect that blushing has social costs.

Clinical Implications. Since their blushing is the feature that most clearly characterizes blushing-fearfuls, it seems fruitful to address the enhanced probability/intensity of blushing in therapy. Besides the use of cognitive restructuring (Scholing & Emmelkamp 1993), a more indirect way of addressing the enhanced belief to blush would be via a therapy that helps to focus attention on the social task (Bögels, 2006; Mulkens, et al., 2001), which in turn may help to direct attention away from the blush area, and hence decrease the subjective experience to blush.

Furthermore, it may be helpful to focus with cognitive therapy on the more general characteristics of blushing-fearful individuals such as their enhanced sensitivity to, and fear of, others’ evaluations (de Jong & Peters, 2005). Both high and low blushing-fearfuls expected a more negative evaluation because of their blush, and in the context of ordinary situations, blushing-fearfuls showed a stronger expectancy concerning this negative evaluation than did people without fear of blushing. Moreover, results from chapter 6 show that the judgment of our confederates was more positive than that anticipated by the participants, indicating that this negative expectancy could (at least partly) reflect a biased view, which can be addressed in therapy.

Finally, the results of chapter 6 showed that those participants who received the blush feedback received a poorer judgment from the confederates than those who did not receive this information. Thus, the belief that one is blushing resulted in behavior that somehow caused a poorer judgment, both in the high and in the low-fearful participants. Since people with fear of blushing
generally believe that they blush often and intensely (e.g., chapters 4 and 5; Mulkens et al., 1999), they might show similarly awkward behavior in real social situations. Accordingly, blushing-fearfuls may be helped with a training that helps them to maintain normal behavior while blushing, for example, in the form of adjusted social skills training (Bögels & Voncken, 2008).

**Future**

The results of several mass screenings of students indicated that a substantial proportion (10 %) of the 950 first year students who completed the blushing subscale of the Blushing Trembling and Sweating questionnaire (Bögels & Reith, 1999) scored similar or higher than the mean scores that Mulkens and colleagues (2001) reported for their treatment-seeking groups (unpublished data). This indicates that the prevalence of fear of blushing is greater than a sub-group of one third of the socially phobic individuals (Bögels & Scholing, 1995; Essau, Conradt & Petermann, 1999), and that there are many people who suffer silently and do not seek help easily. Although there are a number of interventions for fear of blushing that proved to be effective (e.g., Scholing & Emmelkamp 1993, Bögels, 2006; Bögels & Voncken, 2008; Mulkens, et al., 2001), applying for therapy might have a high threshold for many of these blushing-fearfuls. Therefore, we are currently investigating the effect of a psycho-educational group treatment for fear of blushing which contains several of the implicated elements: a social skills training, a task concentration training and cognitive restructuring. Furthermore, the psycho-educational treatment is framed as a “course in dealing with fear of blushing”, to lower the threshold for applying for treatment (cf. Buwalda, Bouman, & Van Duijn, 2006). The fact that dozens of people contacted us for participating in this training following some newspaper coverage of our work attests to the suspicion that there is quite some hidden suffering amongst people who fear blushing.

The results of the studies in this thesis provide insights that ask for future investigation. For example, although blushing clearly influenced the behavior as well as the judgments of the participants, almost none of the participants in chapter 2 and 3 noted afterwards that they suspected that the study investigated blushing. This is consistent with the view that the signal value of the blush may operate quickly and at an implicit level (cf. Willis & Todorov, 2006 for signalling trustworthiness). Knowing the neural basis of perceiving a blush might help in understanding the function of this complex interpersonal response and its accompanying displays. For example, the amygdala (amongst other brain areas) is involved in perceiving trustworthy and cooperative individuals and it would be interesting the see whether similar brain patterns are evident when participants observe blushing actors (e.g.,
Winston, Strange, Doherty & Dolan, 2002; Singer, Kiebel, Winston, Dolan & Frith, 2004). Furthermore, by comparing the neural response observing shame (without a blush) with the response to observing a blushing person, we can test the hypothesis that specifically blushing elicits neural responses that are associated with trust; thereby solving the questions if blushing signals something that otherwise could not be signaled in these contexts; that one is sincerely ashamed or embarrassed (cf. Frank, 1980).

Also, the studies in this thesis that examined the effect of blushing on an observer, all contained situations in which something went wrong; hence in which there was need for face saving or appeasing responses. Nevertheless, people do blush in many other types of situations and research has already shown that the effect of blushing is context dependent (de Jong, et al., 2003). It would be interesting for future research to examine the communicative effects of blushing in situations, in which appeasement is not likely to occur. That is, do people obtain a worse judgment when they blush in the types of situations as were used in chapters 4 and 5? And if so: on which dimensions. It is possible that someone who blushes during the exposure of a secret is considered to be weak or socially incompetent but is still selected for a game that requires mutual cooperation because he/she is easier to read (Boone & Buck, 2003). As suggested above, a short term effect of obtaining a negative judgment does not imply that the blush is not functional at all, since in the long run there can be an advantage in being known to be a blusher (Frank, 1980). Thus besides examining the immediate interpersonal effects of blushing, it might be fruitful to examine the long term effects of blushing in social relationships.

Conclusions

The studies in chapter 2 and 3 showed that blushing has appeasing properties after clear-cut transgressions. Blushing positively affected both an observer’s judgment of the blushing actor and the (trust related) behavior towards the actor. Furthermore, the studies showed that blushing has this positive signal value on top of other concomitant displays, which might already appease. From a blushing actor’s perspective, the results of chapters 4-6 show that fear of blushing is characterized by the belief that blushing has negative consequences in several other contexts, together with an enhanced belief that one will actually blush in these contexts. This exaggerated perception of their own blush response (both in probability and in intensity) might explain why so many blushing-fearfuls wish that they would never blush again, yet chapter 2 and 3 indicate that it is unwise to actually materialize this wish; not being able to blush deprives people of the important communicative tool that reconciles after a social disruption. Furthermore, the social interaction study in chapter 6
showed that fear of blushing is related to an overestimation of the intensity of
the blush and that the actual judgment of the blushing person is more positive
than she expected, indicating that the anticipated negative judgment and
enhanced probability estimates most of all reflect judgmental biases.