

Association Splitting

Self-Help Guide for Reducing Obsessive Thoughts



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Foreword

This manual would not have been possible without the support of many people. First, we would like to express our gratitude to all our colleagues for their help during the development of this manual. In particular, we would like to thank Birgit Hottenrott and Ruth Veckenstedt for their critical review of this manual and the implementation of an efficiency study on the Internet. We are also indebted to Jana Volkert for a preliminary translation of the manual, which was burdened by the fact that many of the original German examples do not work in other languages. Special thanks go to the translator Kenneth Kronenberg who edited the manual and suggested several new examples (<http://www.kfkronenberg.com>). Finally, we would like to thank participants in a pilot study, whose feedback, especially on comprehensibility and daily application of the technique, has led to significant improvement. We would be very grateful to receive feedback about your experiences with this method at moritz@uke.uni-hamburg.de. Suggestions for improvements, and criticism, are as welcome as plaudits.

Request for donations and funding

Considering the difficult financial situation of many people suffering from obsessive-compulsive disorder (OCD), we will continue to offer this manual and other self-developed treatment programs free of charge (see for example our metacognitive training program for schizophrenia patients at <http://www.uke.de/mkt>).

However, research is expensive and in times of scarce public funding it is not only time-consuming, but also requires private funding. If you would like to support us in providing cost-free treatment methods, we would be grateful for donations. Irrespective of individual support, we will attend to all inquiries and offer support on individual applications of the technique. No one should feel morally obliged to donate! Donations will be used for research purposes only (upcoming projects include translation into Spanish, improved examples, payment of research interns). If needed for tax purposes, we will be happy to send you a receipt.

Account holder: Universitaetsklinikum Hamburg-Eppendorf
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Thank you and best wishes!

Steffen Moritz & Lena Jelinek

Cover image: Association splitting: Bernd Hampel, inspired by an El Lissitzky painting titled "Beat the Whites with the Red Wedge."

Dear patients, relatives, and colleagues,

Our research group has been involved in the research and treatment of obsessive-compulsive disorder (OCD) for many years. Since the end of 2005, we have been developing a new treatment method (association splitting), which aims at reducing the intensity and frequency of obsessive thoughts. In the following chapters, we invite you to try this method for yourself.

Although we regard our approach as very promising, we would like to warn against overly high expectations. In a pilot study with 30 OCD patients, we found an average reduction in obsessive-compulsive symptoms of 26%; the intensity of obsessive thoughts was reduced by 25%. After three weeks, during which the method was self-administered, up to 42% of participants showed a decline in symptoms of at least 35%. Association splitting therefore represents a promising treatment strategy for a subgroup of patients. We have further refined the approach since our pilot study. In the future, we will especially focus on having our method incorporated into existing therapy programs.

1. To whom this manual is addressed...

The method is aimed at people who suffer from specific, that is, concrete obsessive thoughts (e.g., excessive concern with contaminating others; uncertainty about having run over a pedestrian; fear of causing a catastrophe by failure to place things in a particular order, or not saying a certain prayer).

Currently, the method may not be of benefit to the following individuals:

1. Individuals who perform compulsive actions *exclusively*, that is, without awareness of preceding obsessive thoughts. Compulsive actions may include excessive washing of one's own body, checking (e.g., oven, door lock), sorting, and excessive hoarding. There are also mental compulsive actions such as counting or mental rituals, which are employed to "prevent" obsessive thoughts or their feared consequences. In most cases obsessive thoughts precede compulsive actions (e.g., exaggerated fear of having been contaminated [obsessive thought] is followed by a washing ritual [compulsive action]).
2. Individuals, who do not at least partially acknowledge the absurdity or exaggerative nature of their thoughts. Individuals who are convinced that their thoughts, concerns, and actions are entirely justified and rational, are not likely to benefit from the method.

If you experience no positive effects from association splitting, please do not give up hope. There are other effective therapy options for OCD, especially cognitive-behavioral techniques. Consult a clinician who specializes in OCD, or a self-help organization.

2. Associations

Our approach is based on findings from cognitive psychology. The technique is intended to weaken associations connected with agonizing thoughts. Such thoughts, also called obsessions, may culminate in panic and catastrophic ideas and often result in compulsive rituals such as excessive washing and checking. Before we turn to the treatment method itself, it is necessary to explain briefly the mechanisms underlying associative networks. Our explanation here will be somewhat oversimplified, but the interested readers are urged to consult Manfred Spitzer's *The Mind Within the Net: Models of Learning, Thinking, and Acting* (Bradford Books, 1999), which, in a very illustrative and straightforward manner, summarizes current scientific knowledge about thinking and its representation in the brain. We ask you not to skip this introductory section, because the efficacy of this method relies on a clear understanding of its core underlying principles.

Central to our approach are associations, that is, connections between thought contents (from now on these will be referred to as cognitions). Cognitions may include memories, words, emotions, or action impulses. In the following, the virtually identical term thought will be used only to refer to linguistic contents (i.e., words or sentences).

Brain research suggests that cognitions are embedded in the brain as cell assemblies (neuron networks), mainly in the frontal and temporal lobes of the brain. At the brain level, the strength of the connection between two thoughts equals the transmission strength of specific messengers, called neurotransmitters, between neurons. Neurotransmitters function like lubricants between cells, ensuring improved communication from cell to cell (there are also inhibitory messengers, which will not be discussed further in this context.)

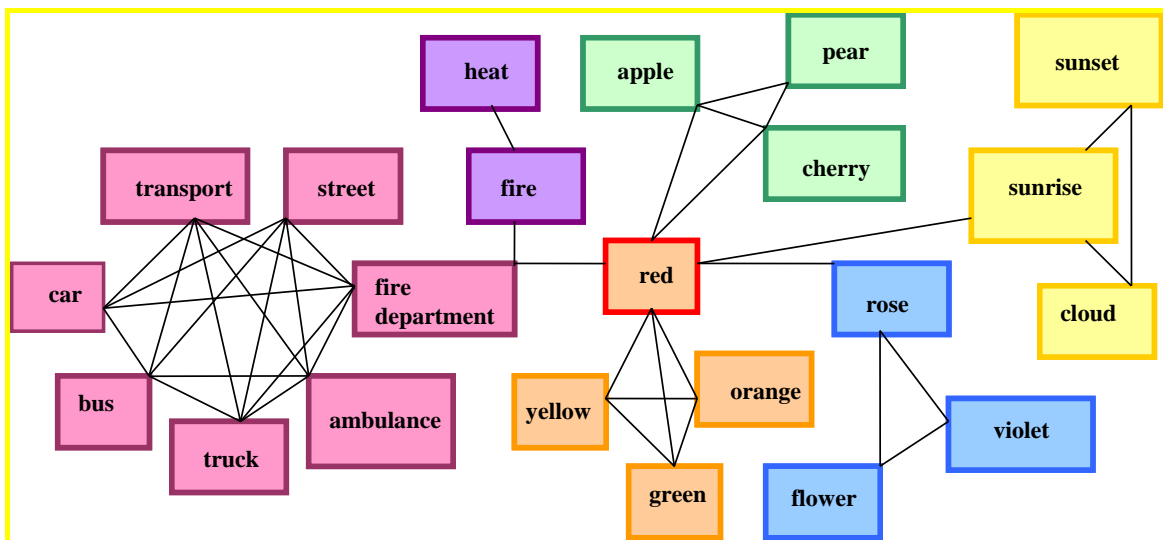


Figure 1: The diagram shows a network of thought associations. Cognitions are connected in the brain by their meaning or sound. The more frequently concepts are used together or in the same context, the more strongly they are connected

Figure 1 shows an associative network, which comprises, amongst other things, different types of fruit, whose associations also extend to other networks (e.g., colors). For clarity we have only depicted a few connections. Other cognitions and associations (e.g., between apple and green) are, of course, also possible.

Communication within the semantic network is achieved with the help of association spreading, that is, one cognition activates another and so on. For example, when we rehearse and recite a poem, we practice (i.e., strengthen) specific associations, which in the beginning were perhaps only weakly connected (e.g., the rhyme *house* with *mouse*). Cell connections are strengthened by the process of rehearsal. Later on, when reciting a key word the next word is basically *warmed up* and *on the tip of the tongue*. The following principles are relevant for a deeper understanding of the mechanisms behind associations:

1. Associations are based on learning and largely depend on experience: Although some associations have been deeply imprinted in the human brain as a result of evolutionary processes over the millennia, and therefore do not require specific individual learning,¹ most mental connections depend on learning and experience. For example, over the course of our life we learn to stop for red traffic lights (association of a visual stimulus with a specific reaction), that a robin is a bird (connection of a picture/word with a superordinate term), *table* in French is called *la table* (connection of a word with another word), or that it is a bad idea to touch a hot stove (connection of a tactile stimulus with a visual and pain stimulus). Associations develop automatically when thoughts appear together more frequently (e.g., the color black when looking at a cup of coffee). At the beginning, our memory is more or less empty—a blank slate—with the exception of the aforementioned “collectively acquired” information. Because many humans share a similar repertoire of experiences or have grown up in a comparable cultural milieu, people tend to produce very similar associations. Studies in which people are asked spontaneously to associate words that pop into mind when presented with a certain cue word demonstrate that most people associate the word *black* with the word *white*, or *hammer* with the word *nail*. Also, many people United States will associate the word president with the names *Obama*, *Bush*, or *Clinton*. Still, numerous individual differences exist owing to the specific learning environment of a person. A soccer fan is more likely to associate the word *ball* with *goal* rather than *dancing*, while a professional dancer will probably have the opposite association.

Persons with OCD often have idiosyncratic and, at the same time, very lopsided associations. A person excessively fearful of murdering his or her children with a knife will, when seeing a knife, more likely to associate it with those obsessive concerns or experience visions of horror, rather than have a neutral cognition like spoon, fork, or cutting up vegetables for cooking. OCD patients also have such neutral associations, but they are *buried* and/or their intensity is much weaker.

2. Thoughts are controllable... and yet not: Thoughts come and go. Experimental studies show that most of our thoughts vanish within a few hundred milliseconds. However, during this time new thoughts are activated and spread like falling dominos. This happens automatically—irrespective whether we want it or not.

¹When we come face-to-face with a snake or other object that has been associated with danger since time immemorial and has become virtually hard-wired, an unconscious flight response is transmitted via the neuron cell connections of the visual center to a brain area called amygdala. These connections function without prior individual experience.

We will briefly demonstrate the principle of association spreading with a short exercise. Please answer the following four questions as quickly as possible:

- What is the color of a polar bear? - [white]!
- What is the color of a snowflake? - [white]!
- What is the color of a lab coat? - [white]!
- What does a cow drink? ...

Most people who take part in this little experiment spontaneously answer the last question with *milk*, although *water* is the correct answer. If however, you ask the final question without the three preceding ones, most people will produce the correct answer. This phenomenon is based on the fact that thought contents that are associated with white (including *milk*) are facilitated or warmed up, so that they are closer to consciousness and are *on the tip of the tongue*. Asking the question, “What does a cow drink?” unconsciously leads to *milk* as it is already co-activated by *white* and has gained further activation by the word *cow* (as most people also associate *cow* with *milk*), thus prompting the wrong answer.

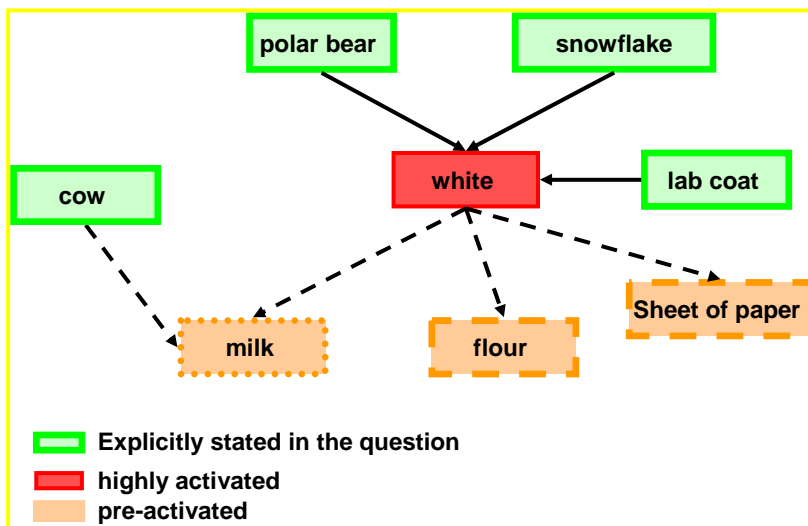


Figure 2: Asking people the color of a polar bear, a snowflake, and a lab coat (green boxes), activates the word *white* (red box). Consequently, other concepts related to *white* are automatically co-activated (orange boxes). If the question “What does a cow drink?” is then asked, many people spontaneously answer *milk* although they know that cows drink water. *Milk* however is on the tip of the tongue (pre-activated) by the influence of the two concepts *white* and *cow*.

Total control over the flow of thoughts is neither sensible nor possible! When we speak, we may to some extent be able to direct our talk to a certain point (e.g., prepare some words we would like to use in advance). But it is almost impossible to plan the exact wording and intonation beforehand. Pre-conscious processes, in the form of strong association assemblies, navigate our thinking. These association assemblies (e.g., verb and object follow the subject) do not come out of the blue nor are they innate, but, again, reflect our particular learning history. In part, we learn these with great effort at school (e.g., to raise our voice at the end of a question; to say “I brought” rather than “I brought” etc.). This knowledge increasingly becomes *second nature* to the point where we do not need to think in order to make use of it.

Other examples where thoughts are not fully controllable

Positive: sudden inspirations or ideas; spontaneous jokes; using a foreign word without being aware of having known the word before

Negative: mental black-outs during exams

Normal: slips of the tongue (e.g., “Thanks for your hostility” instead of “Thanks for your hospitality”). The more we try to control our cognitions, the more easily such errors occur.

Thoughts evaporate within a few seconds if we make no effort to hold onto them. Yet we also experience the phenomenon—and not only in the case of obsessive thoughts—of being unable to let go of thoughts, of being almost haunted by them. Who has not at some time tried—in vain—to get an annoying tune out of his head? Or what about pre-exam jitters? Most people experience such intrusive thoughts at times. Most people, however, pay little attention to them, so they don’t have much power. Alongside situational factors (thoughts about my upcoming driving test are more likely to intrude while watching a Formula 1 race), rumination (“Why am I thinking this?”), or an entirely conscious decision to elaborate a thought (e.g., happy holiday memories), may also maintain such thoughts. Thus, associations are partly automatic, but are also subject to conscious intent.

3. **The connection between two thoughts can differ reciprocally:** In many cases cognition A leads to cognition B as often as vice versa. A similar number of people will come up with *white* when thinking of *black* as vice versa. Depending on learning conditions there are important exceptions and cognitive one-way streets (thought A leads to thought B, but not vice versa). This is often the case for superordinate terms. While most people will immediately think of *bird* when they hear *turkey*; the word *bird* will probably not trigger associations with *turkey* (except perhaps in the United States at Thanksgiving). More likely they will cycle through more common bird species (e.g., robin, eagle) before coming up with *turkey*—if at all. Another reason why *turkey* and *robin* will more easily trigger *bird* than vice versa is that the cognition *bird* is connected with a much larger number of cognitions than is the cognition *turkey*. The more associations the lower the probability of activating a specific connection when hearing, thinking, or seeing a word. The opposite pertains if the word has only few associations.

Lopsided associations are also common in OCD. A person with an exaggerated fear of getting cancer may associate the word cancer almost exclusively with the meaning of illness and may not come up with other possible associations (Cancer the crab in the zodiac). Alternative concepts/cognitions exist, but their associative strength is reduced in the course of the illness. In patients, there is often a more powerful attraction to compulsive cognitions than to neutral ones (e.g., the train of thought more easily leads from the cognition Taurus to cancer than vice versa).

The fan effect and association splitting: The strength of the association between thought A and thought B (i.e., associative strength) depends partly on the number of associations thought A has. This was first demonstrated in studies by the psychologist John R. Anderson and his colleagues in the United States, during the 1970s. A child learning the word *date* will at first most likely associate this with the concept of *time*, for example, clock or Tuesday. At this stage the associated binding power between *date* and *time* is very strong. However, later on as the child learns other meanings for date, like a type of fruit or going out with a person, this connection becomes less dominant.

The association energy will continue to spread from date to time, but also to new words, such as fruits (e.g., bananas, oranges), or girls/boys, and love (see Figure 3b). We will return to this later, because most obsessive thoughts show very pronounced one-sided connections with few alternative associations. An efficient connection between these obsessive thoughts and new thoughts will not entirely banish an old association, but it may at least weaken it. In other words: new connections or the strengthening of formerly weak associations may lead to a wider distribution of the association energy.

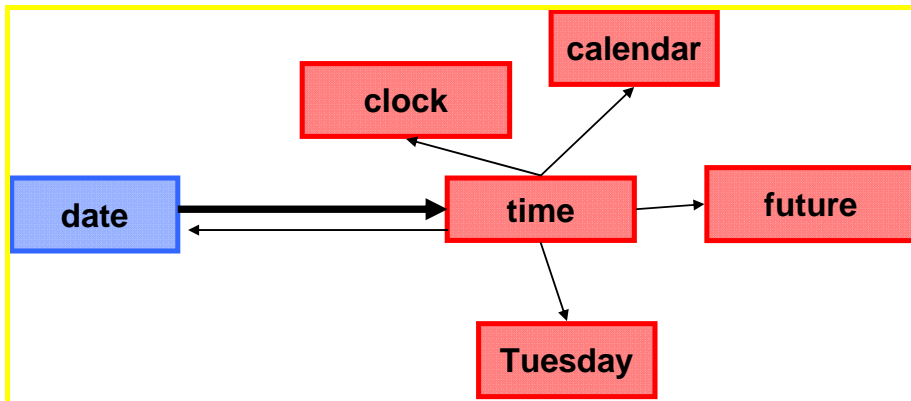


Figure 3a: Learning the new word *date* is initially used and stored exclusively in the sense of "point in time."

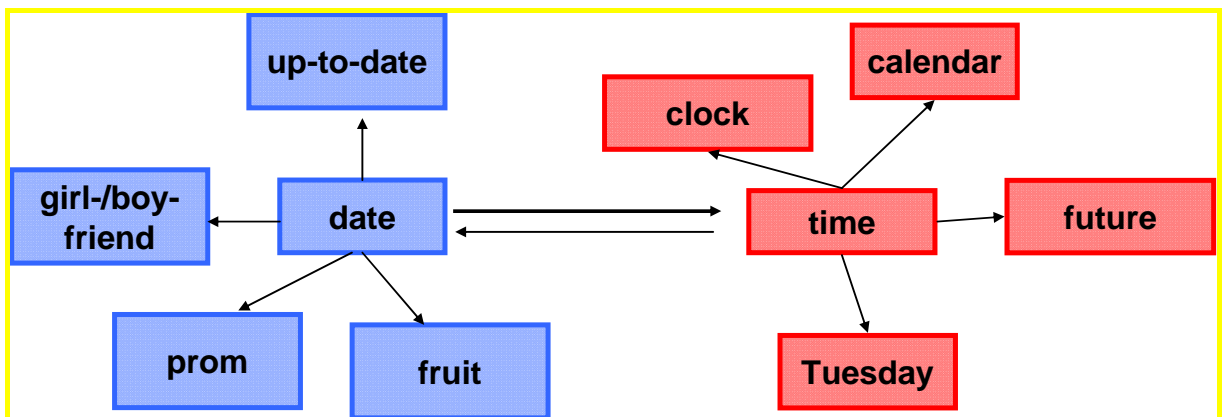


Figure 3b: Learning further meanings (links or associations) of the word *date*

Note for figures 3a & b: **Association splitting** (for a better overview, reciprocal associations are shown only for *time* - *date*). Figure 3a shows very strong associations between *date* and *time* because no other associations for *date* are yet present. The learning of new meanings as shown in 3b leads to an automatic decline in association spreading from *date* to *time* because the association energy now also spreads to other concepts. This is called the fan-effect. The original association remains fairly strong, but it is considerably weaker than in 3a. The association energy from *time* to *date* was comparably weak from the start, since many associations already existed for *time* (as was the case for *bird* and *turkey*).

3. Obsessive thoughts... are normal, and yet not!

Early investigations by Josef Rachman and his colleagues in Canada, in the 1980s, showed that the contents of most compulsions are to some extent also known to people without OCD. We were able to confirm this assumption in a recent survey of 100 healthy participants. For instance, 53% agreed the statement "Before leaving the house, I reassure myself several times that I have the door key with me," and 67% confirmed that, "Before going on vacation, I check several times that electric devices are unplugged." Other examples are displayed in the next table.

Table 1

Percentage	Statement
42%	To find inner peace, I perform certain rituals.
63%	Sometimes, I feel strong anger toward people I love.
48%	Sometimes I have bad thoughts that I do not want to think.
37%	When leaving the house in a hurry, my thoughts often dwell on the question whether I have turned off the stove or not.

In contrast to OCD patients, healthy persons can rid themselves of these thoughts fairly easily and do not get thrown off balance because the thoughts automatically fade away (as mentioned above, most thoughts disappear quickly if we don't try to hold onto them). They are also better able to counter such thoughts with logical argument (e.g., “No one gets sick from coughing once,” or “Even if the door is unlocked, nothing much will happen—after all, this is a safe area”).

Furthermore, most healthy persons perform some kind of rituals or compulsive actions, whistling a particular tune to prevent harm to oneself or others, following a ritual at the plate so that the “baseball gods” will be merciful, knocking on wood for reassurance, continuously checking pockets for the passport at the airport. None of these rise above the status of foibles. But as in OCD, even otherwise healthy persons may experience some discomfort if these rituals cannot be performed.

There is a dimensional transition from normal to pathological rituals (certain types of compulsive actions may also be observed in children, and are part of normal development). Serious obsessive thoughts and compulsive actions are stronger, more obtrusive, and may pose a social problem for the individual. But in their original form, they do not represent a completely separate class of thoughts.

4. Existing treatments for obsessive thoughts and compulsive actions

Before we explain our approach in greater detail, we will briefly outline other psychotherapeutic interventions for OCD. These interventions should preferably be facilitated by a therapist and are not intended as self-help treatments (for lack of space we will not touch on the issue of drug treatment of OCD).

Exposure *in vivo* or *in sensu*: The patient is confronted with anxiety-provoking situations—either mentally (i.e., *in sensu*) or in reality (i.e., *in vivo*)—in order to challenge the validity of obsessions and expose them as absurd and unfounded. The patient is asked to do things that normally lead to severe anxiety (e.g., leave the house after checking the door only once; wash hands only once instead of ten times; throw things out; look into the mirror only once to check one's hair). Omitting compulsive actions will at first lead to a strong increase in anxiety, which will, however, automatically decrease over time. This exercise provides the corrective experience that the expected consequences of certain fears (e.g., burglary, infection) do not occur, and that fear continues to rise only to a certain point and then flattens.

Confrontation with obsessive thoughts: The British psychologist Paul Salkovskis proposed that OCD patients should record their obsessive thoughts on an endless tape (e.g., recording

the sentence, “I could kill my children.”) and listen to it. Again, the aim of this exercise is to learn that the fear evoked by such thoughts eventually attenuates, and that these thoughts are, after all, just thoughts.

Clarifying the exaggerative nature of obsessions: Patients are confronted with the exaggerated, counterproductive and irrational nature of their thoughts. For example, checking the door ten times will attract rather than scare off burglars, because the thief may conclude that someone adopting such high security measures must have a lot worth breaking in for. Similarly, the risk of contracting a skin condition actually increases with exaggerated hygiene, because it harms the natural safety layer of the skin (this is why many persons with obsessive washing require dermatological treatment). Patients are shown how unlikely, exaggerated and in part, absurd their fears are. For example, nobody gets HIV just by shaking hands with a person who has HIV or AIDS. Or it is almost entirely impossible for someone to run over a pedestrian without noticing.

Distinguishing between thoughts and actions: Another approach aims at showing patients that there is a huge difference between thinking a “bad“ thought and acting on this thought. For example, passing thoughts of suicide are not uncommon in the normal population. About every fifth person have such thoughts at some time in their life, but we would certainly hear about it if 20% of the population actually went through with it! If every thought like, “I will kill him.” or “I would like to beat him up.” were acted upon, world population would be greatly reduced—and pretty much everyone else would be in jail. It's an interesting thought experiment, but the fact is that our minds are a “free zone,” and thoughts *about* actions are little more than musings. They can be used to test out ideas that we would never implement in the real world because of powerful moral, social, and self-control mechanisms. Most OCD patients who experience such worries pose absolutely no threat to other people! Patients with OCD exhibit a so-called *thought-action-fusion*: Thinking certain thoughts convinces people that they would be able to carry them out (“If I think such and such, I am also able to do it.”). Considering our permanent exposure to violence through the media, it is inconceivable that we would have only innocent fantasies populated by elves and little lambs. Accordingly, most people report on questionnaires that they have sexually explicit, violent, or other thoughts of which they are ashamed. In contrast to OCD patients, most people are not worried about these thoughts and can easily differentiate between thoughts and actions.

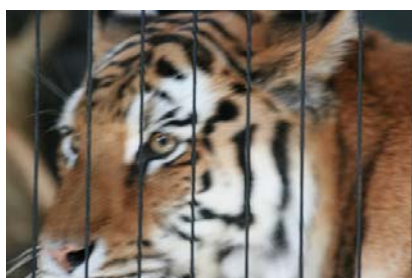
5. What amplifies obsessive thoughts?

Suppression of thoughts: As previously explained, our associations are only partly under our control. We cannot actively stop all of our thoughts. The contrary is true when we actively suppress our thoughts: Suppressed thoughts tend to become amplified. Try yourself: Please do not think of an elephant for the next minute...



Big 5 – Elephant by TheLizardQueen (4.2.2009)

Let's be honest: You couldn't do it. In fact, you probably spent more time imagining an elephant in just these few seconds than you have over the past week. This experiment can be varied ad infinitum. And the more emotional the content the stronger the effect!



Eye of the tiger by quinn.anya (4.2.2009)

Paradoxically, the attempt to suppress a thought strengthens it. Many patients with OCD use thought suppression, which leads to an unwelcome increase in obsessive thoughts! Rather, it is more helpful to monitor such processes with a sense of detachment, that is, without interfering. Like a visitor to a zoo, watching a predator through bars. The thoughts eventually subside and pass by like thunderclouds.

Brooding (rumination): Deriving a model of illness *from* significant events in a patient's life is an important part of psychotherapy. But it is only one part, and it needs to be developed under the guidance of a therapist. Without such guidance, the patient may end up in a conceptual dead-end. There is little point in brooding about the cause of the obsessions or why it has taken hold. In fact, brooding often has the reverse effect, intensifying the power of obsessive thoughts. And even if the "cause" or trigger of OCD is "identified" (e.g., mom compulsively enforced hand-washing because one of your classmates died during the flu epidemic in the 3rd grade, etc.), the compulsion will not simply disappear, since many other factors may prop up the obsessive-compulsive chain in the present.



I'm thinking of... by gutter (26.1.2009)

Avoidance and safety behavior: Avoidance behavior describes the active avoidance of, or even flight from, subjectively dangerous situations (e.g., giving up driving out of fear of hitting someone, not touching anything on buses out of fear of disease; removing knives from one's home out of fear of slashing a family member). A kind of anticipatory obedience often develops: Situations are avoided in which there is even a remote chance that obsessions or compulsions will occur. In extreme cases the patient may become completely homebound.

Safety behavior refers to rituals that are performed to prevent a disaster, danger, or responsibility for harm. Examples might include wearing gloves for fear of germs, or good-luck charms to ward off ill. This represents a hidden form of avoidance. The feared situation is not completely avoided, but neither does one look fear in the eye (and experience it as

unfounded or exaggerated). Although safety behavior leads to short-term relief, it intensifies obsessions in the long run because it creates the illusion of effectively controlling fear. Likewise, avoidance enhances anxiety and increases OC symptoms as no corrective experiences are gathered to deal with critical situations.

6. Association splitting

Our technique, called association splitting, is based on the way in which associations and cognitions work, as described in the preceding paragraph on *associations*. It makes use of two basic mechanisms: The linking of new cognitions with existing thoughts, or the strengthening of older associations, automatically leads to a weakening of competing associations, as we demonstrated in the *date-time* example. Another important aspect of our method is the fact that the strength of cognition A in relation to B is not necessarily as powerful as the strength of cognition B in relation to A!

Obsessive thoughts may be viewed as firm assemblies of associations that mutually strengthen each other, creating a vicious circle. Essentially harmless events increasingly act as triggers of obsessive thoughts (event: touching a pedestrian on the street → obsessive thought: “I just caught AIDS.”; a clattering sound in the car → obsessive thought “I hit someone.”; seeing the letters CA → obsessive thought: “I’m getting cancer.”).

Why are these thoughts so powerful? Giving in to these obsessive thoughts by performing compulsive rituals, or by avoidance or safety behavior (see last section) may bring about short-term relief and reduce anxiety. However, the obsessive network is strengthened. The associations become *stronger*, and the subjective perception of immanent danger is cemented (see figures 4a and 4b).

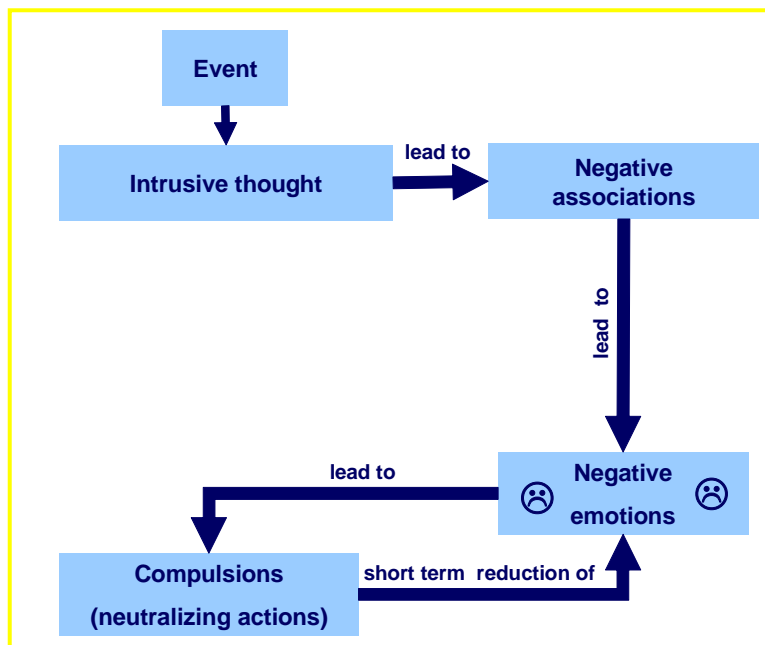


Figure 4a: Formation and perpetuation of OCD.

An event triggers negative intrusive thoughts that in turn lead to new negative associations. In people with OCD, these foster negative emotions such as anxiety and disgust. Compulsions bring about minor but immediate relief from these feelings. Unfortunately, they also strengthen the connection between obsessive thoughts and compulsive behavior.

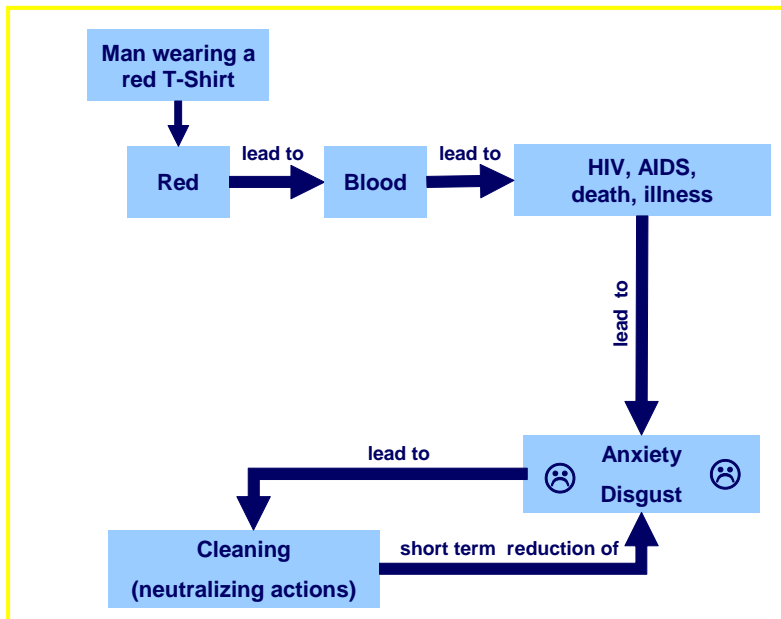


Figure 4b: Formation and perpetuation of OCD (example)

An event (in this case, an image of a man wearing a red T-shirt) activates certain intrusive thoughts (e.g., “blood”) that in turn trigger other negative thoughts (“HIV, death, illness”) and negative emotions such as anxiety and disgust. The short-term decrease in negative emotions resulting from the performance of a compulsive ritual further strengthens the connection between the obsessive thought and the compulsion (in this case, washing). Avoidance and safety behavior also perpetuate vicious circles.

From this perspective, obsessive thought circles differ from other associative circles in the following ways:

1. Cognitions in the obsessive network are strongly intertwined, yet the number of other associations is reduced (e.g., *cancer* is only thought in the meaning of illness, while the sign of the zodiac does not come to mind; a knife is seen exclusively as a weapon, never as cutlery; a noise under the car is interpreted as a mortal danger, not as a stone that got kicked up by the tire). OCD patients process ambiguous concepts, that is, concepts originally connected with a variety of other cognitions, only in the context of the obsession, and do not connect them to other, more neutral, cognitions.
2. At the same time, there are one-way connections between neutral and obsessive thoughts maintaining obsessive worries.

The association chain is a one-way street:

Approaching a hospital (originally neutral) → fear of contact with infected people (anxiety) → “I could get infected.” (obsessive thought). However, in OCD patients this process does not operate in the opposite direction (illness → hospital → cure!).

Thoughts start to spin in circles. And it may get even worse: Worries become more powerful as a result of brooding (rumination), and the OCD patient may see no way to gain relief other than by performing compulsive actions. As a result he or she increasingly becomes a slave to obsessive thoughts and compulsive actions like washing, cleaning, checking or collecting, which increasingly come to dominate his or her life. This vicious circle becomes increasingly powerful over time, and longitudinal studies have shown that compulsions tend to increase over the course of the illness if untreated, even though they are treatable with psychotherapy and/or medication. In the end, this gives rise to new obsessions, and rituals and compulsive actions increase to the point where no trigger is needed to set off an avalanche of repetitive behaviors.

7. Reduction in obsessive thoughts using association splitting

Our technique follows almost seamlessly from the previous explanations. At the core of it lies the need to expand the repertoire of the shared cognitions associated with the obsessive thought, that is, new associations have to be created and currently weak associations to neutral

or positive cognitions have to be strengthened. At the same time, everything that perpetuates obsessive thoughts must be avoided. It is important not to initiate fruitless brooding (e.g., “Why does it have to be me?”), and not to suppress obsessive thoughts. The more you try to rid yourself of them, the stronger these thoughts will become. The elephant example above is illustrative.

The following reparative processes are set in motion when you apply this principle to obsessive thoughts (see Figure 5): Creating and strengthening neutral and positive associations automatically weakens, via the fan-effect, associations that trigger anxiety and OCD behavior. If these new associations are connected to positive feelings, these interfere with negative emotions and decrease the urge to perform compulsive acts. It is important not to try to suppress negative feelings as this only strengthens OCD thoughts. Try to deal with these thoughts and feelings by observing them from a distance, much as you would a tiger in a cage (see above).

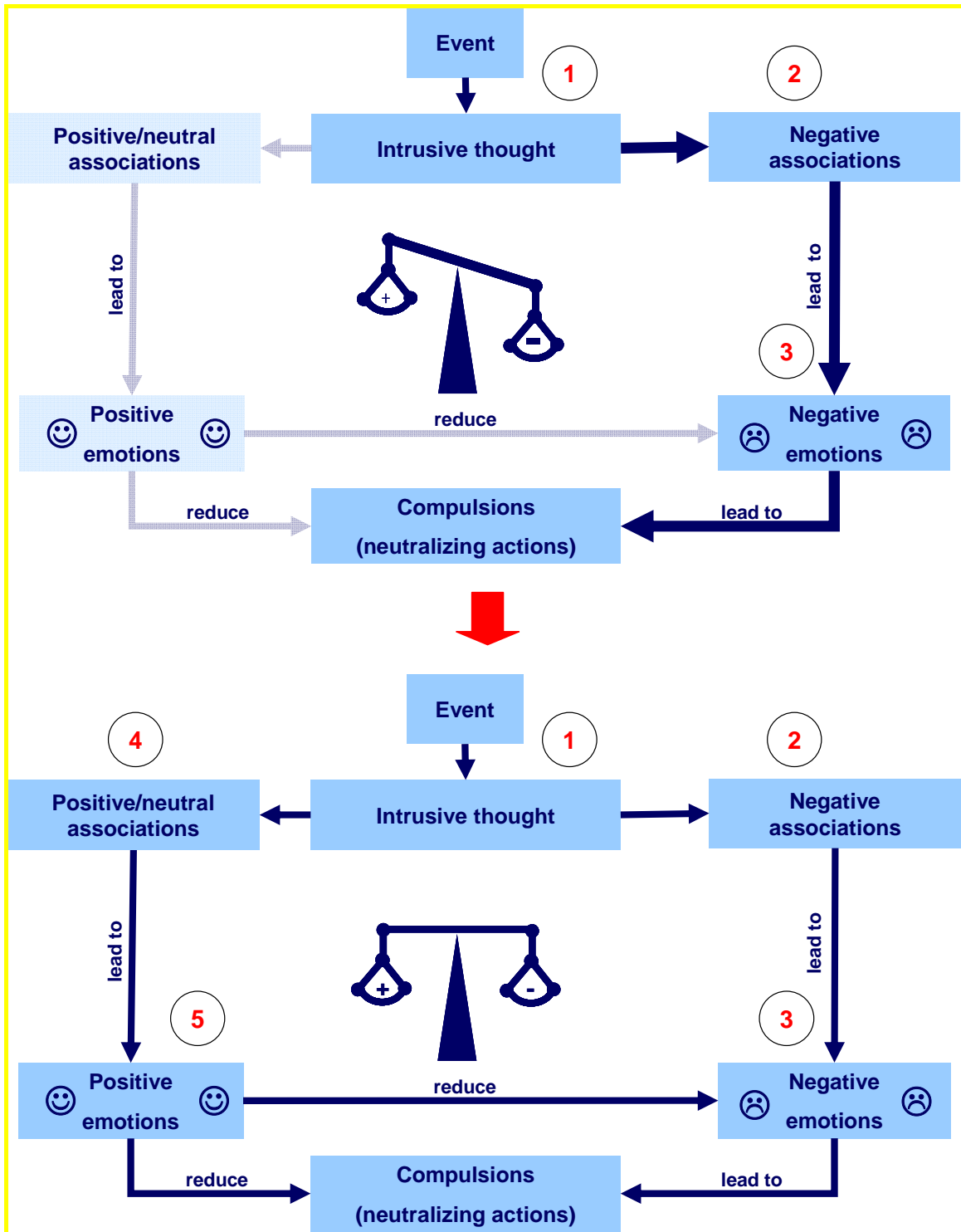


Figure 5a: Gradual change in obsessive thoughts (The next figure shows an example)

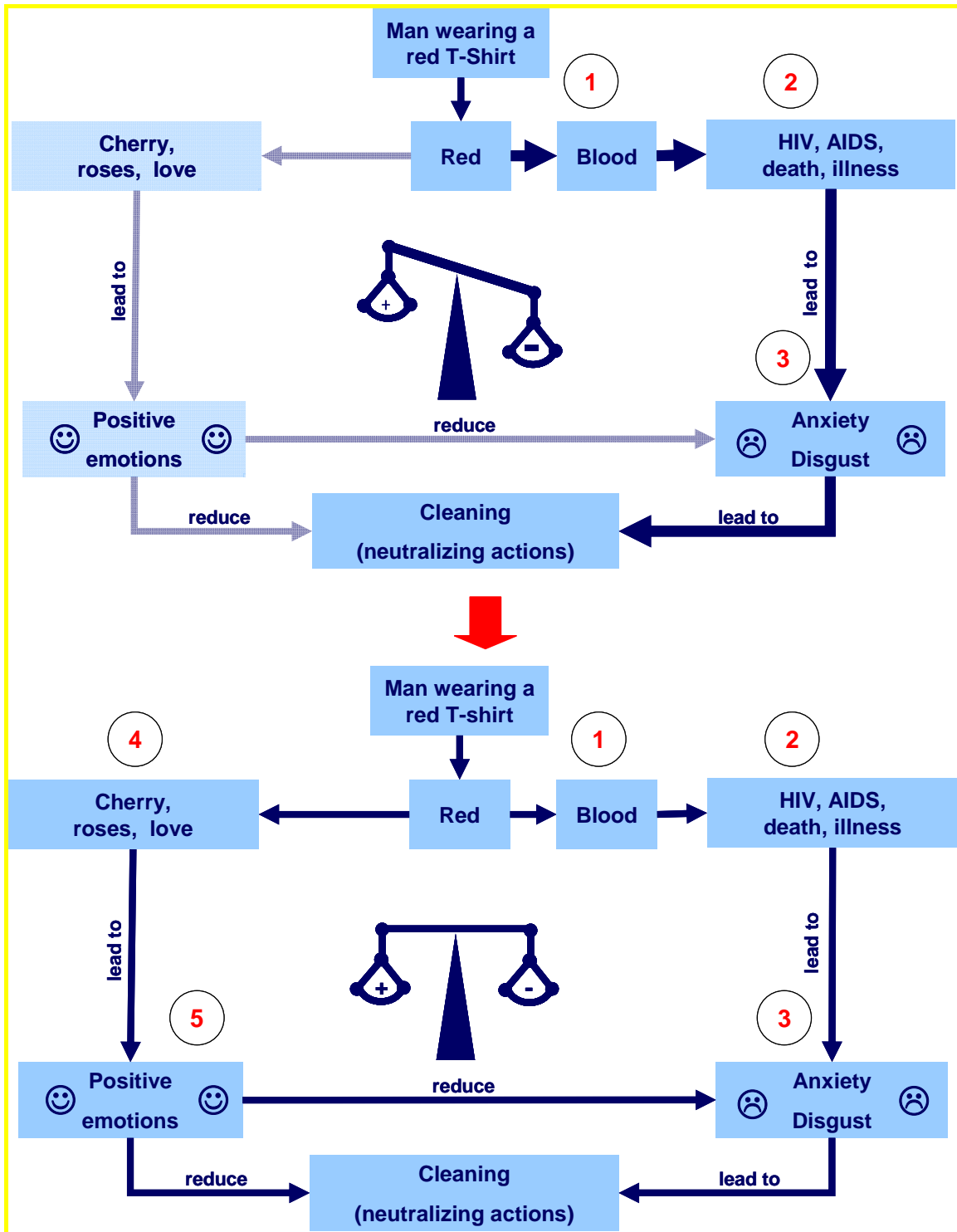


Figure 5b: Gradual change in obsessive thoughts (example)

The spontaneous appearance of negative thoughts and worries is a normal experience. What distinguishes people with OCD is how they appraise these thoughts. If, for example, they see a red T-shirt on the street, their thoughts may automatically tend toward blood and HIV (see 1 in the figure), which is accompanied by negative associations (HIV, illness, see 2) rather than toward direction 4 (positive thoughts: roses, love). New, more neutral or positive associations weaken associations that trigger anxiety and OCD via the fan effect (association splitting), and this process gradually alters the associative network. The number of associations under 4 increases. Newly created neutral and positive associations automatically decrease the impact of negative emotions connected to negative cognitions, thereby reducing the urge to perform compulsive rituals (see 5). Important: Do not try to suppress negative associations, since this only makes thoughts stronger and more intrusive! The same applies to negative emotions. Try to contemplate those cognitions and feelings like an outsider. Create a sense of inner distance that allows you to be a neutral observer.

To create and strengthen neutral and positive associations please do the following:

1. Seek out a quiet place. Perform the exercises in a relaxed atmosphere and when you are not plagued by obsessive thoughts.
2. Write down individual words or think of images that represent an important aspect of your obsessive thoughts system, that is, cognitions that are almost always present in the disturbing thoughts (for the examples above: blood, cancer, door, lock, burglar).
3. Select at least 2 words from this set (e.g., door, lock, burglar).
4. Write down at least 3 associations you connect with each obsessive-compulsive cognition, but which at the same time:
 - are neutral or positive (that is, not fear-provoking; associations that lead outside the obsessive network), and
 - make sense (words, say, that rhyme or connect in meaning; e.g., **not**: “door - hair spray“)

Example: *door-four*, *door-The Doors (band)*, *door-adore*, *door-gold* (from “d’or”)

For many OCD sufferers, the technique works better with visual material. You can either draw associations or—much easier—find images via search engines like <http://images.google.com> (see Figure 6).



Figure 6: Positive and neutral associations to “AIDS” and “cancer”

Note: Pictures encourage the deep formation of new associations. All of these pictures were downloaded via Google Images (<http://images.google.com>).

Associations may also be funny! Avoid any associations that run directly counter to your obsessive thoughts (i.e., “Cancer—I’ll never get that”), because this contains no alternative meaning and works like thought suppression thereby fueling the obsessive cascade.

The examples listed in the table under section 8 introduce a variant in which associations are not related to the content but to the verbal “form” of the obsessive thought (e.g., threat, question). Yet, the principle is the same. If you are unable to think of any neutral associations, ask other people for help.

5. Let these new associations become habitual by saying the obsessive thought (or imagining a corresponding fear) either out loud or in your mind (for example, the words door, lock, burglar), and then shortly thereafter say or imagine one of the selected associated neutral words/pictures under 3. then again, connect the obsessive component with a another neutral word or picture etc. For example, *door* → *four*, *door* → *The Doors*, *door* → *adore*, *door* → *gold*—then burglary → basketball player Larry

Bird (by approximate syllable reversal) or the old McDonaldland character the Hamburglar. If you are a basketball fan, you know that Larry Bird was a great pass stealer, and that his predecessor on the Boston Celtics, John Havlicek, famously “stole the ball.” A whole other set of positive, or at least neutral cognitions—unless you were rooting for the other team. In other words, the object is to combine one OCD cognition with one neutral cognition, and then combine the same OCD cognition with a second neutral cognition and so on. Do this exercise for a maximum of 10 minutes per day. Please note: the procedure itself should **not** become a compulsion or a mantra! The goal is to tap into the association energy which, for example, initially went only from lock or door to burglary or catastrophe, for use in new associations (see Figure 7). The strength and impact of the obsessive thought is decreased by this diversion of energy, which in turn makes the obsessive thought easier to neutralize. However, these association channels must be built up or released gradually. It is also important to check the direction of the association: *door* → *four*, *door* → *The Doors*, *door* → *adore* ... and not the other way around!

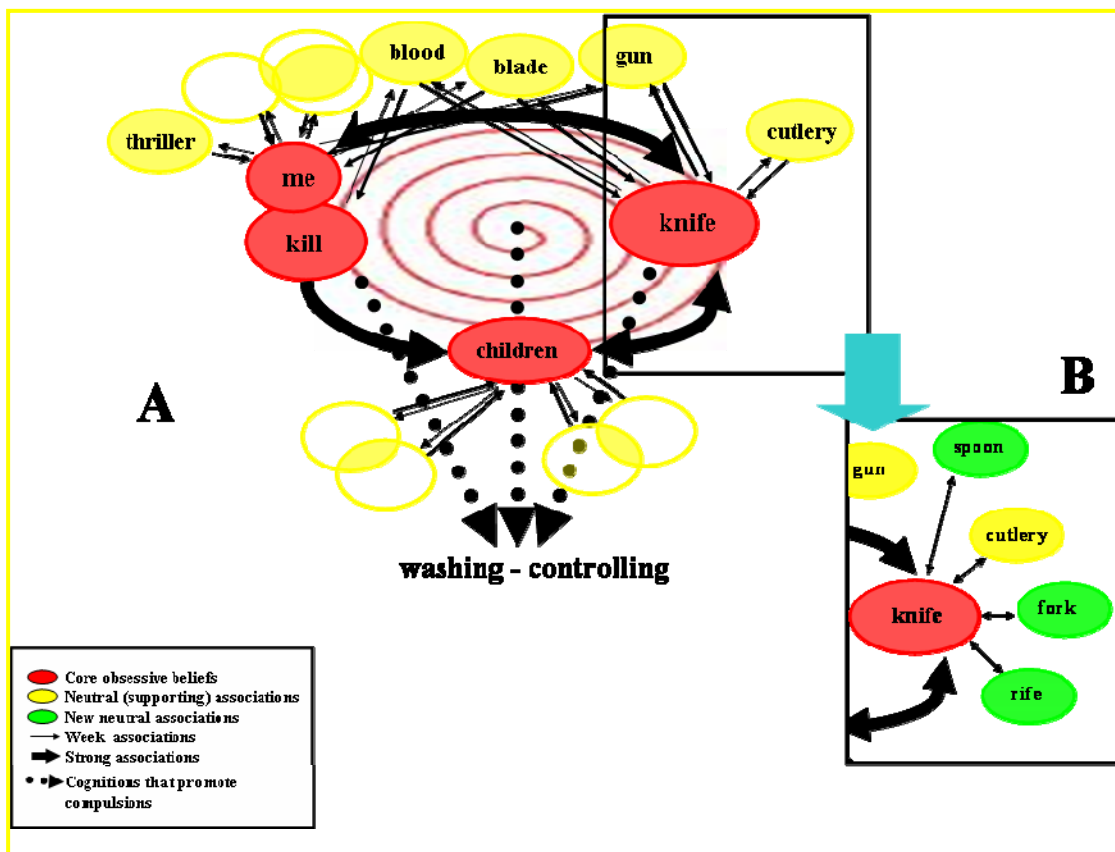


Figure 7a. A very simplified schematic of the obsessive-compulsive thought “I might kill my children with a knife.” The obsessive cognition is shown in red; the triggers “feeding” cognitions are shown in yellow. New (neutral or positive) associations are in green. The strength of the arrows shows the strength of the association flow.

The figure illustrates that obsessive cognitions are strongly and mutually intertwined with each other. The obsessive spiral is triggered by a number of essentially harmless cognitions (pictures, words, memories). These obsessive thoughts enhance each other and develop a powerful dynamic (illustrated by the downward spiral) from which there seems to be no escape. The OCD patient sees no way out other than avoiding certain occurrences or objects (e.g., locking away all knives) or performing compulsive actions (e.g., repeating a specific sentence to “neutralize” the thoughts). Of course, there are associations that lead out of the vicious circle (e.g., the person obsessed by the thoughts above could also associate “knife” with “spoon”), yet these associations are fairly weak and, as shown, may have atrophied (the arrows pointing toward the core obsessive cognition are stronger than the other way around!).

Figure 7b. By building new cognitions or strengthening associations that point in the direction of neutral cognitions and away from the obsessive thoughts, the connection to OCD-related cognitions automatically decreases and the obsessive spiral automatically loses part of its energy. In the diagram, this is illustrated by the equal strength of the arrows going in both directions and the decreasing connection of the two central obsessive cognitions. Since obsessive thoughts often comprise multiple cognitions, it is important to apply the technique to various cognitions (in this case, for example, “knife” and “children”).

6. Focus on these new, or formerly weak, associations with as many meanings as possible. If you can, imagine the neutral information visually and acoustically. For example search the Internet for suitable images and print them (for examples, see Figure 6). The more intensely these new associations are experienced via different perceptual channels, the more associational strength is taken away from previously dominant and discomfoting associations (e.g., prior connection: AIDS→ contagious disease; cancer→illness).
7. Ideally, this will weaken the obsessive thoughts. You should definitely continue this association strategy until the thought loses its power to trigger compulsive actions. This may at first be difficult and will occur over time.
8. Do these exercises several times during the day, preferably **not** while experiencing obsessive thoughts.
9. Develop your own little *map* of obsessions as in Figure 7.

Please note: When obsessive thoughts occur, do not try to neutralize them by repeating the new associations. The new associations should not become a compulsive ritual.

8. Examples

Be creative! Try to come up with association words or even short sentences that are as vivid as possible! Don't argue against or suppress obsessive thoughts (this is counterproductive, as we have shown in the elephant exercise). Rather, focus on building up alternative meanings. Use related words or pictures that are neutral or positive, or words that rhyme. You may also use words that make you laugh. Make up multiple pairs with the same obsessive component but avoid verbal chains. Examples 4 and 5 show one variant of the technique, which verbally “diverts” the obsessive thought. This technique is especially useful for obsessions that involve questions or aggressive obsessive thoughts. In our experience, many patients have trouble coming up with associations that are neutral or uncharged for their obsessive cognitions. If you experience this problem, ask a friend for help.

Type of obsession	Example for an obsessive thought	Core cognition	Exercise (several times throughout the day, preferably when you are not experiencing obsessive thoughts, repeat these to yourself, using as many meanings as possible)
1. Checking compulsion	Killing your own children with a knife in the kitchen.	Children knife kitchen	Repeat aloud and imagine visually: knife→fork knife→spoon knife→five (rhyme!) kitchen→smell kitchen→Hell’s Kitchen (section of New York City) kitchen→cooking kitchen→tasty kitchen→prison (“Kitchen” is a German word

			for prison—not necessarily positive/neutral but somewhat funny!)
			Using the word <i>children</i> , you may recall situations in which your children were happy, etc.
2. Checking compulsion	Checking the lock to prevent burglary	Lock burglary	lock→Heather Locklear (actress) lock→curl lock→Foot Locker (company)
	Checking the oven/stove to prevent the house from burning down	oven/stove fire	burglary→Chris de Burgh (singer) burglary→Larry Bird oven→Sunday roast/dinner oven→Roll over Beeth' oven'! fire→fireplace fire→diamond (a diamond is sometimes described as having fire) fire→fireflies fire- wire (rhyme) fire- water (elements, opposing) fire—firebird (car) fire—Fight Fire With Fire (song by Metallica)
3. Washing compulsion	Body could be contaminated by worms during a walk in the forest	forest worm body	forest→grass forest→Forrest Gump forest→oxygen forest→Forrest Whittaker (actor) worm→firm, term (rhyme) worm→bookworm worm→useful worm→warm body→building body→sculpture of Michelangelo/poster of Pamela Anderson body→clothes
4. Checking compulsion	Self-assurance compulsions, brooding, e.g., “How do I know this?” “Am I really feeling better?” “Am I a good person?”)	(This example is a variant of the demonstrated technique, in this case starting with the form and not the content of the obsessive thought)	When such threatening thoughts come to mind, don't counter them, but reply with obviously absurd or unanswerable questions: “Is the universe really infinite?” “How many grains of sand are there?” “Who will win the next NBA championship?”
5. Aggressive obsessive thoughts	Obsessive thoughts involving threats or blackmail, “You are courting disaster if	(This example is a variant of the technique in 4)	When such threatening thoughts come to mind, don't counter-threaten. Instead, recall other threats, but in an amusing context, e.g., famous quotes from movies

			you do not do xyz.“	<p>“In town you're the law, out here it's me. Don't push it. Don't push it or I'll give you a war you won't believe.“ (quote from <i>Rambo. First Blood</i>) “Fredo, you're my older brother and I love you. But don't ever take sides with anyone against the family again. Ever!“ (quote from the <i>The Godfather</i>)</p>
6. Washing compulsion	Germes are transmitted by passenger straps on buses	germs bus bacteria		<p>germ→The firm (think of cover of book by John Grisham) germ→Germaine Jackson (brother of Michael Jackson) germ→jam germs→Germany (phonological association) germ→Gemini (phonological association) bus→fuss bus→car bus→Buster Keaton bus→movie <i>Ghostbusters</i> (think of melody)</p> <p>bacteria→yogurt (these bacteria are good for you) bacteria→criteria bacteria→vaccine (made from attenuated or dead bacteria)</p>
7. Checking compulsion	Looking or thinking about the colors blue and black evokes fear of causing harm	blue black		<p>blue→true blue blue→sky blue→blueberry blue→blues (perhaps the song “I still got the blues” by Gary Moore)</p> <p>black→chimneysweep (symbol for luck) black→coffee (and hold the sugar) black→dark chocolate black→white black→Frank Black (comedian in movie <i>School of Rock</i>) black→Sirius Black (Harry Potter)</p>

9. What you should not do?

As discussed above, associations should be built up by connecting the obsessive thought component with a neutral or positive association—and not the other way around (thus, associate *cancer*→ *libra* (*the scales*), but not *libra*→*cancer*). The associations must be neutral or positive; a connection between *asbestos* and the word *garbage* would not be useful, even though it is a new connection and diverges from the association *asbestos*→*suffocation*! It is important to “split” specific terms and words that are at the core of your obsessions, and that elicit tension and fear. The technique can only be effective if you look into the “eye of storm.”

It is also important that you do not try to “neutralize” obsessions by firing back with those new associations because then the associations may themselves be transformed into a compulsive ritual.

10. Appendix—further examples

