The skeptical (ungullible) mindset

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The main conceptualization these days is that in the process of understanding information, one must first believe the information and only later is one able to negate or falsify it. Thus, negation is considered a secondary process, demanding awareness and cognitive resources, and it also carries a risk of failure, resulting in gullibility. This chapter reviews empirical research demonstrating the existence of two models for the negation process, suggesting that while one may lead to gullibility, the other offers a strong and successful negation process that diminishes gullibility effects such as false memory and misinformation. Further studies reveal that contextual cues or personality dispositions may induce a skeptical mindset in which the successful negation process is spontaneous, serving as the default response and reducing any gullibility effects. These studies lead to the conclusion that there is both a gullible mindset in which acceptance is the primary process and a skeptical mindset in which rejection is the primary process. These mindsets may alter from one moment to the next, depending on individual differences and context.

Did the Americans really land on the moon? Opinion polls suggest that between 6% and 20% of Americans surveyed believe that the manned landings were faked. The claim purports that the famous moon landing was staged, either in Hollywood or in Area 51, with the aim of defeating the Russians in the space race while avoiding any risk of failure. The money for the moon landing was supposedly given to many people who took part in this scam to do their job and forever keep this a secret. Don't believe it? Take a look at the picture on the right. Why is the flag moving when we know there is no wind on the moon? Where are the stars? And why is there no crater where the Lunar Module has landed?

(https://en.wikipedia.org/wiki/Moon_landing_conspiracy_theories) Reading these claims and looking at the picture with these questions in mind, on a scale from 0 (didn't land) to 10 (definitely landed), think for a minute and note how sure are you that indeed the Americans landed on the moon?

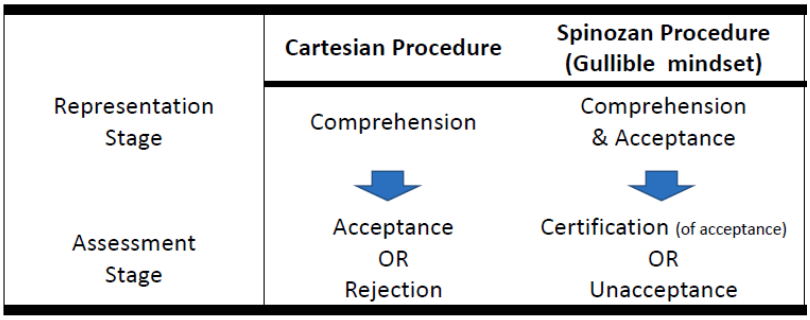
Psychology theories and research suggest that even if you were completely certain that the Americans landed on the moon, now, after reading the above claims, you are a bit less sure, choosing 9 or 8 on the scale rather than 10. Why? How does reading some alternative theory, a conspiracy theory, affect us in the sense of considering it as a possibility? If someone thinks that the Americans did land on the moon, and after being exposed to the above conspiracy theory s/he is a bit less sure about it, then this suggests how gullible our mind is, being affected by any passing information even when we think or know this information is wrong.

The gullible mind

The advocated cognitive basis for the gullible mind is the spontaneous nature of belief in contrast with the secondary nature of disbelief. The basic assertion is that the process of understanding any information entails belief. In other words, understanding is believing. And while belief is the spontaneous primary process, negating

information is a secondary process, demanding motivation, ability, and cognitive resources (Deutsch, Gawronski, & Strack, 2006; Gilbert, 1991; Gilbert, Pelham, & Krull, 1988; Gilbert, Tafarodi, & Malone, 1993; Trope, 1986). The "understanding equals believing" model dates back to Spinoza and is presented in contrast to the Cartesian model (see Figure 1). While the latter suggests that people can comprehend information without tagging it as true or false, the Spinozan model theorizes that comprehension entails immediate acceptance that may be overturned only with a secondary processes of evaluation that results in the endorsement of the initial acceptance or a lack of acceptance.

Figure 1: The Cartesian and Spinozan models, adapted from Gilbert (1991).



The most direct set of studies aiming to test the Spinozan model was conducted by Daniel Gilbert and colleagues (Gilbert, 1991; Gilbert et al., 1988, 1993), who demonstrated that if participants are constrained cognitively—for example, by having to do multiple tasks—they keep using in their judgments and decisions information that they know is false. These findings are interpreted as a demonstration of the primary belief model, showing that interfering with the secondary process can leave one holding a belief about even clearly false information. Importantly, studies have demonstrated that even without interference, people have a difficult time negating explicitly false information (Begg, Anas, & Farinacci, 1992; Gilbert, Krull, & Malone, 1990). For example, people do not remember clear negations and end up recalling as true the information that was clearly negated (e.g. remembering that "the side effects of the flu vaccine are more dangerous than the flu itself" even though this information was explicitly tagged as false; Schwarz, Sanna, Skurnik, & Yoon, 2007). One of the more extreme examples of this failure of negation is the false-memory effect whereby events that are correctly rejected at first become "true" memories of

real events (Fiedler, Walther, Armbruster, Fay, & Naumann, 1996; Loftus, 2005). Thus, if you are asked if you saw a coat hanger in an apartment, and you didn't, you will initially correctly answer "no," but after some time has passed and you are asked again, chances are significantly higher that you will think that you saw a coat hanger in the apartment and say "yes" compared to a situation in which you did not see a coat hanger and were not asked about it before. In other words, negating correctly in an initial instance may lead to incorrect affirmation at a later time (Fiedler et al., 1996).

Other effects are endorsed as supporting the Spinozan model from the belief aspect; one example is the acquiescence inclination, as people tend to say "yes" to everything (Knowles & Condon, 1999). Again, the idea is that when one is asked "Were you satisfied with your first year at college?" then one thinks of good things that happened, things that one is satisfied with, and therefore responds in the affirmative; but if one is asked "Were you disappointed with your first year at college?" the person now thinks about disappointing things that happened and therefore affirms again. In other words, we tend to affirm as we accept and think in a congruent way with whatever concept we are exposed to. A related phenomenon is the most basic confirmation bias whereby people tend to search for, perceive, and interpret information that confirms rather than falsifies their preexisting thoughts (Snyder & Swann, 1978; Wason & Johnson-Laird, 1972).

Thus, decades of research conclude that believing, affirming, and accepting is primary, while negating, falsifying, and rejecting is secondary. One must have the motivation, time, and cognitive resources in order to be able to negate. Comprehension means acceptance, and that is the basis for our gullible mind that first believes and accepts any given information and is able to reject only as a secondary, demanding process. If this is the case, then how can we explain our spontaneous, immediate rejection of certain suggestions, such as to click on a link that promises we will win a million-dollar prize? Or the offer of a ride home from a complete stranger who stopped his car next to us? Do we need motivation, time, and cognitive resources to reject the "click here," "get in" messages? The current chapter proposes that the answer is "no" and aims to demonstrate that negation can be (a) successful and (b) a primary process.

The condition for successful negation

As outlined above, most research portrays negation as a secondary process that is prone to fail, leading to gullibility. The explanation given for this "weak" negation lies in the way we process and encode negation: We first process the core of the negated sentence and then add negation to it (Clark & Chase, 1972; Just & Carpenter, 1976). For example, if one is told, "Tim is not a tidy person," the concept of "tidiness" is activated in one's mind, together with congruent associations such as tidy behaviors (e.g. keeping a daily schedule) and other related traits (e.g. pedant). Only at the next stage does one negate the concept of tidiness by giving these activated associations a negation tag, and therefore one will correctly negate at that point. But, and this “but” is important, because the negation tag is a separate cognitive construct added to the core and its congruent associations, the two (i.e., core and negation tag) might get separated due to many reasons, including simply the passage of time, leaving one, in the end, falsely remembering that s/he was told that "Tim is a tidy person." We termed this model of negation processing and encoding the "schema-plus-tag model" (Mayo, Schul & Burnstein, 2004) Important consequences of this model include immediate activation of the schema associations that actually represent the opposite meaning of negating the statement (or other stimuli), with the end result that we might lose the negation tag and have only the schema remain in our mind, again, with the opposite meaning of the original message. One can easily see how the schema-plus-tag model is congruent with the Spinozan model—accepting a concept first and negating it later with the risk of being left only with the concept. The schema-plus-tag model explains why negation is secondary and prone to failure. However, studies suggest another model by which we may process and encode negation (Brewer & Lichtenstein, 1975; Gannon & Ostrom, 1996; Horn, 1989; Lea & Mulligan, 2002; Lyons, 1995; MacDonald and Just, 1989). We term this model the "fusion model" because it fuses the core of the negation with its negation tag into an alternative affirmative schema that carries the meaning of the negation (Mayo et al., 2004). Thus for the statement "Tim is not a tidy person," we activate an affirmative alternative schema that communicates the meaning of the negation of "tidy," which is "messy." Messy is an affirmative schema that means "not tidy." In this case, the concept of "messy" is activated in one's mind together with congruent associations such as messy behaviors (e.g. having piles of paper on the desk) and other related traits (e.g.

confused). Hence, in the fusion model we process and encode negation within a schema that is congruent with the negation's meaning, suggesting a successful negation both in the immediate moment as well as in memory. We will remember that Tim is messy. If the fusion model enables successful negation, why don't we use it at all times?

In order for the fusion model to be available for us to use, there must be an alternative affirmative schema that represents and connotes the negation meaning. If there is not, we are stuck with the schema-plus-tag model. Our work demonstrates this critical role of the alternative affirmative schema in an experiment using bipolar characteristics (e.g. having clear opposites, such as happy/sad, smart/stupid) in one condition, and unipolar characteristics (e.g. characteristics that don't have a simple opposite, such as romantic, adventurous, and responsible) in the other condition (Mayo et al., 2004).[1] For each characteristic we created three behavior probes: one that is congruent with the characteristic but not with the characteristic's negation (i.e., for "Tim is tidy": Tim's clothes are folded neatly in his closet"); one that is congruent with the characteristic's negation but not with the characteristic (i.e., Tim forgets where he leaves his car keys); and one that is irrelevant to the characteristic (i.e., Tim likes to have long conversations on the phone). The participants read the description of the person and then received the behavioral probe and had to decide as accurately and quickly as possible if the behavior is congruent, incongruent, or irrelevant to the description read before. We measured how long it took to make these judgments. Each participant saw half of the descriptions appear in affirmation and the other half in negation. The affirmative/negative phrasing was counterbalanced between subjects in a way that all characteristics appeared both in affirmation and negation. Each participant responded to all three types of behaviors that appeared in a random order between blocks. We recorded the time for responding to congruent and incongruent associations following each characteristic's description. The findings indicated that for affirmative descriptions, responses for both bipolar and unipolar descriptions were faster for the congruent behaviors than the incongruent ones, suggesting that people have in mind associations that fit the description and therefore are quicker to respond to congruent types of behaviors than incongruent ones. However, for the negated

[1] This study was conducted in Hebrew, in which there are no prefixes or suffixes; rather, a negation is communicated only by use of the separated word "not" (e.g. "not happy," "not responsible").

phrasing, given bipolar characteristics, participants were faster to respond to congruent than incongruent associations, while the opposite was true for unipolar characteristics. For the latter, participants were actually faster to respond to incongruent associations than to congruent ones. Thus, while for both unipolar and bipolar characteristics participants correctly negate, they think of the negation-congruent meaning for the negation of bipolar characteristics, and they think of the negation core meaning for the unipolar ones. We also tested participants' memory of the descriptions in a surprise quiz at the end of the study. Memory for the affirmatively phrased descriptions was high for both the bipolar terms (91%) and the unipolar descriptions (93%). However, correct memory of the negated descriptions was much better for the bipolar terms (83%) compared to the unipolar terms (62%). Specifically, the case of losing the negation tag and remembering in error only the core of the message was significantly more prevalent for the unipolar descriptions (38%) compared to the bipolar descriptions (14%). Thus, in order to negate successfully, one must have an alternative affirmative schema.

Exploring research that demonstrates the weakness and failure of negation leads to the conclusion that in these studies the negation concerned a unipolar type of information. For example, for the false-memory phenomenon, there is no opposite for getting lost in the mall when you were five—you either got lost or you didn't. Thus, properly negating getting lost leads one to have an image of getting lost, and although one correctly denies it, still the image and congruent associations (e.g. crying) remain, and thus one may lose the negation tag and succumb to false memory. This is also true of course for negating seeing a coat hanger in the apartment, or negating false information in general, such as circulating concepts that the side effects of the flu vaccine are worse than the flu itself or that the MMR vaccine causes autism. In all of these instances, there is no an alternative affirmative schema, and this may be the reason for the failed negation process and encoding. Indeed, research now has demonstrated repeatedly that having an affirmative alternative schema enables a successful negation (Chiu & Egner, 2014; Horne, Powell, Hummel, & Holyoak, 2015; Isberner & Richter, 2013; Orenes, Beltrán, & Santamaría, 2014; Rapp, Hinze, Slaten, & Horton, 2014; Richter, Schroeder, & Wöhrmann, 2009; Tettamanti et al., 2008; Vandeberg, Eerland, & Zwaan, 2012). It is important to note that, as in the study of Horne et al. (2015), the alternative schema does not need to be a semantic

construction. If one has any alternative schema that serves him or her for the negation, s/he will negate successfully. Specifically, Horne et al. (2015) offered an alternative affirmative schema for the false casualty posited between the MMR vaccine and autism by activating the alternative image of the illness that the vaccine eradicates. A wonderful example may be found in the study regarding the paradoxical effects of thought suppression (Wegner, Schneider, Carter, & White, 1987): "don't think of white bears." Reporting this effect, all that is usually said is that once you are told not to think of white bears, you keep thinking of them. However, in the same research, in the second experiment, Wegner et al. (1987) offered their participants an affirmative alternative schema: "If you do happen to think of a white bear, please try to think of a red Volkswagen instead." In this experimental condition, participants were less likely to demonstrate the preoccupation with white bears.

Of course, having an alternative schema doesn’t guarantee that one will use it. Various factors may affect whether we choose the schema-plus-tag model or the fusion model. For example, we found that participants who suffer from rumination tend to negate with a negative schema: using the schema-plus-tag model for negation of negative information (for "Tim is not stupid") but the fusion model for negating positive information" (for "Tim is not smart"). This pattern suggests the possibility of the negative schemas being chronically activated, thus leading to their use when they are negated or when their affirmative counterpart is negated (Haran, Mor, & Mayo, 2011). Hence the schema we use may depend on who we are, what we are thinking about, and more. For example, before a medical procedure if the doctor says that the "procedure is not dangerous," even though there is an alternative affirmative schema for "not dangerous" (i.e. safe), given that the patient is likely prone to being worried, chances are high of using the schema-plus-tag model and continuing to think mainly of danger.

Interestingly, most negative behaviors don't have an alternative affirmative schema—you either did them or you didn't. Therefore, negating a negative behavior actually leads others to think of that negative behavior, its congruent associations, and probably remembering it as something you did. If you want to successfully negate it, you must come up with an alternative affirmative schema. For example, instead of saying, "I did not steal," one may consider saying, "The police are trying to set me up." Returning to the opening example of conspiracy theories, the interesting point is

that usually conspiracy theories suggest claims that don't have an alternative schema. But if one has such a schema, than s/he can negate these theories. Thus, knowing the explanation for the doubts raised by the picture of the moon landing will lead people to be less influenced by the suggestion that the Americans never landed on the moon (i.e., the landing was done gradually and this is why there is no crater, the angle of the photo leads to not seeing the stars, and the movement created when putting the flag in the ground on the moon actually led to its apparent fluttering, which continues even more because there is no atmosphere on the moon). Having knowledge is of great importance. Of course, there could be a competition between the negated false information and the truth. Many times the false information is much more interesting and vivid than the boring truth. This may also affect the type of negation model used and therefore its end result. These factors and many others should be further tested to better understand when and why people process and encode negation with the successful versus unsuccessful model.

Negation as a primary process

Accepting the two models of negation and their role in successful negation still leaves the possibility that negation begins with the schema-plus-tag model, and if conditions are right, the fusion model is applied in a later stage of processing (Kaup, Lüdtke, & Zwaan, 2006). This conceptualization is congruent with the Spinozan model. The schema-plus-tag model is the first phase—one thinks of the core of the negation. Only in the second phase might one move to the fusion model and encode with the alternative affirmative schema. Any interruption or a shortage of resources or time will leave us with the first phase only, the schema-plus-tag, which means thinking of the core of the negation rather than its actual negation and possibly forgetting the negation. However, if this is the case, then it implies that when you are standing in the rain, waiting for your bus, and a stranger stops his car next to you, opens the window and says, "Hop in! I will take you home," you first consider this offer, thinking for example of getting home faster and getting out of the rain, and only later (even if it’s only few milliseconds later) will you think of the possible danger. The claim made in this chapter is that in such a circumstance you immediately think of the alternative schema that exist for this stranger’s offer (being robbed or worse), and you don't

consider getting home faster, even for a millisecond. In other words, in this case negation with the fusion model is a primary process. Still, clearly in this example the rejection is thought of as a strategic response. However, the current chapter's conjecture is that the specific reaction—primary negation—that occurs in this particular example of distrusting a specific source takes place in a general mindset of distrust, which is termed here *the skeptical mindset*. This mindset may be activated by a specific source, by a contextual cue one is not aware of, or by a general chronic tendency to distrust others.

As thinking is for doing (William James, 1890) and thought is situated (Schwarz, 2002; Smith & Semin, 2004), the cognition of each mindset should adjust accordingly. Thus, if trust means taking things at "face value," cognition should be of a congruent type. If distrust means not taking things at "face value," cognition should be of an incongruent type. Therefore, the hypothesis suggested in this chapter is that the spontaneous reaction of rejection is the primary process of the skeptical mindset, and negation will take place regarding any incoming stimuli, even if it is completely unrelated to trust or distrust. Hence, the primary process of negation cannot be considered the result of any strategic, effortful, directed type of process. This suggests that there is a gullible mindset that has acceptance as its primary process, and there is also a skeptical mindset that has rejection as its primary process (see Figure 2). Because people tend to trust others unless they have reasons not to (Berg, Dickhaut, & McCabe, 1995; Légal, Chappé, Coiffard, & Villard-Forest, 2012; McKnight, Cummings, & Chervany, 1998), the gullible/trusting mindset is considered the default mindset. The skeptical/distrust mindset will be evoked by any external (processed consciously or unconsciously; Mayer & Mussweiler, 2011) or internal cue of distrust, given that some people can be characterized as being habitually distrusting (Rotter, 1967, 1971).

To test the hypothesis of a skeptical mindset that is characterized by a primary negation process, we aimed to demonstrate its resulting associations, processes, and finally reaction to incoming information. To avoid any specific strategic explanation, in all studies, distrust—assumed to be the trigger for the skeptical mindset—is manipulated incidentally or measured as a personality trait. The effect tested is always regarding a task that is unrelated to distrust. Hence, the effect is not a strategic response. The proposition is that in a skeptical mindset, compared to a gullible

mindset, one considers alternative associations rather than the congruent ones, and negates rather than accepts; and as a result of these processes one is less influenced by incoming information—in other words, less gullible.

Associations

In our studies, we have hypothesized that whereas in a gullible mindset a congruent flow of activation takes place, thereby activating congruent cognitions, in a skeptical mindset, the flow of activation changes and triggers incongruent cognitions. Therefore, in a skeptical mindset, a message will spontaneously activate a meaning that is incongruent with the original message. To test this, we created 40 sets of three words: a target word (i.e., empty) and two possible primes for it; one that is congruent with the target (i.e., hollow); and one that is incongruent with the target (i.e., full). The participants' task in the study was to decide if a target word is an adjective or a noun (Schul, Mayo, & Burnstein, 2004). We told the participants that to create a visual load, we had inserted a face and an additional word. Their task concerned only the second word that appeared. Each trial started with the presentation of a face that was trustworthy or untrustworthy for 800 ms. Then a prime word was superimposed on the face, below the eyes. After being shown for 82 ms, the prime word was replaced by a target word, which remained on the screen until a response was made or until a 2-s response window closed. The priming word was either congruent or incongruent with the target. The known effect is that people are faster to decide about the target word if a congruent prime preceded it, compared to an incongruent prime (for a review, see McNamara, 2005). In time measurement this means faster responses for targets that appear following a congruent prime compared to an incongruent prime. If a distrust contextual cue, such as an untrustworthy face, activates the skeptical mindset that spontaneously considers alternatives rather than going with the congruent flow of the prime, then the congruency effect should overturn and participants should be faster in responding to the target following an incongruent prime compared to a congruent one. This is exactly the pattern of results found in our studies: a significant interaction between the type of prime (congruent vs. incongruent) and the face (trustworthy/untrustworthy). Participants were faster to respond following a congruent prime if the word appeared on a trustworthy face, but they were faster to respond to the target following an incongruent prime if the face upon which the words appeared was untrustworthy. This finding suggests that indeed

an unrelated contextual cue for distrust (i.e., an untrustworthy face) leads the mind to an incongruent type of activation rather than a congruent one. It is easier to think of "empty" following "full" rather than "hollow." The activation of incongruent associations was not the result of a conscious processing strategy, because the prime–target interval was very short (less than 100 ms; see Neely, 1977) and because the respondents were unlikely to come up with a theory linking the un/trustworthy faces to the facilitation of congruent and incongruent targets. Hence, we concluded that whereas in a gullible mindset the type of active association is of a congruent nature, in a skeptical mindset it is of an incongruent nature. As the un/trustworthy faces were a within-subject factor, changing from one trial to the next, the findings suggest that the two mindsets switch easily and that in the skeptical mindset the negation process can happen spontaneously. This finding was replicated using different types of distrust manipulations and even when testing the activation using a free association task in which people said out loud the first word that came to their mind and we recorded their responses. Following a trustworthy face, the free association was of a congruent type, but following an untrustworthy face, that free association was of an incongruent type (Schul et al., 2004).

These findings suggest that the skeptical mindset spontaneously activates incongruent associations, which we perceive as the end result of a negation process. Next we tested the negation process itself.

The underlying process

In order to determine whether the skeptical mindset processes information differently than the gullible mindset, we turned to a basic bias that is all about accepting information rather than rejecting it—the confirmation bias. This refers to the human tendency to seek, interpret, and create information in ways that verify existing beliefs (Snyder & Swann, 1978; Wason & Johnson-Laird, 1972). Is the skeptical mind free from this bias? To test this hypothesis we turned to a classic task demonstrating the confirmation bias, the Wason's (1960) rule-discovery task. The instructions for this task are as follows: *"Below you will find a series of three numbers. This series was created according to a rule. Your task is to discover this rule. To do this, write down the first rule that enters your mind. Then, write six series of numbers that you wish to use to test whether you have found the rule. In the next stage the experimenter will*

mark the series that fit the rule with a checkmark and those that don't fit with an 'X'. Using this feedback you will be asked to write down the rule that you think the series was based on." The series is: 2 4 6. Most people think that the underlying rule is "+2". The confirmation bias is manifested in the six series people write in order to test if this rule is correct. Most people write other series that are congruent with the "+2" rule (Klayman & Ha, 1987; Oswald & Grosjean, 2004). So they write "10 12 14" or if they want to be more original they write "-2 0 2". These series conform with the rule "+2" and they will be given a checkmark, and therefore the participant will think that s/he got it right and that the rule is "+2". However, the rule is actually any ascending number. One may find this out only by thinking of series that do not fit the "+2" rule, such as "5 6 7" that would be marked with a check or "9 7 5" that would be marked with an "X". Putting forth this type of series that does not fit the rule one initially generated is called negative testing, as one is testing whether his or her rule is incorrect, in contrast to positive testing that confirms only with information that fits one's hypothesis. In order to alter the mindset from gullible to skeptical, before the Wason rule-discovery task, we (Mayo, Alfasi, & Schwarz, 2014) asked our participants to create an impression regarding a person whose face they saw. In one condition that face was trustworthy, and in the other condition the face was untrustworthy. We asked our participants to keep their impression in mind because they will be asked about it at the end of the study. The rule-discovery task was presented as a filler task to make it more difficult to remember their impression. The hypothesis was that after viewing an untrustworthy face, participants will think of more disconfirming series, compared to following the trustworthy face. And indeed this is exactly what we found. Only 16.67% of participants exposed to a trust-inducing face generated at least one incongruent series, that is, reasoned with negative testing. However, 60% of participants exposed to a distrust-inducing face did so. Thus, incidental distrust—a face of a person that has nothing to do with the task in hand—tripled the proportion of participants who generated at least one negative test. Overall, 27.5% of all series in the distrust condition, but only 7.4% in the trust condition, were coded as negative tests of participants' own hypotheses. We conducted another study where we did not manipulate trust or distrust but rather measured the chronic individual disposition of trusting, termed "generalized trust." This is our general orientation towards the social world and the people in it, reflecting

an overall conviction that people are likely to be reliable, sincere, cooperative, benevolent, and truthful with benign intentions (Acar-Burkay, Fennis & Warlop, 2014; Christie & Geis, 1970; Rotter, 1967, 1971; Wrightsman, 1974, 1991). Members of an online panel were asked to complete allegedly unrelated tasks online. They first responded to Yamagishi and Yamagishi's (1994) six-item trust scale (e.g. "Most people are trustworthy"; 1 = strongly agree, 7 = strongly disagree). Next they completed the Wason's (1960) rule-discovery task. The findings replicated the contextual mindset study: Whereas more than two thirds (68.82%) of participants in the lowest-trust quartile generated at least one negative test, less than half (48.86%) of those in the highest-trust quartile did so. Thus, low-trust participants were more likely to generate negative tests than were high-trust participants. This was our first time finding that the skeptical mindset may be a personality trait or disposition. We continued to find that the effects of the skeptical/gullible mindsets apply to both a contextually primed mindset as well as a more stable personality mindset in subsequent studies (Kleiman, Sher, Elster, & Mayo, 2015).

The skeptical mind: Not being influenced by incoming information.

The findings reported so far demonstrate a skeptical mindset that entails a spontaneous negation process with the activation of alternatives to the original accessible concept. This effect suggests that in such a mindset, the effect of any given concept should be diluted, as it is negated with the consideration of its incongruent alternatives rather than congruent ones. In other words, incoming information should have less of a congruent influence. Thus the gullible/skeptical mindsets may influence the accessibility of mental constructs, which in turn can affect cognitions, feelings, and actions (Aarts, Gollwitzer, & Hassin, 2004; Bargh, Chen, & Burrows, 1996; Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trotschel, 2001; Bargh & Pietromonaco, 1982; Dijksterhuis & van Knippenberg, 1998; Higgins, 1996; Lerner, Small, & Loewenstein, 2004; Schwarz, 2009; Schwarz, Strack, & Mai, 1991; Srull & Wyer, 1979). We proposed that the skeptical mindset, resulting either from a chronic disposition or from a contextual factor, should attenuate or completely eliminate accessibility effects. And this is in fact what we find.

For example, in the basic priming paradigm, famously known as the "Donald paradigm," Higgins, Rholes, and Jones (1977) primed their participants either with

positive characteristics (e.g. adventurous, confident, independent, persistent) or with negative characteristics (e.g. reckless, conceited, aloof, stubborn) and then asked them to read an ambiguous paragraph describing a person named Donald. The paragraph could lead to a more or less positive impression. The main finding of Higgins et al. (1977) was that being primed with positive characteristics led to a significantly more positive impression of Donald compared to being primed with negative trait words, meaning that judgments are affected in a congruent way by the priming words. We (Kleiman et al., 2015) tested the exact same paradigm with the single addition of measuring dispositional trust (Yamagishi & Yamagishi, 1994) at the end of the study. For participants high in dispositional trust, we found a significant accessibility effect such that they rated Donald more negatively in the negative-characteristics priming condition than in the positive-characteristics priming condition. However, for participants low in dispositional trust, the accessibility effect disappeared; the trait primes did not inform participants' judgments as there was no difference between the two priming conditions. Importantly, we did not find that the level of generalized trust affected the way Donald was judged in general; that is, the effect is not due to people low in trust judging Donald overall less or more favorably than participants who are high in trust. Rather, the accessibility effect of the positive/negative words did not occur. An interesting related example of the attenuation of the accessibility effect is the finding that distrust reduces stereotyping (Posten & Mussweiler, 2013). A stereotype usually leads to congruent judgments of the stereotyped person; however, because distrust leads to a spontaneous activation of alternatives—or in Posten and Mussweiler (2013) terminology, a dissimilarity-focus—the congruent effect of the accessible stereotype is reduced. For example, in the distrust/skeptical mindset a female target was judged as significantly less stereotypically female than in a trust/gullible mindset.

Next we turn to embodiment, "bodily priming," based on the theoretical stance that mental representations of concepts are grounded in sensorimotor experiences (Barsalou, 1999). Embodiment has been shown to affect impression formation, judgments, and decisions, as well as behaviors that correspond to the abstract concept that the sensorimotor experience makes accessible (e.g. Ackerman, Nocera, & Bargh, 2010; Jostmann, Lakens, & Schubert, 2009; Lee & Schwarz, 2012; Schnall, 2011; Schubert, 2005; Slepian, Young, Rule, Weisbuch, & Ambady, 2012; Williams &

Bargh, 2008b; Zhong & Liljenquiest, 2006; for an elaborate theoretical discussion, see Barsalou, 1999, and Lakoff & Johnson, 1999). We (Kleiman et al., 2015) replicated the 2008 study of Williams and Bargh in which participants felt a warm or cold therapeutic pack, judged its quality, and then moved on to a seemingly separate task of creating an impression regarding an abstract person. Williams and Bargh's (2008) finding is that participants who touched a hot therapeutic pack created a significantly warmer impression regarding the abstract person compared to participants who touched a cold pack. The idea is that the physical warmth is translated to the social trait of warmth. This time, we did not measure trust but manipulated it. Before touching and evaluating the therapeutic pack, participants wrote about an event that happened to them in which they could trust/not trust another person. They were asked to remember this event because they would be asked about it at the end of the study. This request was made with the aim of keeping the distrust–skeptical mindset activated throughout the study. We replicated Williams and Bargh's (2008) embodiment effect in the trust condition: Participants who wrote about a trust event judged the abstract person as warmer after touching the hot pack compared to the cold pack. However, this effect disappeared in the condition of writing about a distrust event. In the distrust condition there was no significant effect for touching the hot versus cold pack. Again, as in the Donald priming paradigm, we did not find a general effect of dis/trust condition on the judgment of the abstract person. It was not the case that the person was judged generally better or worse in the trust vs. distrust condition. Also, the evaluation of the therapeutic pack was not affected by the dis/trust condition, only translation of the physical experience into its social meaning in the trust condition (i.e., gullible mindset) but not in the distrust condition (i.e., skeptical mindset) (Kleiman et al., 2015). This suggests that in a trust context, the gullible mind is affected by the physical warmth in a congruent way, thereby transforming the bodily sensation into its metaphoric cognitive concept (Gallese & Lakoff, 2005). However, in a distrust context, the skeptical mind is not affected by the physical warmth in the sense that it does not lead to a congruent social judgment.

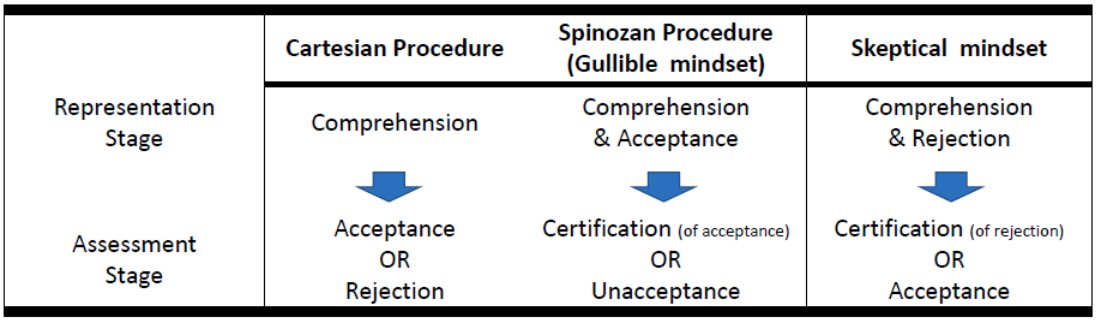
As a last example, think of the context of advertising. Ads are embedded within content articles on the web, to be seen by consumers in order to bring a specific brand to mind, thus making it accessible. Will this accessibility effect of an ad fade in a skeptical mindset? An identical set of two different static ads for a well-

known brand of diapers was planted in two different "online" articles, which varied in the dimension of trust (but were similar in shape and length). In the control condition the article was about a person’s unique hobby of raising homing pigeons. In the skeptical condition the article presented findings of a recently published State Comptroller report listing the ways in which citizens are being deceived by government institutions. Participants thought that the study was about reading and comprehension of web articles. They read the article, scrolling down as the two ads appeared, one in the middle of the article and one at the end. Then they were told that in order for some time to pass before being tested about the article, they are requested to answer a business school survey. The survey began by asking the participant to name a familiar brand of toothpaste, followed by several evaluation questions regarding the brand. The next question was to name a brand of diapers one is familiar with, again followed again by several evaluation questions about the brand. The findings were that 62.5% of the participants in the baseline condition named the advertised "brand A" as a brand they were familiar with, but only 18.7% of the participants in the skeptical condition did so (Kleiman et al., 2015). Thus, within a control context, exposure to an ad makes the advertised brand more accessible. However, in the context of distrust (skeptic mindset), this accessibility effect diminishes, as the advertised brand loses its advantage over possible alternatives (i.e., competing brands).

Conclusion: The gullibility of the mind is context-dependent

The current chapter’s main claim is that negation can be a successful primary process. First, one needs an affirmative alternative schema that carries the meaning of the negation in order to be able to successfully negate. Second, if the mind is in a context of distrust, due to situation or personality, then a skeptical mindset emerges, one of primary rejection. Specifically, the accompanying default result of the comprehension process is likely to be context-dependent. A mind may be gullible, in which comprehension equals acceptance and rejection is a secondary process, or skeptical, in which comprehension equals rejection and acceptance is a secondary process (see Figure 2).

Figure 2: The Cartesian and Spinozan models, adapted from Gilbert (1991) with the addition of the skeptical mindset outlined in this chapter.



Beyond the primary mode and ease of the negation process in a skeptical mindset, the fact that the mindset is pre-activated may be a critical factor in the ability to negate. When negation is explicitly communicated in a semantic manner, such as "the umbrella is not open" (Deutsch, et al., 2006; Kaup, et al., 2006), or in an explicit instruction to negate, ignore, discount, or correct information (DeCoster & Claypool, 2004; Fazio, Barber, Rajaram, Ornstein, & Marsh, 2013; Gilbert et al., 1993; Martin, Seta, & Crelia, 1990; Nisbett & Willson, 1977; Skurnik, Yoon, Park, & Schwarz, 2005; for a review regarding misinformation, see Lewandowsky, Ecker, Seifert, Schwarz, & Cook, 2012; Rapp & Braasch, 2014), it makes sense that the person first activates the original information and then considers its negation. In the skeptical mindset, in contrast, negation is not explicitly presented but is rather self-generated. Critically, the claim is that for the skeptical mindset, negation is the primary, default process. One of the main factors enabling successful negation and correction is being prepared to negate before receiving the information (Lewandowsky et al., 2012; Schul Burnstein, & Bardi, 1996). Accordingly, one could naturally and easily correct for information received when one is already in a skeptical mindset. To conclude, the claim presented is that when we know better (equipped with an alternative schema and context), we are utterly non-gullible.

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