6 PLEASURABLE TROUBLEMAKERS

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"That evening despite best intentions, Rebus took a cab from the guest house to the pub" (Rankin 2012, 254). Not only has the notorious, always thirsty Ex-Detective Inspector Rebus acted now and then against his best intentions. We all too often fail to skip this tempting glass of _____ (enter your personal liquid vice here). We indulge in activities neither physiologically nor psychologically healthy: overworking, overeating, overspending, overdrinking are common problems in Western societies. But we do not only yield to the bad, we abstain from beneficial activities, too, such as a little run now and then, spending quality time with the children, or leaving the smartphone in the closet—just for one day.

In many cases, people are quite aware of the "dos and don'ts" of daily life (at least the next morning everything appears painfully clear). But they have a hard time *implementing* presumably ideal behaviors. We *want* to "change ourselves," but need help. Besides the classic means of self-help, such as books and encounter groups, interactive technologies added viable alternatives. The Quantified Self website (http://quantifiedself.com/) boasts a collection of more than five hundred interactive apps and gadgets for tracking activities, moods, and other aspects of life. Fitbit's One, for example, is a stylish activity and sleep tracker (figure 6.1). Hooked up to a computer, it crunches numbers and creates visualization of activity levels and sleep quality. Or take the Nike+ running system emphatically discussed by Sicart in this volume. These tools are meant as a means to get insights into one's own behavioral patterns for changing them when believed necessary.

Another all-encompassing trend is *gamification*. In a recent review, Deterding and colleagues defined gamification as "the use of game design elements in non-game contexts" (Deterding et al. 2011, 10). They highlight the richness of approaches already available in technology-oriented disciplines, such as human–computer interaction (HCI), interaction design, and interactive games. McGonigal (2011) went a little further in her definition. She argued that in fact "reality is broken." Daily life is marked by a lack of ways to derive pleasure from living it. Games offer worlds of adventure and stimulation. So why not enrich the real world with game-like aspects, turning the mundane into playful activities? This adds an important element of gamification beyond the mere use of game elements: to make particular behaviors a little more pleasurable to increase their occurrence. Other than self-quantification, gamification implicitly proposes and rewards particular "ideal" behaviors—whether to the benefit of people themselves or to the benefit of companies is a matter

Figure 6.1
Fitbit's *One*. (Source: fitbit.com)

of fierce arguments (e.g., Bogost 2011; refer to Selinger, Sadowski, and Seager, this volume).

So every now and then, people want to change. We agree with self-quantification, gamification, and persuasive technologies (Fogg 2003) in the envisioned power of technology as a means to support this wish. However, we believe it needs more attention to *how* this should happen. In this chapter, we develop the notion of objects as pleasurable troublemakers—things with attitude—and outline a potential *aesthetics of friction* as a bundle of underlying principles to support the change (or better transformation) of people (see Hassenzahl 2011; Laschke, Hassenzahl and Diefenbach 2011).

The chapter starts with the discussion of choice as a central element of change. Change often requires forgoing immediate pleasures (tasty chocolate bars) in favor of long-term goals (being slim and healthy) or personal pleasures (driving fast) in favor of societal goals (making roads a safer place). In those situations, people experience a gap between their actual self (propelling toward being a weak, flabby, and sad chocolate addict) and an ideal self (being a slim and healthy chocolate connoisseur in absolute control)—a gap they want to close. This implies the deliberate choice of and ultimately reflection about appropriate courses of action. In this view, forgoing chocolate to be healthier constitutes change; forgoing chocolate because the stock of the local supermarket ran out does not.

Typically, appeals are used to instill reflection, which then in turn may result in behavioral change. In this chapter, we argue to turn this upside down. Instead of changing the mind first, we intend to change the behavior first—at least momentarily. Objects seem much better suited for this than appeals. They have the power to shape behavior directly, without much need to think. But instead of exploiting this quality to unconsciously nudge people to do better, we believe it should be used to create friction, moments of choice leading to reflection, insight, and sustained behavioral change. Obviously, the way this friction will be designed—the *how*—matters immensely. To support this, we develop a set of

principles, an aesthetics of friction, and discuss two examples of objects developed according to these principles by our students and ourselves. This is meant as a lens to understand better the principles at work, to cultivate a sense of how suggested principles may materialize in particular design choices. We conclude with comparing our approach to self-quantification, gamification, and persuasive technologies and a brief discussion of ethical considerations.

Note that our work is design oriented and, thus, largely normative. It argues for a particular route to instill change, which is not necessarily the only one possible, but in itself viable and convincing: a route that reflects our values in how to bring change into the world.

Change and Choice

Detective Inspector Rebus has always a choice. He can stay for another Indian Pale Ale or leave. Later after his unintended pub visit, "he took the stairs rather than the lift—every little bit helped, as his doctor has told him at his last check-up" (Rankin 2012, 294). However, without pub or beer, Rebus would not drink. Without lift, he would take the stairs. But this does not constitute change. Change implies the development and implementation of alternative, presumably "better" behavioral tendencies in the face of *choice*.

Change as Battle against Impulses

In many cases, choice includes forgoing an immediate pleasure (a chocolate bar) for the sake of future pleasures (health). This is difficult, and the reasons for this are manifold. First of all, people may not know about the detrimental long-term consequences of alcohol and chocolate or the benefits of running. But even if they know, benefits in the future are always uncertain, whereas an immediate pleasure is not. Thus, it is just rational to find a pleasure more appealing rather sooner than later, even when the later is a little larger. Every piece of chocolate now is better than two pieces tomorrow—simply because one can never be sure that there will be a "tomorrow." In economic theory, *discounting* the future is a classic (Samuelson 1937), responsible for wicked concepts such as "paying interest."

While paying interest is certainly annoying (getting some is presumably less so), it does not fully capture the emotional charge of any attempt to delay the consumption of a pleasure. In their famous experiments on delay of gratification, Mischel and colleagues (for an overview, see Mischel, Shodaand, and Rodriguez 1989) offered children a cookie. Imagine yourself sitting in a room, a crunchy, tasty cookie under your nose. The experimenter has to go on some errands but will be back soon. You are free to eat the cookie. But when the cookie remains untouched until the experimenter's return, you get a second one. Oh boy, this is difficult for a four-year-old (amusing videos are available on YouTube, just use the keyword "Marshmallow Test"). It becomes manageable, though, for older children and adults.

Metcalfe and Mischel (1999) offered a *hot/cool systems* model to explain the underlying psychological processes. The model assumes an affect-driven, hot system pressing to immediate consumption and a cognitive, cool system trying to control this. While

the hot is automatic, the cool is a matter of training and available cognitive resources. This view understands self-control or "willpower" (the cool) as an acquired technique counteracting urges potentially detrimental in the long run. It explains breakdowns of willpower, for example, when stress limits available cognitive resources for self-control. It also explains why it is difficult to skip a last drink. Alcohol in itself decreases cognitive resources (Easdon and Vogel-Sprott 2000). Two-system models akin to Metcalfe and Mischel's are abundant in psychology. Hofmann and colleagues (2009, 164), however, conclude that all "these models share the general assumption that structurally different systems of information processing underlie the production of impulsive, largely automatic forms of behavior on the one hand and deliberate, largely controlled forms of behavior on the other."

Besides the obvious difficulties involved, the ability to restrain impulses (e.g., eating this hamburger, going on a rampage with the boys, staying in bed in the morning) in favor of long-term goals (e.g., remaining healthy, having a fulfilling relationship, earning money) is highly adaptive (e.g., Tangney, Baumeister, and Boone 2004). In a recent study, Schlam and colleagues (2012) found that each minute a child was able to delay gratification corresponded to an 0.2 reduction in body mass index thirty years later. Admittedly, not a large effect, but—as the authors of the study put it—certainly noteworthy. However, people may lack knowledge about the drawbacks of a certain behavior or the benefits of others and, thus, have not acquired appropriate *restrain standards* (Hofmann, Friese, and Strack 2009). But even when standards exist, self-control needs cognitive resources, which can be depleted for a number of reasons. In this case, impulses will win the battle. To sum, change often implies favoring long-term goals to immediate pleasures. The choice involved is, thus, the rather affect-laden balancing of "hot" immediate impulses and "cooler" long-term personal goals.

Personal versus Common Goals

It seems necessary to distinguish individual change pertaining to personal goals from change pertaining to common goals. A pint of Ben and Jerry's Chocolate Fudge Brownie each night may not only pose a problem for your waist, but also a problem for the cows providing the milk, the hens delivering the eggs, and the farmers growing the cocoa. In Germany at the time of writing this chapter, Ben and Jerry's asked its customers to support an initiative to improve the standard of farming dairy cows—"Schenk den Kühen Deine Liebe" ("Give your love to the cows"). While caring about one's own health in the face of the temptations is already difficult, caring about the well-being of an anonymous cow, hen, or farmer delivering the ingredients for the vice seems even more out of reach.

The classic example for this type of complication is Hardin's *tragedy of the commons*:

> Picture a pasture open to all. It is to be expected that each herdsman will try to keep as many cattle as possible on the commons. ... [A herdsman] asks, "What is the utility to me of adding one more animal to my herd?" This utility has one negative and one positive component. ... Since the herdsman receives all the proceeds from the sale of the additional animal, the positive utility is nearly 1. ... Since, however, the effects of overgrazing are shared by all the herdsmen, the negative utility for any particular decision-making herdsman is only a fraction of 1. (Hardin 1968, 1244)

In terms of individual gain, it is only rational to put more cattle on the commons. In the long run, however, the general overgrazing will destroy the commons. Any herdsman can refrain from maximizing her gain to save the commons, but the expectation is that others won't necessarily be as cooperative. The result would still be a destroyed common, but without having any additional individual gain from it. The difficulty of cooperation in situations that involve other people (or even generations) adds to the general problem of attaining personal goals. For example, using the car instead of public transport has a number of personal benefits (e.g., freedom, convenience) and only a few personal long-term drawbacks (e.g., expenses). To exchange the car on a rainy morning to an overheated, stuffy bus is always difficult to implement. Shifting the future goal from an at least slightly personally relevant "to save money" to the elusive "to promote the proper use of nonrenewable resources" is not making it easier. But exactly this trade-off lies at the heart of many sustainability issues, be it nonrenewable resources, water, traffic, or poverty.

The Ideal Self as a Driver of Change

While it is certainly important to be aware of the social as a further complication, we do not believe that this merits an entirely different approach. At the end of the day, it is individual behavior and individual choice that determines change. Behavior is driven by impulses and restrained by standards. These standards are derived from individuals' notion of their idealized selves. The ideal self is how we want to be—aspirations and goals set for ourselves. A discrepancy between the actual, experienced self and the ideal self is a reason for lack of positive affect (Higgins 1987). Working toward the realization of the ideal is a motivator and a source of pleasure (Carver and Scheier 1998): "[P]eople act to 'be' who they think they want (or ought) to be by adopting any of the guiding principles that are implied by the idealized self to which they aspire" (Carver and Scheier 1990, 20). The content of the idealized self will differ among people. It may comprise more self-oriented principles, such as "being healthy," or more others-oriented principles, such as "being just." Some people may have a balanced distribution of proself and prosocial principles. Others may tend to be more proself or more prosocial. The point here is that the general process driving change is the same, no matter its content. Change can only occur when there is a perceived discrepancy between one's actual and idealized self. The motivation to close this gap is what leads to change in behavior. Ultimately, those gaps are responsible for choice conflicts and the need for self-control. Take John Rebus as an example. The fictitious character might experience a tension between his actual self and ideal self. For the reader, Rebus is the ideal of a battered detective. No need to change—Ian Rankin seems very aware of this.

In Sum

"Changing oneself" revolves around a battle between impulses and long-term goals matched by a discrepancy between an actual and an idealized self. This includes (1) identifying personal long-term goals (i.e., remaining healthy, being just), (2) becoming aware of pleasurable activities that may be detrimental to these goals (i.e., eating a pint of Ben and Jerry's Chocolate Fudge Brownie every evening), (3) identifying alternative activities that are less detrimental (e.g., reducing the amount of ice cream, switching to

calorie-reduced ice cream, snacking on carrot sticks instead of ice cream), and (4) mustering the resources and according strategies to control the impulse to continue to consume ice cream on a daily basis (i.e., to live up to the restrain standard).

Note our emphasis on choice here (see also Selinger et al., this volume). It explicitly excludes approaches to change aimed at an unconscious level. Take organ donation as an example (Johnson and Goldstein 2003): 85 percent of Americans approve of donation, but only 28 percent signed a donor card. A simple way to close this gap is to change defaults. In countries with an opt-in policy, that is, people need to apply to become donors (e.g., Germany), average consent rate is about 15 percent. In countries with an opt-out policy, that is, people need to apply to be taken out of the donor registry (e.g., Austria), average consent rate is about 97 percent. Through "engineering" the choice context, here the *status quo* or default, people change from skeptic misanthropes (e.g., Germany) to enthusiastic philanthropes (e.g., Austria). But does change in behavior alone constitute change? We don't think so. To use nuggets from behavioral economics or the long dark night of behaviorism is as technocratic as changing people's energy consumption through energy-saving light bulbs. While a little "nudge" (Thaler and Sunstein 2012) is certainly helpful, the notion of a "liberty-preserving paternalism" is slightly off-putting. Thaler and Sunstein argue that while people should be free in their choice, it is also "legitimate for choice architects to try to influence people's behavior in order to make their lives longer, healthier and better" (Thaler and Sunstein 2012, location 115). We agree. But obvious enough that people become aware of the influence and attribute the better outcomes to their own choice.

Objects as Change Agents

In 1957, Achille Castiglioni and his brother Pier Giacomo designed *Sella* (figure 6.2), a stool made of a leather bicycle seat attached to a metal stem and having a rounded base. Castiglioni said about it (quoted in Antonelli 1997): "When I use a pay phone, I like to move around, but I also would like to sit, but not completely." As Antonelli points out, Achille and his brother's goal was to design a new behavior—"a hybrid between sitting and pacing nervously." There is the further unconfirmed story that Achille was keen on devising an elegant way to cut the time his brothers spent at the household's wall-mounted telephone. *Sella* is an object with the purpose to create and shape a new behavior—whether for the sake of a user's pleasure or Achilles' access to the phone remains a secret.

Objects operate at what Carver and Scheier (1998) define as the unconscious and automatic motor-level of action. Most things we do are object mediated. Eating is done with spoons, forks, and knifes. Writing needs pens or computers. Objects become assimilated into action. Driving a car, for example, needs some practice, but soon we forget the pedals, steering wheels, and gear sticks involved. Through practice, the motor aspect of an action quickly fades away from consciousness. But nevertheless, objects inevitably shape behavior through the opportunities and the quality of interaction they provide. A spoon invites one to gobble food in large portions; chopsticks invite pecking smaller portions. The difference in resulting behavior is a function of the spoon and the chopsticks—in a way

Figure 6.2
Sella. (Image courtesy of Zanotta SpA, Italy)

they resemble a "choice architecture," albeit not a deliberately designed one.

Objects versus Appeals

The crucial role of objects in behavior itself distinguishes them from appeals as the classic way of changing behavior. An appeal is a rhetoric top-down approach to change. It reflects the widespread belief that change of behavior is mainly the *result* of an insight. At the same time, people bemoan the apparent gap between what others say they'll do and what others then actually do (for a recent overview, see Sheeran 2002). As with Rebus, despite his *best intentions*, he ended up in the pub.

Notwithstanding, the dominant route to behavioral change taken at the moment is one of communication. Many believe in the power of appeals, in addressing the reflective level of behavioral control as a route to change. And in fact self-quantification, for example, is rather rhetoric than behavioral/interactive, although it relies on interactive products. Conceptually, however, it only creates visualizations and text that summarize people's behavior. This is nothing more than a personalized appeal to the reflective level. It does not address the impulsive behavioral level. Let's say, Fitbit's One reveals that you are not physically active enough. Specifically, you never use the stairs. This insight is the end of One's story. It will not prompt you in particular situations. It has no power to shape behavior. This is different than the stairs in figure 6.3. While still to some extent rhetoric, their intervention is much more situated. Information is tied to actual behavior, here steps taken, as an alternative to the more convenient escalator. The appeal is made at least in the moment of choice.

Figure 6.3
Stairs in the Kyoto subway.

The belief in appeals to the reflective level has consequences. Educational campaigns to stop smoking, to prevent alcohol abuse, traffic accidents, or HIV infection are abundant, but not always to much effect. In a review of health-related campaigns, Snyder (2007) noted only small behavioral effects, especially for topics that require a change in daily routines (e.g., more exercise) rather than the adoption of a new behavior only performed once or twice (e.g., to be vaccinated).

From Goal to Implementation

One recommendation (Snyder 2007, 37) derived from the review of the power of appeals was to rely on messages that deal with "how to" and "when to" knowledge. In the same vein, Gollwitzer (1999, 493) concluded "that it seems unjustified for applied psychologists to advise people who are motivated to do good to refrain from forming good intentions, but suggesting that good intentions are an effective self-regulatory tool is also unwarranted." Good intentions should be made more effective. His solution is *implementation intentions*. They differ from more abstract goal intentions ("I intend to stay sober") precisely by specifying the *when* and the *how* of the intended behavior ("Next time I am in a bar, I will drink a large mineral water before the next beer") (figure 6.4).

Implementation intentions are simple plans tied to particular situations. Gollwitzer suggests moving intentions consciously from the level of the idealized self down to the level of concrete action. Through this, desired action gets a better chance of implementation in a particular situation. The concreteness of implementation intentions facilitates competing with the dominant impulsive behavior.

Notably, objects are already on this level. One can think of them as materialized implementation intentions, existing outside a person. Through their materiality, they restructure situations and behavior. Take the reading lamp *Forget me not* (figure 6.5) as an example (Laschke et al. 2011).

When switched on, *Forget me not* opens its petals like a flower and provides light. It, however, immediately starts to close again, thereby slowly obscuring and dimming the light. By touching a petal, *Forget me not* opens up and provides light again. Compared to a regular reading lamp, *Forget me not* creates a new default. A regular lamp's natural state is switched *on*. It provides light as long as the user pleases and requires a deliberate action to be switched off. In contrast, *Forget me not*'s natural state is *off*. It requires a deliberate action to be kept on. Like chopsticks compared to a spoon, *Forget me not* changes lamp-related behavior through the way it affords interaction. One may translate the goal intention "to conserve energy" into the implementation intention "when sitting somewhere cozy and using light, remember to now and then check whether you still need light" or one may just use *Forget me not* as a materialized implementation intention, embodying an alternative behavior, automatically acted out through usage.

Obviously, to impact behavior, an object needs to "reach out." It needs a certain power to restructure situations and reshape behavior. Tangibility certainly helps. Tangible objects, things to be touched, held, twisted, or thrown, simply offer a wider, more bodily potential to reshape behavior. In addition, tangibility implies an at least physical, but not necessarily conceptual, situatedness. The object is *there* and, thus, may be better tuned to a particular situation. *Forget me not* exploits the possibilities provided by the tangible, situated, and ubiquitous.

However, while the power to reach out expressively into the physical world certainly helps, it is by

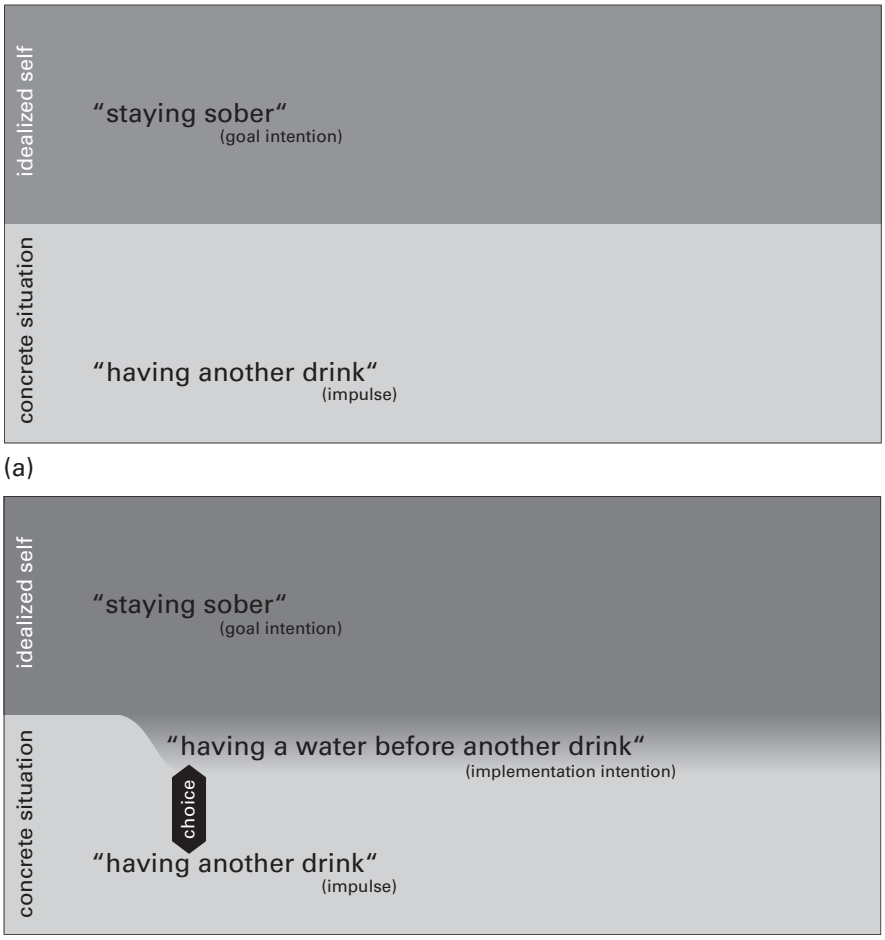

Figure 6.4
(a) A conflicting goal intention tied to an idealized self and a concrete impulsive behavior tied to a particular situation. (b) Now, with an implementation intention to bridge the gap.

Figure 6.5
Forget me not.

no means a must. For example, we designed *ReMind* (figure 6.6), a wall-mounted to-do-list-like object, to overcome procrastination (Laschke et al. 2013).

Among many other features, it uses a physical representation of the personal goals to be reached in a certain time. In case the goal becomes overdue, it drops to the floor. This creates an affordance to pick up the goal from the floor and to reconsider: shall I just do it, reschedule it or abandon it altogether? It is this moment of choice we wanted to create, a simple story of "it's already in your hand, why don't you just get on with it?" Tangibility helps here, but nevertheless it is this choice that is crucial. Now, imagine *ReMind* as an app. A mobile phone cannot simply throw physical objects at its user to create a certain choice situation. Fortunately, this is not necessary. Instead of the floor, we rather litter the phone's lock screen. While being completely nonphysical, we nevertheless create a similar situation. A nasty, overdue personal goal on your lock screen is something you may feel an urge to get rid of. Let's say it is this long overdue phone call your half-deaf great aunt is so much waiting for. To remove the goal, you need to click or select it. Upon this it may offer a simple choice: to dial her number or to postpone again. Structurally, both are similar designs, one relying on tangibility, the other not. In this example, the intangible version may even have a little more power to change, because the possibility to immediately initiate the ideal action—the telephone call to be made—considerably lowers the barrier to make this call. The tangible version lacks this power.

Engaging People in Meaning Making

Forget me not seems similar to what Thaler and Sunstein (2012) call a *choice architecture*; maybe even similar to the change of the status quo already discussed earlier as a way to increase the number of organ donors. It makes light consumption a little more difficult, which may nudge people to use a little less. However, there is a difference. We assume that the change in behavior created and afforded through an object should not go unnoticed, but should be

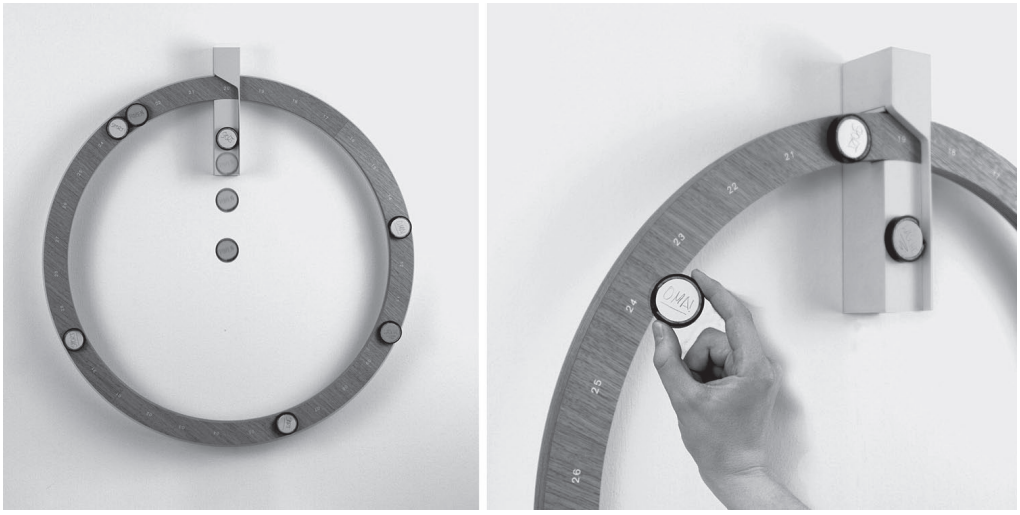

Figure 6.6
ReMind.

designed in a way to create a feedback loop to revise old and form new goal intentions.

In Gollwitzer's (1999) approach, implementation intentions are derived from and always remain related to their goal intentions. A person *knows* that she drinks a glass of water before ordering the next beer, because she intends to drink less alcohol. Objects as external, materialized implementation intentions, however, can either be linked to an active goal intention or not. The first case is straightforward. Let's say Linda holds an ideal of staying in control and being social. She identified her actual drinking behavior as a barrier to this and forms the goal intention to stay sober (presumably as a New Year's resolution). To be efficient, she needs to translate the mere intention into concrete strategies. Conventional wisdom (i.e., her friends) recommended steering free of alcohol all the time (i.e., teetotaling), but she read a book telling her that it is the most functional to be prepared to drink moderately on social occasions (see Rachlin 2004, location 78). Based on this, Linda has to devise simple plans as alternatives to her unwanted impulsive behavior. One trick she comes up with is to drink a glass of water before the next drink. All this requires a lot of knowledge and creativity on behalf of Linda. Instead, she could acquire an "object" in line with her general intention. The object then implements an intention-relevant alternative behavior Linda wasn't aware of until she found the object. For the sake of the story, imagine a bar where a beer is always served together with a large glass of mineral water. The bartender only asks about a refill when both glasses are empty. The bar as a system provides a new situated practice in line with the general goal intention of Linda.

Now imagine Colin. He is thirsty. He enters our bar and orders a large beer. What he gets, however, is a large beer *and* a large mineral water. Slightly confused, he thanks the bartender and gulps down the beer in a second. He is still thirsty, eyes the mineral

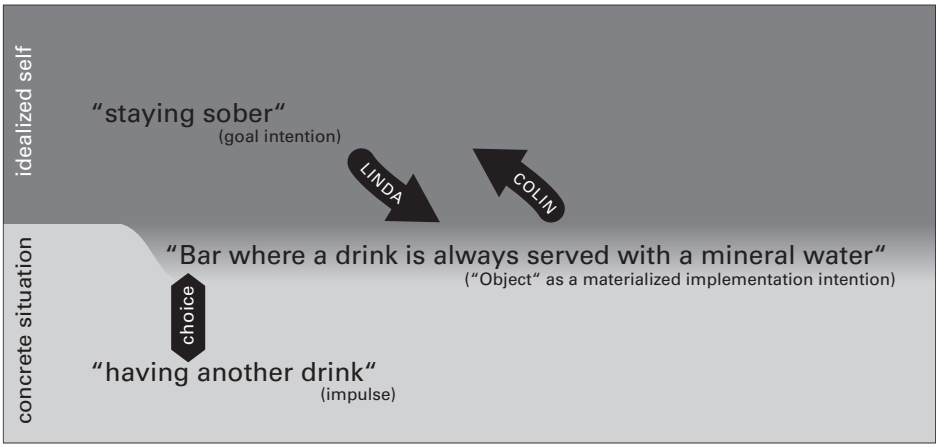

Figure 6.7
Linda and Colin's experience with the bar.

water suspiciously, but finally has a go. The next beer arrives, again accompanied by water. And so on. The next morning, Colin is surprisingly well off compared to previous drinking sprees. "Must have been the water," he concludes, "and it tasted not even half as bad as I thought. Next time, same thing." The bar changed Colin's behavior, which in turn made him think about his practices and potential alternatives (figure 6.7).

For many, the notion that behavior is an expression of higher-level ideals and goal intentions seems quite natural. The opposite direction, that is, to behave first (e.g., drinking a large mineral water before the next beer) and to derive intentions (e.g., "drinking less alcohol would be desirable") in an act of self-observation, seems less straightforward. In psychology this is a well-known fact. Recently, Wisemann (2012) provided an entertaining review of what he calls the *as if* principle. In short, available research shows that there is not only a flow of information from intentions to plans and behavior, but also a flow back from behavior to the inference of plans and intentions. We observe ourselves and when prompted may use this self-perception to infer relevant self-knowledge (e.g., Bem 1967). When the change in behavior shaped by an object is noticed, it induces meaning making. Thus, instead of lecturing through information—a rhetoric approach—objects endow people with new behavior to trigger reflection about intentions and principles. While for Linda the bar was a tool to implement her intention to drink less, for Colin it provided an opportunity to experience a course of action alternative to his regular, impulsive one. In turn, Colin may reconsider his actual and ideal self in the light of his own behavior the previous night, although this behavior was "made" by the bar.

Objects Tell Stories

Especially for Colin, the bar not only provides functionality but also tells a story. It is a "material tale" (Dunne 2006) or a "material argument" (Redström 2006). Note that this is not meant in a literal way. The object is not telling. It is neither a mere symbol nor

is it providing verbal or visual statements. In contrast, it transforms a situation by injecting "role-play" in line with particular goal intentions and ideals, shaped by the functionality provided and the interaction afforded. The user, in turn, finds herself in the leading role of a new play called, for example, "A night in the pub, without being hung over the next day." Looked at that way, *object* is a misleading term. We think of it rather as a designed situation, with objects as the major means to establish new practices in a given situation without appealing directly to the reflective level, but able to instill reflection.

In Sum

We believe that objects create unique opportunities to instill change. Other than rhetoric strategies, objects can literally embody alternative behaviors, either by serving as a materialized implementation intention (for Linda) or as a prompt to reconsider one's actual self (for Colin). In both cases, however, it is the person who acts and not the object itself. The object merely contains everything necessary to create an alternative narrative. It is a prop in people's play of change.

Pleasurable Friction

Colin's first encounter with our bar could have gone quite differently. Recall: Colin is thirsty. He enters the bar and orders a large beer. What he gets, however, is a large beer and a large mineral water. Slightly confused, he thanks the bartender and gulps down the beer in a second. He shouts for another one, but the bartender just knowingly stares at the mineral water. "You want me to drink that first?" Colin inquires. The bartender nods in reply. "What the heck," Colin mutters, "do you want me to drink less beer? Is that good for business?" "At least it is good for your health" the bartender replies.

Other responses are imaginable: Colin may be annoyed. He hates water and loves beer and never considered himself an alcoholic. He might become mad at the bartender and start a fight. There are plenty of ways this story could end.

The Importance of the How

We assume that the actual details of any intervention play a crucial role in how the story plays out. The *how* matters immensely. Just putting two drinks (i.e., a beer, a water) for the price of one in front of Colin may be a subtle but weak intervention—at least for Colin; Linda will presumably easily embrace the offer, because it is in line with her intentions. In contrast, strictly refusing a refill without two empty glasses is rather offensive, but strong. It might ensure that Colin has his water before the next beer, but it is likely to backfire. Threats to freedom lead to reactance (Brehm 1966). Instead of focusing on the behavior at hand (e.g., too much beer), people then focus on the fact that something or somebody (i.e., a communicator) restricts their personal freedom. This leads to an even higher likelihood of engaging in the restricted behavior.

Thus, on one hand objects for change need to and will be troublemakers rather than problem solvers. They change well-known situations, which certainly creates some *friction*. On the other hand, this friction needs to be designed in a way to become meaningful and acceptable to avoid reactance. In the remainder

of this section, we will develop such an *aesthetics of friction* to guide design.

Designing Friction

Industrial design, interaction design, and human–computer interaction have a tradition of making objects convenient—their ideal is things that fit the hand and the mental models of their users; things made to measure. Objects as change agents are different. They do not adapt to their users, but demand adaption. We believe that we simply lack the expertise to design for this. We need principles for the design of what we call *transformational objects* (Hassenzahl 2011; Laschke et al. 2011) or more affectionately *pleasurable troublemakers*.

Our notion of change (see the section "Change and Choice") and objects as change agents (see the section "Objects as Change Agents") restrict the potential design space for pleasurable troublemakers. Troublemakers flourish on the intimate understanding and knowledge of a situation at hand. Let's say your ideal self wants you to lose some weight. Unfortunately, the daily pint of Ben and Jerry's Cookie Dough in front of the television proves to be a barrier to your dream weight. A concrete and quite clever implementation intention is to separate television watching from ice cream munching (Rachlin 2004, location 1679): "I can eat ice cream if I must, but I need to switch off the television while eating." All you need to do is to follow this rule. However, you could also acquire our new ice cream bowl, which switches the television off when being lifted from the couch table. This bowl is not a rhetoric appeal to your reflective powers; it is an intervention on the impulsive level. It embodies an implementation intention in line with your goal intention, which reflects intimate knowledge of the problematic situation at hand and offers a viable alternative behavior. Now imagine the bowl as a Christmas present. Unsuspecting, you fill it to the brim with Cookie Dough and slump down on the couch in front of the television. Ah, John Snow, beyond the wall, amid of ice, wildlings, and white walkers. Absently, you grab your bowl, ready to tuck in and: John Snow freezes, literally. What's wrong? You put the bowl back on the table to check the television, and quite magically Game of Thrones continues. Satisfied, you pick up the bowl again. Frozen image. After a while you figured it out: the bowl does not want you to watch and eat simultaneously. You are clever, you've got the idea.

This example shows that pleasurable troublemakers must satisfy a number of crucial requirements to realize their envisioned potential: (1) They must be highly situated and relate to impulsive/automatic behavior and a moment of choice; (2) they must embody an alternative behavior in line with a potential goal intention and the idealized self; (3) they must be as close as possible to a moment of choice; (4) they must create some friction in the particular moment of choice to nudge their user(s) into a meaning-making process; and (5) they must possess a certain expressive quality, that is, the ability to tell a clear story of an alternative behavior and a better self.

Making Friction More Pleasurable

The bowl deliberately creates tension between ice cream munching and television watching. Ice cream eating does not become forbidden. Cookie Dough is not entirely banned from couch and kitchen. But still, the bowl is a restriction of its user's freedom. It is a troublemaker. As pointed out earlier, restriction of

freedom is likely to result in *reactance*. However, research (Silvia 2005) showed that reactance is reduced when the communicator is liked and appears similar. Thus, a *pleasurable* troublemaker not only should cause friction through more or less forcing an alternative behavior and a better self onto its user, but needs to be liked as well. It needs to build a relationship.

What are the potential means to create a bond between a person and a slightly annoying object? We believe in (1) naivety and (2) understanding.

Naivety

The bowl is limited in its capacities and not an especially smart object. It just embodies a single simple plan, stubbornly telling the same story over and over again: just don't eat ice cream while watching television to get a grip on your weight problem. Isn't it naive actually to believe that something as difficult as losing weight or specifically abstaining from Cookie Dough could be bettered by a silly bowl? There are many ways to work around the simple plan provided by the bowl; plenty of ways to cheat. You can just leave the bowl on the table and eat with the head bent down. You don't even need to use it, just eat the ice cream out of the box. This absurdity, the seeming hopelessness of the bowl's approach, makes it likeable. It is a Don Quixote fighting against windmills. It is the well-meaning, slightly freaky friend to comply with, just out of compassion. Let him have his way for now. It is the pathetic Wizard of Oz, handing out stuffed silk hearts to the Tin Woodman and useless magic potions to the Cowardly Lion.

But the bowl is only half as absurd as it seems. First of all, it embodies a carefully selected, smart course of action, which has the potential to take effect when acted out. In addition, such as the potion for the Cowardly Lion, the bowl will create a focus, potentially unlocking Cowardly Lion's own behavioral resources. Designers of pleasurable troublemakers believe in the power of small interventions.

Understanding

Doing the right thing all the time can be overwhelmingly difficult. Completely to deny oneself ice cream may not only be cruel, but may also require superhuman willpower. Nevertheless, teetotaling is a common recommendation, the "revolt against indulgence" (Rachlin 2004, location 791), when it is about unhealthy food, drinks, or smoking. The problem is that a small violation often leads to relapse. Imagine yourself being abstinent from ice cream for a week, but then giving in to just a spoonful of Cookie Dough. "What the hell!" you'll think and throw yourself into a full-fledged eating spree. A pleasurable troublemaker will acknowledge human nature, the difficulty of teetotaling—it understands. Because once indulged is not a pattern, yet.

A pleasurable troublemaker must be understanding in two different ways. First of all, the embodied implementation intention itself should acknowledge the difficulty of controlling impulses. The ice cream bowl does not require a superhuman. There is still ice cream munching and television watching involved, but in a slightly twisted, presumably better way. The same applies to Linda and Colin. The bar does not forbid a tasty pint of lager. It just innocuously suggests combining a beer with a mineral water to drink one or two beers less than usual. These strategies are soft and subversive rather than strict and explicit.

A second route is including a feature to sidestep the embodied implementation intention. Let's say we grant our ice cream bowl a further mode that can be activated by the user and then runs for a particular

time. During this, the bowl's function reverses. Now you need to dig in to keep Game of Thrones running. The moment you *stop* munching ice cream, John Snow freezes. The bowl now actively supports cheating, but thereby reflecting on an ultimate truth: you can cheat others, but never yourself. Including a feature to sidestep the embodied implementation intention adds an ironic element to the object. It wants you to eat less, more consciously, but at the same time, it can be used to create the opposite. On one hand, this puts emphasis on the fact that it is essentially our own personal choice, how we want to be. On the other hand, the same object embodying a seeming ideal can be used to transgress. Through this it becomes an accomplice, a "partner in crime," and certainly more likable.

In Sum

Our aesthetics of friction affords an object to be situated in a moment of choice, where it must create some friction. Its main function is to shape behavior according to an embodied implementation intention, which is in line with a better, happier self (i.e., the idealized self). To allow for an insight (i.e., an acted out implementation intention spawns a goal intention), the object needs expressive qualities—it needs to be capable of telling a story. The object itself bonds with its user through its naivety, a carefully selected implementation intention, and an ironical feature, making the object slightly ambiguous. Through this, the object becomes a *pleasurable* troublemaker. It mirrors its user, confronting her or him with his own ambiguities and inconsistencies.

Two Pleasurable Troublemakers

In the "Pleasurable Friction" section, we laid out our aesthetics of friction and already applied it to an ice cream bowl. In this section, we present and discuss two further pleasurable troublemakers as examples.

Do/Panic

Do/Panic is a student project realized by Tobias Ellinger and Philip Oettershagen and supervised by us (see Ellinger et al. 2011). Now and then, Do/Panic projects a grid or a line onto a desktop (see figure 6.8).

Design explorations showed that, when asked to get a grip on a chaotic desktop, people use a number of strategies, such as grouping items with similar form and size or aligning items orthogonally or parallel to the edges of the desk. The projected lines and grids take this up. They provide virtual containers to place similar things into or "demarcation lines" distinguishing free spaces from storage spaces. A line, for example, projected in the upper third of the desktop is used as a border, with all pens and tools placed above the line and resulting empty workspace below the line.

Do/Panic believes in the power of order and acknowledges the difficulty to maintain it in daily life—as Thomas Mann said: "Order and simplification are the first steps towards the mastery of a subject." (At least, this is what it seems to need to write something as complex and detailed as the *Buddenbrooks* or *The Magic Mountain*.) So now and then, Do/Panic suggests tidying up a bit by offering some grids and lines, relying on the power of this simple prompt. This is clearly a sign of naivety as required by our aesthetic

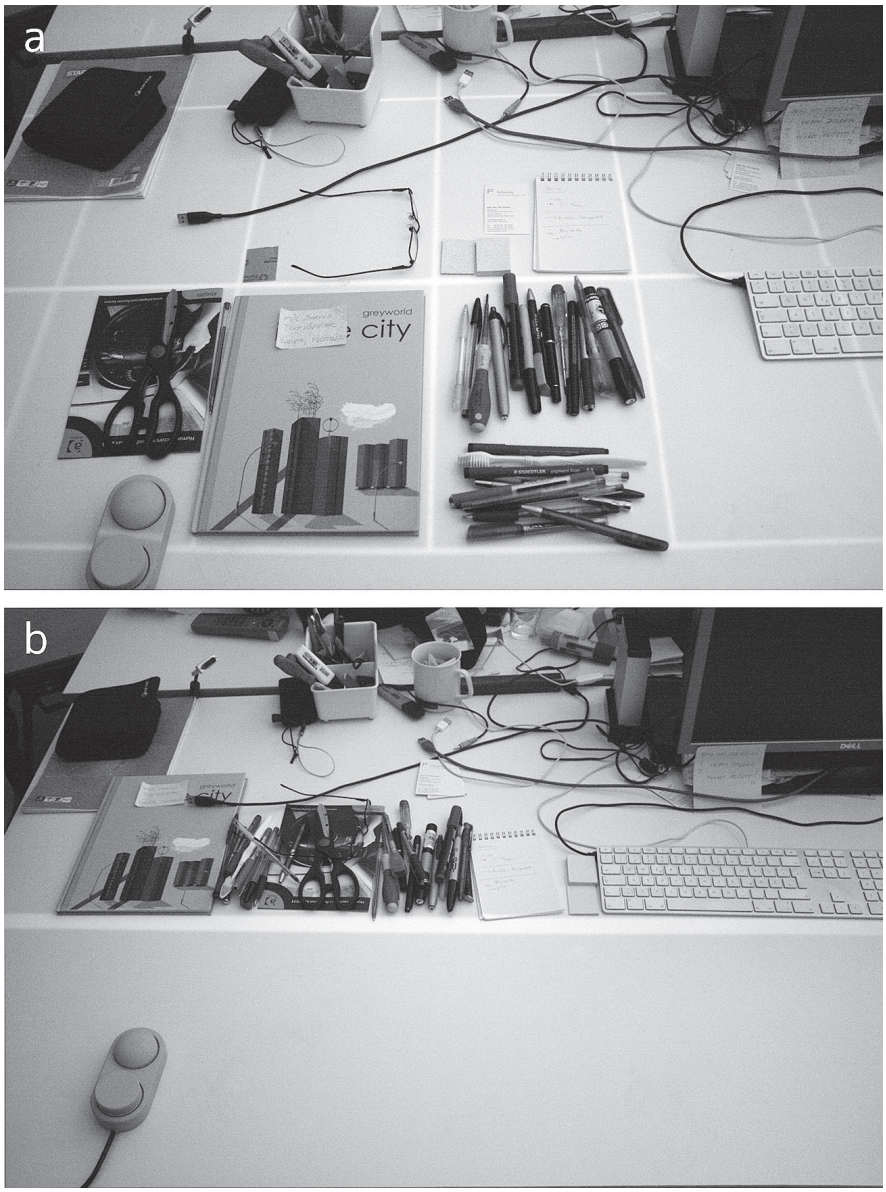

Figure 6.8
(a) A line or (b) a grid projected onto a desktop. (Image courtesy of Ellinger/Oettershagen/authors)

of friction. But quite surprisingly, the simple lines and grids create a pull, a strong desire to align items on the desktop to them. And before you know it, you'll find yourself tidying up the chaotic desk. While the object appears naive, the embodied implementation intention is quite clever. Instead of recommending putting things away, it stresses orientation and alignment (e.g., a grid) as a way to create order. This needs less time, less effort, and can be done while working. Order through grids is located halfway between total chaos and the notorious "empty desktop" of executive offices. It is a more transient, momentary order, one that expresses being in the middle of work rather than being almost on your way home. At least this is the impression the first author hopes to make, when his students take the occasional look at his virtual desktop (figure 6.9).

We believe that Do/Panic has the expressive quality to tell a quite concise story of order and tidying up. It is relatively easy to find yourself doing what it suggests. At the same time, its suggestion already acknowledges that tidying up can be gruesome, boring, and hard to implement.

But where is the irony of it? Do/Panic has an additional feature: a panic button. If the mess becomes overwhelming, but you cannot muster the energy to have a go at it, hit the buzzer. Do/Panic then projects a masking pattern onto the desktop (figure 6.10). The mess disappears—at least for a while.

Fifty/Fifty

Fifty/Fifty cake takes up the intention to lose some weight to feel healthier and more comfortable. As we

Figure 6.9
Hassenzahl's virtual desktop is made acceptable by aligning mess to a grid.

Figure 6.10
Do/Panic masks the mess. (Video stills, image courtesy of Ellinger/Oettershagen/authors)

Figure 6.11
The loaf pan for a Fifty/Fifty cake.

all know, this is easier said than done. There is a high number of potentially tempting situations and an equally high number of recommendations, such as to set up a nutritional protocol, to abandon high-calorie foods completely (i.e., teetotaling), or to replace some of it with apples, carrots, or diet drinks.

Most of these recommendations are not particularly well attuned to the structure of tempting situations. Fifty/Fifty cake addresses practices in the context of an afternoon kaffeeklatsch, an informal social gathering for coffee and conversation popular in Germany. A kaffeeklatsch is often accompanied by homemade cake, a tempting high-calorie food. However, the choice to abstain is difficult not only because of the tempting cake, but also because of the situation's social character. To reject the offer of a piece is—even when explicitly voicing one's goal to lose weight—slightly impolite. Certainly, it will urge the host to convince her guest to have at least a tiny tiny piece of the vice—just for the taste of it. In addition, it will certainly start a potentially embarrassing discussion about the actual goal intention "to lose weight," making conversational nuggets such as "You can do without this, my dear" (are you blind?), "But it suits you" (rolls of flab?), and "It's only cake" (blessed are those not knowing!) highly likely.

As its name implies, Fifty/Fifty is about two halves. The cake is made in a special loaf pan typically used for pound cake. Different than regular pans, this pan is diagonally divided (figure 6.11).

The idea is to use different sponge-cake mixes for the two halves. One mix is a regular one, the other is calorie reduced. A recipe for a regular mix for this size of pan would be: 6 eggs, 300 grams butter, 250 grams sugar, 250 grams flour, and a teaspoon of baking powder. This would result in a cake with 4,250 calories, about 350 calories per piece. A calorie-reduced mix just replaces the best part of the butter with low-fat yogurt (50 grams butter and 450 grams low-fat yogurt). This results in 2,800 calories, about 230 per piece. This is a reduction by a third. By using half of the regular and half of the reduced, the final

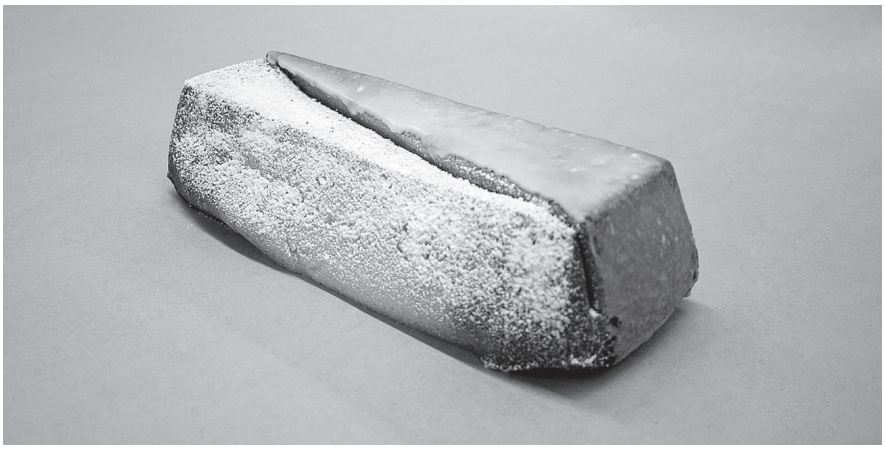

Figure 6.12
A Fifty/Fifty cake.

cake will have about 3,500 calories; 390 calories per piece on average (ignoring the icing; see figure 6.12 for sample cake). But only on average, as the distribution of regular and reduced mixes is different for each single piece because of the diagonal separation (figure 6.13).

Fifty/Fifty is a variation of a simple plan (i.e., implementation intention): whenever there is tempting food served, take it, but eat only half of it ("Friss die Hälfte"). This is a clever plan, because what counts is to reduce food intake in general, not the reduction of particular food ingredients through a sophisticated diet (e.g., fat, carbohydrate) (de Souza et al. 2012). Obviously, Fifty/Fifty delivers this plan with a twist. Instead of really reducing the amount, it only reduces the calories overall. But nastily it does so differently for each piece of the cake. Through this, Fifty/Fifty first of all creates choice.

Imagine Fifty/Fifty on the coffee table, neatly cut into pieces. Which piece would you take? The left end is regular, buttery, the right is reduced, yogurty. The middle piece is fifty-fifty, but it is unusual to take a piece from the middle. For the health-conscious, Fifty/Fifty offers a clear alternative. A piece of the calorie-reduced, yogurty end is in line with the goal intention to reduce weight, at the same time acknowledging the difficulty to resist the offer because of the temptation and social reasons. For the not so conscious (yet), an alternative course of action becomes suddenly available, clearly referring to the ideal of having a normal, healthy weight. This creates friction. It highlights the tension between cozy kaffeeklatsches and weight problems, between praising and submitting oneself to the baking skills of the host and later needs to repair the damage done to bums-tums-and-legs. In addition, through the diagonal design, it becomes likely that whatever piece a person takes, it will consist of both mixes at least in part. This creates the opportunity for the firm believer in butter to experience the miracles of low-fat yogurt (in fact, it is quite tasty!).

Besides this, the diagonal design also adds irony to the mix (no pun intended). However strict individuals are—may they be cake purists or health

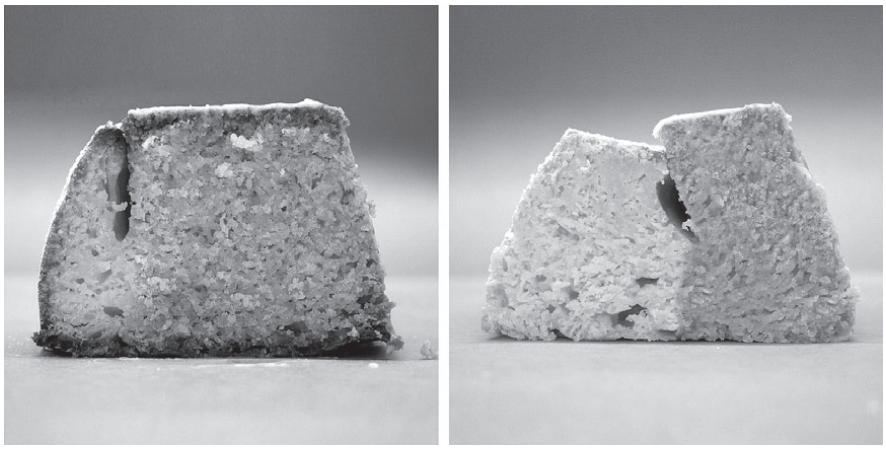

Figure 6.13
Distribution of regular and calorie-reduced mixes for different pieces of a Fifty/Fifty cake.

fetishists—each and especially every second piece taken inevitably undermines their own choice at least a little. Imagine yourself, having been rushing for the healthy end of the cake. Not quite satisfied yet, you take a second piece from the same end. It will always be a little less healthy. The same holds true for the epicurean—each following piece is a little healthier.

So far, we discussed Fifty/Fifty from an individual point of view. However, the sociability of a kaffeeklatsch adds another dimension. There are a number of situations imaginable. For example, a health-conscious dieter innocuously brings the cake along as his materialized implementation intention. But inevitably, the cake will stir some debate because it creates the need to choose, where no choice had been before. And whatever done may in turn require explanation and justification. For the dieter, this playfully highlights the deeply social nature of weight problems. Being slim or overweight—like many similar problems—is not only a matter of willpower or the lack of it, but also a matter of social pressure and support (Rachlin 2004). Another potential situation would be a well-meaning host, introducing Fifty/Fifty to the coffee table as an offer to the especially health-conscious guests. Again, debate would be certain. And finally, there is always the malicious option of the host preparing a Fifty/Fifty for a very special guest, such as an overweight and obstinate aunt or friend. This surely adds some significance to the notion of the "tyranny of the host."

Pleasurable Troublemakers, Self-Quantification, and Gamification

Do/Panic and Fifty/Fifty are highly situated. Do/Panic links the ideal of "being organized" to one's desktop; Fifty/Fifty links the ideal of "being slim and healthy" to cake and kaffeeklatsch. In both cases, there is a dominant impulsive behavior: to make a mess of the desktop or to tuck into tasty cake. Both

pleasurable troublemakers introduce a novel behavior to the situation, a simple plan in line with an ideal (e.g., aligning items, eating calorie-reduced cake). This turns abstract intentions into something quite real. Do/Panic and Fifty/Fifty tell a story of a different self. While they definitely create some friction to nudge their users into meaning making (Do/Panic a little less than Fifty/Fifty), they remain likeable. They understand. They sympathize. Both embody implementation intentions, which do not require superhuman powers. It is still allowed to make a mess and to eat cake. In addition, both are ironic by incorporating a loophole. Do/Panic masks the mess, at least for a while. Fifty/Fifty even sabotages the prim user by always slipping in a little of the vice. In a way, pleasurable troublemakers are a reflection of their users and change in general. Nobody is perfect. And every little step counts.

Obviously, pleasurable troublemakers are different from self-quantification and gamification. The first often appears technocratic and takes a rather disinterested stance. Fitbit's One, for example, estimates in real time the calories your body may burn without physical activity. Obviously, activity increases the amount of calories burned. And there is a simple rule: if you don't want to get fat, only consume as many calories as you burn. Based on this, One's continuous visualization of calories burned implies a number of potentially interesting practices. First, one may start to better match food intake to levels of activity. Typically, this is the opposite in real life. The more we slump on the couch, the more high-calorie food we consume. Second, one may use the visualization like an account. Let's say you urge for this tasty chocolate bar on the kitchen counter. You can eat it, but you need to pay back the debt. You need to balance your account through activity. All these behaviors are made possible through One's technology. But the device itself does not tell those stories. It bores its users to death with numbers, graphs, and well-meant recommendations. It provides infrastructure, but misses the chance to tell a story. Story is entirely left to the imagination of its users.

Gamification might be a remedy to this, but this depends on its execution, the how. In fact, One is gamified as well. It hands out badges for ten thousand steps done or ten stories climbed. But this is not a story, it is a well-meant reward, resting on the wrong assumption that gamers play for points. They play for play. They play for story. The closest One comes to a story is when it tells its user that he had climbed stairs equivalent to the height of the Christo Redentor in Rio de Janeiro. McGonigal (2011) clearly has a more differentiated notion of games, narratives, and their powers. But they must be harnessed. An example highlighting the difference between dispassionate self-quantification and narrative gamification is Zombies, Run! (https://www.zombiesrungame.com/). Zombies, Run! uses the narrative of an apocalypse complete with marauding hordes of zombies to make you go for a jog. The match between the pop cultural archetype of a zombie chase and the running activity makes this fantasy appealing (at least to the first author, raised on and steeled by countless Resident Evil sessions). Never look back when you hear a zombie breathing down your neck. What this type of gamification still misses is to instill insight. It motivates through an alternative to reality, thereby sugarcoating and avoiding what is real. To us, this notion of an alternate reality is inherent to games, but different from the troublemakers, we propose. They don't tell hilarious stories about elves, zombies, or space

marines, but everyday stories about life. They are rather akin to fictional documentaries or even "mockumentaries."

Pleasurable troublemakers are different from many current attempts at designing persuasive interactive technologies. Froehlich and Findlater (2010), for example, found most persuasive technologies in the context of sustainability to rely on feedback (akin to self-quantification). They don't necessarily take a clear position, they just provide information. In addition, choice and goal setting as theoretical backdrop remains largely unexplored. Albeit interactive, most of the objects (i.e., devices) remain rhetoric; they talk or show rather than mediate choice.

Obviously, interactive persuasive technologies come in many different shades, and it is beyond the scope of this chapter to launch into a full-fledged critique on current design practices. Many potential concerns with persuasive technologies, gamification, funware, and so forth, are convincingly discussed throughout this book. In particular, the chapters by Selinger and colleagues (this volume) and Sicart (this volume) resonate with our approach. In fact, a pleasurable troublemaker becomes a part of its user's *extended willpower* (see Selinger et al., this volume)—object and person form a "motivational system." And it is not as if a troublemaker merely serves data for the person to act upon (aka self-quantification). Quite conversely, person and object are performing the "task" together, with the object shouldering a significant part of the responsibility to shape the system. For ages, people already quite successfully "materialized" manual, cognitive, and even emotional aspects of their lives (think: a shovel, a calendar, and Celine Dion). And as Selinger and colleagues point out, there is nothing ethically wrong with this. The most obvious reservations against technology to deliberately change people (i.e., a designed motivational system) stem from the potential commercial exploitation. But this is not a problem of the objects themselves, but of the production and distribution models they become embedded in. More serious is the question of—as Selinger and colleagues (this volume) put it—"Who does technology want us to be." They identify a number of potential concerns (see Morozov 2013). One revolves around the topic of foregoing individual choice, a lack of experienced agency, which results in "infantilism" and a diminished feeling of personal responsibility. We share this concern. This is why choice is so prominent in the theoretical backdrop of our aesthetics of friction. Ultimately, it was you who tidied up your desk or left it as it was. Ultimately, it was you who chose a piece from the buttery or the yogurty end of the cake. Pleasurable troublemakers create choice in situations where it might not have been existent or that obvious before. But they never *make* the choice. They leave it to people—and are even understanding in case of failure. This ties into a further potential concern identified by Selinger and colleagues (this volume): "fragmented selves." We "might eat healthy when using a gamified wellness app, but poorly when we forget our smartphone at home." To prevent this, pleasurable troublemakers avoid convenience. They never assume responsibility for reaching a goal. They do not attempt to substitute individual willpower by making it easier. In contrast, they deliberately create thorny but interesting situations, opportunities for action and reflection to instill internalization and generalization.

When designing a "motivational system," the distribution of aspects among the person and the object is crucial. We assume that an object can suggest, lend a hand, offer criticism, be understanding—but it is the person who must choose and understand. This is

also behind Sicart's (this volume) note that "technology can be designed so moral values are transmitted to a practice. [...] However, the fact that technologies mediate morality does not imply that we become more virtuous beings by [...] using them. Technologies mediate morality, but we *practice* morality." Ultimately, the locus of change is the self, not the technology. This is what pleasurable troublemakers acknowledge and many persuasive technologies fail to understand.

Final Thoughts

> We believe that in order for conceptual design to be effective, it must provide pleasure, or more specifically, "complicated pleasure." One way this could happen in design is through the development of value fictions. If in science fiction, the technology is often futuristic while social values are conservative, the opposite is true in value fictions (Dunne and Raby 2001, location 489).

Pleasurable troublemakers are "complicated pleasures." Friction is crucial to this. In their chapter, Selinger and colleagues (this volume) argue that to have an insight, people need to feel uncomfortable. They need to be confronted with the gap between who they take themselves and the world to be and who they actually are and the world actually is. Pleasurable troublemakers do this, but in a light way. This is what makes them complicated but pleasurable: it is the friction and meaning, which makes them complicated, and the insight, irony and complicity, which makes them pleasurable.

While Dunne and Raby had certainly something more ambiguous and grand than cake or desktops in mind when they envisioned their value fictions, we find the notion of science fiction versus value fiction appealing. A pleasurable troublemaker is never a complicated piece of technology. But it is able to create complex, meaningful personal and social situations. It tells stories about alternative ways of living and being and is, thus, fiction. But, fiction on the brink to reality. Admittedly, being slimmer or more organized may not be futures worth bothering with. To decide which area to tackle, which stories to tell, is the responsibility of the designer. The aesthetics of friction as a set of principles holds for more essential and controversial themes than getting a slimmer or more organized self. And it does so with an already generous portion of moral reasoning built in. Obviously, whether a particular troublemaker is morally justifiable or not is a matter of individual analysis. But the general approach already highlights crucial aspects to consider, such as the situatedness of good and bad behaviors, as well as the significance of personal choice, meaning, reflection, and sympathy for failures. Note that this is also a limitation of our approach. It is attuned to everyday struggles, not to severe pathological problems. In this respect, our frequent use of drinking as an example may be misleading. Our approach is a light one, certainly not able magically to solve the problems of alcoholics, the severely obese, or pathological procrastinators. In these cases, a pleasurable troublemaker can only be a part of a more comprehensive plan for change.

Our notion of an aesthetics of friction and according transformational objects is a proposal for those who believe in big effects of small interventions. In line with recent commentaries (Brynjarsdottir et al. 2012, 954), we intend to go beyond persuasion as

understood in human–computer interaction and interaction design by shifting from prescription to reflection and from isolated behavior to situated practices. A pleasurable troublemaker intimates both. It is a device to instill change through behavior and insight—with a smile.

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