

# Inducing Lasting Attitude Change Through Choice

- A Choice Blindness Study on Political Views

## Att framkalla varaktig attitydförändring genom beslut

- En beslutblindhetsstudie på politiska åskådningar

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## - A Choice Blindness Study on Political Views

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*Studies of decision-making have shown that attitudes can be influenced by choices. One way in which to study these types of attitude changes can be through the choice blindness paradigm. Choice blindness is the well documented finding that people may both fail to notice that the outcome of a choice does not correspond to what was intended, and at the same time construct coherent arguments in support of the reversal of their original choice. However, the temporal persistence of the attitude change induced has not received much attention. In order to investigate the longevity of a choice induced attitude change, as well as if this indeed can be achieved through the choice blindness paradigm, a two-day experiment was executed. The experiment used political statements, to which participants rated their agreement. Participants' attitudes were measured thrice, once before a covert manipulation of their ratings, and twice with one week apart, after the participants had been presented with what they were told were their own ratings, but which in fact were the opposite. In addition, the length of justification for answers was added as a factor to see if this would influence the persistence of attitude change, since it has been shown that longer deliberation time increases attitude polarization. After a week, 37% of the ratings were of the form of attitude reversals, contrasted with 12% for control statements, which were not manipulated. This provides us with evidence that choice induced attitude change has a lasting effect, and that temporally persistent attitude changes can be induced through choice blindness.*

## 1 Introduction

To change people's minds and to get them to act or behave in a certain way is a fundamental aspect of human social interaction. Indeed, every time you are participating in some kind of discussion or argument, one of your goals will be to in some way change the mind or attitude of the person you are interacting with. This thesis is concerned with attitude change as a result of choice (see p. 2) (Johansson et al., 2005; Johansson et al., 2014; Taya et al., 2014), and its primary goal is to answer the question whether attitude change induced in the choice blindness paradigm is lasting. The secondary goal is to measure the effect confabulatory explanations in the choice blindness paradigm has on the strength of a choice-induced attitude.

The remainder of this section will present a brief overview of differing conceptions of the nature of attitudes, the choice blindness paradigm, attitude change, and the overall

relevance of this thesis. Section 2 elaborates on an experiment constructed to answer the hypotheses of the thesis, as well as some pilot testing. Section 3 will provide a detailed review of the method of aforementioned experiment, of which the results will be presented in section 4. A discussion of these results will follow in section 5.

### Attitudes

Attitudes are commonly defined as an evaluation of some sort of object (a person, a physical object, an ideology) Petty, Priester, & Wegener, 1994; Bohner & Wänke, 2014), whereas a preference can be conceived as a particular individual's private attitude toward the object (Lichtenstein & Slovic, 2006). On this conception, attitudes are understood as the pure phenomenon of any person holding an evaluation of an object, while preferences are understood as instantiation of this phenomenon in a certain individual. Despite their somewhat different meanings, the terms "attitudes" and "preferences" will be used interchangeably throughout this thesis. Despite a common definition, the exact nature of attitudes and preferences are still much debated. Slovic (1995) distinguishes between two types of ways in which one can view the nature of preferences. The first view can be called the *economics approach*, while the second view can be called the *constructivist approach*.

The first view takes preferences as something that exists within us, much like a physical property, and thus can be introspectively perceived and reported. This report can, however, possibly be somewhat biased. The second view regarding the nature of preferences suggests that they are constructed in the moment they are needed or asked for (Slovic, 1995). An underlying assumption in economic theory is that consumers' preferences are relatively stable traits and thus suggests what the consumer needs and wants. However, as is evident in numerous studies, preferences are seemingly constructed by decision makers within a specific task in a specific context. A good example is a soon to be first-time parent in the process of buying a baby carriage. From the outset, this person is likely not to have any attitudes regarding a load of features of carriages, but will after some exploring of different brands and types of carriages form attitudes concerning weight, portability, and possibly even second-hand value. On the other hand, a parent who is out to buy a second carriage will already have some existing attitudes toward these aspects of baby carriages (Hoeffler & Ariely, 1999). It seems that both the economics as well as the constructivist ap-

proach gives an account of the attitude formation process, depending on consumers past experience (Hoeffler & Ariely, 1999; Fischhoff, 1991).

Apart from evidence indicating that attitudes are constructed within the domain of a specific task in a specific context, there is also evidence that preferences sometimes arise not before an actual decision is made, but rather as a result of the choice made or the action performed (Ariely & Norton, 2008). For example, Festinger and Carlsmith (1959) conducted an experiment in which two groups of participants were paid two different sums of money (one dollar or 20 dollar) for executing a boring task. They were then asked to lie to another person, saying that they thought the task was enjoyable. After this, the participants then got to rate how much they themselves enjoyed the task. The result showed that the participants who had been paid one dollar rated the task as more enjoyable as opposed to the participants who had been paid 20 dollars (Festinger & Carlsmith, 1959). What this result shows, according to Ariely and Norton (2008), is that when a participant is not paid enough to justify lying, they will interpret their action of lying as being a result of their own preference, in this case finding enjoyment in a boring task.

### *The free-choice paradigm*

A traditional tool in psychological research that deals with preferences influenced by choices is the *free-choice paradigm* (FCP) (Brehm, 1956). This is an experimental method used to show preference change as a result of choice. During an FCP experiment a participant is asked to rate two objects (cars, paintings, faces) and then choose one of them. After choosing, the participant will be asked to rate the objects again, resulting in more polarized ratings, meaning that the chosen object will be rated higher than before and the rejected object will be rated lower than before (Chen & Risen, 2010). Recently, there has been a debate concerning if this phenomenon actually exist, and proponents for the sceptical view has raised arguments, based on a statistical flaw in the design of FCP-experiments, that what FCP reveals is merely already existing preferences instead of preferences induced by choice (Chen & Risen, 2009; 2010). However, Egan, Bloom, and Santos (2010) provide strong support for the notion that FCP truly induces preferences by letting both young children as well as non-human primates choose between objects for which they cannot be guided by preferences. Not only do post-choice ratings suggest an induced preference, but also that preferences can be induced through a blind choice (Egan, Bloom, & Santos, 2010). A recent study also gives support to the notion that FCP even can be used to induce an attitude change over a long period of time. Sharot et al. (2012) asked participants to make hypothetical preference ratings for different vacation destinations. After this, they were presented with pairs of the already rated destinations, and were asked to choose between them. Post-choice rating was performed on all the destinations immediately after the choices, and once more after two and a half to three years. The results showed that the participant's preferences changed in the direction of being more positive toward the chosen alternative and more negative toward the rejected alternative

both immediately after the choice, as well as up to three years later (Sharot et al., 2012).

The effect of choice-induced preference change has, together with the findings of Carlsmith and Festinger (1959), often been explained by the theory of *cognitive dissonance* (Festinger, 1962; Brehm, 1956; Chen & Risen, 2010). Cognitive dissonance theory states that when people hold two conflicting attitudes ("cognitions") they will experience an unpleasant feeling. People will try to eliminate this feeling by altering any of the two conflicting attitudes (Festinger, 1962). An alternative explanation of preference change through choice in the FCP is *self-perception theory* (Bem, 1967). Self-perception theory holds that the way people get access to the mental states underlying their behaviour works the same way as how they get access to the mental states underlying someone else's behaviour, through perception. Attitude change due to choice is here seen as an interpersonal judgement, explaining someone's choice as being the result of some attitude, but directed at oneself (Bem, 1967). Basically, people infer their own attitudes because they observe themselves behaving in a way that can only be explained by having a certain attitude. The question of which one of these theories that most accurately reveal the true nature of choice-induced preference change is hard to answer, in large part because they make very similar predictions (Johansson et al., 2014). However, as Johansson and colleagues (2014) points out, recent research measuring pupil dilation (Pärnamets et al., 2015a) provides evidence that no underlying "dissonant" emotions can be found and be responsible for driving preference change. On the other hand, as made evident by Egan, Bloom, and Santos' (2010) research on choice-induced preference change in young children and non-human primates, choice-induced preference change exists in agents possessing no elaborate self-based cognitive processes. These findings do not, however, speak in favour of theories of cognitive dissonance either.

Even though the true nature of choice-induced attitude change possibly will be revealed through future research, the fact remains that when reviewing research investigating people's awareness of their preference changes, it seems that people generally have very little or no introspective access to their own cognitive processes (Nisbett & Wilson, 1977). One recently developed research paradigm that takes advantage of this inaccessibility is the *choice blindness* paradigm (Johansson et al., 2005).

### *Choice Blindness*

The choice blindness (CB) effect was first discovered by Johansson et al. (2005), and the authors themselves view it as an extension of the change blindness effect. Change blindness refers to the finding that under various conditions humans seem to be virtually blind to changes in their environment (Rensink, 2002). What Johansson and colleagues did was to investigate the assumption of decision-making theories that we have access our original intentions when reviewing the outcome of a choice. In other words, if in a choice between A and B we choose B, but receive A as having been our choice, we should detect that an error must have taken place because we know that we chose B. There are two sides

to this “know”. On the one hand, it can be understood as a “know” in the sense that we detect an unexpected outcome of a choice because it stands in opposition to our intention. On the other hand, this “know” can be understood as in the sense of remembering choosing B, regardless of underlying intention. Regardless of which “know” one adheres to, intuition tells us that an unexpected outcome of a choice should be detected. However, Johansson and colleagues (2005) found as a result of a cleverly crafted sleight of hand experiment that this in fact is not the case. The experiment was built around pairs of black and white photographs of women, which were shown to participants. The participants got to state which one of the currently shown women they found most attractive. Sometimes immediately after they had made their choice, the chosen photograph was shown again to the participants and they were asked to describe the reasons behind their choice. Unbeknownst to the participants, sometimes the photograph that was shown was the opposite one of the originally chosen face. These manipulations of the outcome of the participants’ choices resulted in that the participants provided confabulatory arguments for justifying and explaining a choice they never made. More strikingly, only 26% of the manipulations were detected (Johansson et al., 2005).

Numerous replications with both minor and major alterations to the original experiment design have been conducted in the last few years, directed at such diverse topics as taste and smell (Hall et al., 2010), finance (McLaughlin & Somerville, 2013), tactile choice (Steenfeldt-Kristensen & Thornton, 2013), and spoken words (Lind et al., 2014). Among these are also CB experiments designed to question and refute the assumption that only a very limited group of political voters can be made to switch between party lines (Hall et al., 2013), as well as revealing how floating our moral attitudes are (Hall, Johansson, & Strandberg, 2012). Hall, Johansson, and Strandberg (2012) constructed a CB experiment using moral principles as stimuli to ask what it really is that different kinds of polls and surveys actually measure. The participants got to state on 9-point scale how much they agreed with certain moral questions. Using a “self-transforming” survey, the experimenters then unnoticeably changed the meaning of the questions to state the opposite. For example, the principle “Even if an action might harm the innocent, it can still be morally permissible to perform it” was changed to “If an action might harm the innocent, then it is not morally permissible to perform it”. In other words, while the participant’s original rating remained unchanged, the meaning of that rating was reversed. The results showed that more than half of these changes remained undetected, and also that the participants were able to construct coherent arguments supporting the undetected manipulated position (Hall, Johansson, & Strandberg, 2012).

In a similar experiment, Hall et al. (2013) investigated how well the outcome of political polls actually corresponds with voters’ intentions. To do this, they constructed a paper-survey based CB experiment using political statements as stimuli. These statements were very specific, for example “Gasoline taxes should be increased” and “The wealth tax was abolished in 2007. It should be reinstated”. The first part of the survey asked the participants how politically engaged

they were and how certain they were in their political view. The survey also asked the participants to state their current voting intention on a scale ranging from extremely left wing to extremely right wing as well as their own certainty of these intentions. Then the participants answered the political statements by writing an “X” on a horizontal axis ranging from “Absolutely disagree” to “Absolutely agree”. While the participants were occupied with filling in their answers, the experimenters secretly filled out an answer sheet identical to the one the participants had, but in a way as to make the total sum of the answers resulting in an endorsement of the political camp opposite to the one the participants previously had stated as object of their current voting intention. In other words, if a participant had stated an intention of voting left wing, the experimenters filled in the answers corresponding with views usually associated with voting right wing. Using sleight of hand, the experimenters then unnoticeably replaced the participants’ original answers with the “manipulated” ones. Next, Hall and colleagues asked the participants to explain their choices regarding some of the statements, resulting in the participants justifying a choice they never made. After this, the answers were calculated in collaboration with the participants resulting in a score for both left and right wing, indicating their voting intention based on their answers to the 12 statements. Finally, the participants were asked to once more state their current voting intention. The results showed that only 22% of the manipulations were detected, and that as many as 48% of the participants were open to a coalition shift. This stands in contrast to the generally accepted estimation that only 10% of the voters are open to a coalition shift (Hall et al., 2013). The result regarding voting intention is especially interesting, since it not only shows that the majority of the participants were unable to detect manipulations of their own choices, but furthermore, it suggests that CB can be used to influence future choice. Not only can people construct coherent arguments to justify a choice they never made, it also seems that not detecting a manipulation can have an effect on attitudes themselves.

What these studies further have shown is that we do not seem to have as unrestricted access to our own preferences as one might imagine, and that we unconsciously try to explain or justify the world we are exposed to. Another possible conclusion one can draw from the results presented above is that our attitudes seem to be constructivist (Slovic, 1995) rather than economic, and importantly so regarding topics that we normally assume to be quite significant (e.g. morals and politics).

#### *Attitude change*

One question, which follows from the changes in voting intention found in Hall et al. (2013), is whether CB can be used as a tool to study preference change. This has been explored empirically in three different studies (Johansson et al., 2014; Taya et al., 2014; Pärnamets et al., 2015b). In trying to meet criticism raised by Chen and Risen (2010) regarding the validity of FCP, Johansson et al. (2014) used a CB setting similar to the first CB study from 2005 was used, effectively showing that the CB paradigm can be thought of as a kind FCP. Chen and Risen (2010) theorize that FCP will produce

spreading in the evaluation of alternatives even if attitudes remain the same. Suggestions for improving the FCP are presented, among others, manipulating the choices that people make, and at the same time avoiding to directly manipulate peoples attitudes (Chen & Risen, 2010). As Johansson and colleagues (2014) point out, this seems to be just what CB does. Johansson and colleagues (2014) used photographs of female faces, which were shown in pairs to the participants, who then had to decide which face of each pair they found most attractive. Sometimes, the pairs were presented to the participant immediately after the choice and the participant got to explain their choice. Half of these pairs were manipulated. After explaining their choice, the participants rated both faces in each pair individually. Once all face pairs had been shown, the participants got to see them again and rate which face they preferred, and after this they got to rate each face again. The results show that the faces that originally got rejected but being objects of CB manipulation, were preferred during the second set of choices, as well as that the originally rejected faces were rated higher in the last choice compared to the first. This provides a strong indication that CB can be used to produce preference change in the same way as FCP, and also understood as an updated version of the classic FCP (Johansson et al., 2014). Similarly, Pärnamets and colleagues (2015b) shows that preference change can be induced through CB in groups of two as well as in individuals, by measuring choice consistency. In short, believing that you chose some thing seems, in light of these findings, have the same effect on future choices as if you actually chose it.

The studies presented above indicate that CB in fact can be used as tool for changing people's preferences, as well as a tool for studying preference change through choice. These studies do not, however, provide any indication as to how lasting these choice induced preference changes are. Without any complete understanding of the mechanisms underlying both FCP and CB, this is a matter in need of further inquiry. In a recent study, Taya and colleagues (2014) investigated this matter in the context of a two-day CB experiment. The design of the CB experiment conducted by Taya and colleagues (2014) was in some respects very similar to the one conducted by Johansson and colleagues (2014): pairs of female faces were shown to the participants who got to state which one of the faces they found most attractive. After each choice the participants got to state how certain they were. Sometimes after choosing, the photographs were shown again and the participants were asked to explain their choice. On half of these trials, a CB manipulation occurred. Following this, the participants got to rate the attractiveness of each face individually. After this followed a similarity rating in which the participants got to rate the similarity of each face pair. At the end of the first session (e.g. day one of the experiment) all participants were fully debriefed. The second session occurred around two weeks after the first and consisted of a web-based re-evaluation of attractiveness of all faces. The results indicate a short-term preference change as a result of the CB manipulation but no long-term effect (Taya et al., 2014).

The first, basic finding of this study is that it replicates the preference change, as measured through ratings, found in

previous work (Johansson et al., 2014). The second finding presented in this study is that although there is indeed a measurable short-term attitude change as a result of CB, this effect disappears within two weeks. However, when taking into account that the participants were fully debriefed after the experiment was concluded, the absence of any long-term effect of CB on attitude change comes as no surprise. If the participants had been debriefed after the first round of choices and before the re-evaluation, the chance of an effect even for the short-term would indeed be slim, since the whole point of using CB to induce attitude change is to make the participants believe that they themselves made the choice. With as big a confound as this, there is little reason to take the result of Taya and colleagues (2014) as any clear indication as to the lasting effects of choice induced preference change, or for that matter, the effects of using CB to induced preference change. This question is, in other words, still open.

An aspect of the CB paradigm which have not yet received much attention is that of the effects of confabulation on new or altered attitudes.

### *Confabulation*

In any CB experiment, confabulation is a key element. Confabulation refers to the phenomenon of unconsciously fabricating aspects of oneself or the world without any deceptive intentions (Fotopoulou, Conway, & Solms, 2007). In the CB paradigm, a confabulatory explanation denotes the justification or explanation for a choice actually never made (e.g. an undetected manipulation). According to the *elaboration likelihood model* of persuasion (ELM) (Petty & Cacioppo, 1986; Petty, Haugtvedt, & Smith, 1995), a theory accounting for attitude formation and change, the strength of an attitude can be predicted by the amount of issue-relevant thinking a person has spent on the object (Petty, Haugtvedt, & Smith, 1995). The ELM builds on literature concerning attitude persistence and suggests that attitude change can be seen as resulting from two different kinds of persuasion. The first is persuasion by perceptual cues, not involving any careful deliberation as to the merits of a specific argument. The second is careful and issue-relevant consideration of a specific argument (Petty & Cacioppo, 1986). By this view, attitude change as a result of issue-relevant thinking can be seen as a result of self-persuasion. However, there seems to be more to this persuasion process than just time and relevance of thought. Petty, Briñol, and Tormala (2002) explored the importance of confidence in one's own thoughts in the persuasion process, and found that amount of confidence one has regarding thoughts directed at an object can both increase and decrease persuasion, depending on if the thoughts themselves are positive (increase in persuasion) or negative (decrease in persuasion).

In a related study, Clarkson, Tormala, and Leone (2011) found that if someone gets to think about some object for up to 300 s, the more will their confidence regarding their own attitudes directed at this object increase, and their attitudes will become more polarized. Shorter deliberation time (60 s) was shown to lead to lower confidence and attitude depolarization, as did longer deliberation time (>300 s) deliberation

time (Clarkson, Tormala, & Leone, 2011). So there seems to be a correlation between the time spent thinking about an object and the amount of confidence in these thoughts on the one hand, and the amount of confidence in one's thoughts regarding an object and the amount of polarization of attitude as well as attitude strength on the other. If these effects of thinking are applicable to verbal reasoning, then there should be a correlation between the amount of explaining of a choice made by a participant in a CB setting and the strength of a preference induced by CB.

### *Hypothesis*

The hypothesis for this thesis is twofold. Firstly, (H1a) choice blindness can be used to change people's political attitudes immediately following a manipulation, and, (H1b) over an extended period of time. Secondly, (H2) the new attitude will strengthen as a function of the length of confabulation.

### *Present study*

This study primarily investigates the longevity of political preferences induced through choice, and whether CB can be used as a tool for inducing these preferences. Three main reasons lay behind the decision to use politics as items for manipulation: Firstly, previous research has already concluded that one can successfully perform CB manipulations on political statements. Secondly, an early iteration of the experiment design aimed at being able to measure a general attitude-change effect regarding one field of politics as being a result of manipulations of specific questions. Thirdly, it was reasoned best to use stimuli items for which the participants hold clear and possibly strong attitudes. The secondary question this study investigates is whether the length of confabulatory explanations in the CB paradigm has any impact on the strength of an altered or newly formed attitude.

### *Importance of study*

Showing whether a choice can change people's political attitudes in the long-term, and that this can be done through CB is important and relevant for a number of reasons in many different areas of research. For one, it would provide more support of the robustness of choice induced attitude change, subsequently rejecting the objection of Chen and Risen (2010) regarding FCP even more. The most obvious outcome is of course that it would provide support for the validity of using CB as a tool for lasting attitude change, instead of just a way to make visible the floating nature of attitudes. This would for example in turn provide more evidence for the suggestion that the economics and the constructivist approach (Slovic, 1995) both provide an explanation for the nature of attitudes. That attitudes change as a result of choice has, as we have seen, been shown extensively in FCP research, but the more positively regarded object has always been the initially chosen one. In other words, the previously shown attitude changes induced through the FCP has been a kind of attitude reinforcement, as opposed to attitude reversal. If one, on the other hand, could use CB as a way to induce a long-lasting attitude change, the more positively re-

garded object would of course be the one not initially chosen, resulting in a long-lasting attitude reversal.

Maybe the most obvious practical applications of this knowledge would be in the area of advertisement and political campaigning, since these are areas already devoted to trying to cleverly change people's attitudes.

Showing that the length of confabulation regarding an undetected manipulated choice has an effect on the strength of a new attitude will give more weight to ELM, as well as to theories accounting for preference reversals as being a product of some kind of self-perception, as opposed to cognitive dissonance.

## **2 Experimental design and pilot testing**

To test the temporal persistence of a choice induced attitude change in a CB environment, as well as, the effect of confabulation length on the strength of the new attitude, a week-long two-session CB experiment was constructed. The first session involved initial ratings, CB manipulation, and a second round of ratings. Subjects were split into two groups where they were asked for different lengths of confabulatory explanations for their ratings. The second session involved a re-choosing of the previous stimuli without any manipulation or explanation, as well as, a debriefing for both sessions. On account of time constraints the longest time between the two sessions in which the experiment was executed was set to approximately seven days. To control for possible confounds it was reasoned that the two days should, if possible, take place at the same location using the same material. Before reaching its final form, however, the experimental design went through a number of different iterations and pilot tests.

### *Stimuli and attitude measures in pilot 1 and 2*

The stimuli used for the first pilot study were political statements divided into three groups, each consisting of six statements. These groups concerned three different areas; school politics, health care, and migration. Examples of the statements are: "The salary for nurses should increase significantly" or "Refugees without papers should have the same right to Swedish welfare as all other Swedish residents". For each statement, participants rated how much they agreed with that statement on a scale from 1 to 8, where 1 equalled total disagreement and 8 equalled total agreement. Half of the statements in each group were weighted positively and the other half negatively. The effect being that if, for example, you are extremely liberal with regard to migration politics, you would answer three of the questions concerning migration with "1", and the other three with "8". This was meant to minimize the risk of the participants detecting a pattern in their own answers. Additionally, the statements were created with the hope of saying something about how important participants thought each area of politics was in regard to how tax revenue ought to be distributed among them. The reason for this design, and also for choosing to work with statements revealing political attitudes was on account of an assumption of their inherent transferability. This transferability means that depending on what one's attitude is regarding a set of different statements concerning a

specific area or subject, these attitudes will have an impact on one's overall attitude regarding this specific area or subject. To illustrate, if you believe that a strong welfare program is an important part of a well-functional state, you are also likely to believe that its inhabitants should pay taxes covering parts of the costs that this welfare entails. Transferability would make it possible to validate a preference change in more ways than just asking the previously undetected manipulated question again. If a participant has been led to believe that their attitude is that there are no benefits to be found in letting immigrants into the country, this participant would be expected, on the assumption of transferability, to prefer that the state also should spend less money on migration. If this assumption proved to be warranted, it would allow for making a stronger case that CB can induce an attitude reversal, and not only altering disposition to answer a specific question in a certain way. To exploit this assumed transfer effect, four additional measures of political attitudes were introduced. One measure concerned all three subareas, one concerned only medical care, one concerned only education, and one concerned only migration politics.

The first additional attitude measure was a tax distribution task. The participants were told that a new bill had been passed, effectively giving every taxpayer more authority concerning how their taxes should be spent in the three areas of schools, health care, and migration. They were then asked to distribute 100 SEK over these three areas. The underlying assumption was that the participant's answers on the political statements should correlate with how they chose to distribute the money.

The second attitude measure concerned only health care. The participants received information about a vision presented by the *Swedish Association of Local Authorities and Regions* ("Sveriges kommuner och landsting"). According to this vision, 70% of all medical patients should have received care within 60 days of their first visit. In addition, the participants were told that only one out of 21 local authorities in Sweden managed to satisfy this. The participants' task was to state if they thought this target goal was too high or too low, and also to write in per cent what they thought a reasonable target should be. The assumption was that the answer to this question would correlate with how the participants had answered on the questions regarding medical care, where a participant who thought the target was too low would rate the statements regarding medical care higher than a participant who thought the target was too high.

The third attitude measure focused on the *Swedish Scholastic Aptitude Test* ("Högskoleprovet"). The participants received information that all students who applied to the teacher education programme with Swedish as their main subject, using their score on the aptitude test, were admitted. The participants were also told that the lowest scoring admitted student had a test score of 0.3 (2.0 is highest) and that the mean score is 0.9. They were also told that the lowest score for being admitted to the nurse education was 1.2. The participants were asked to take a stand concerning if there should be some kind of threshold for being admitted to the teacher education, and to answer with a number ranging from 0.0 to 2.0. The correlation assumed to be found here was that

if one answers the statements concerning school politics in a way that corresponds with the school system receiving more funds one should also be more inclined to state some kind of threshold. The fourth measure was constructed to measure attitudes regarding migration. The participants received information on how many refugees Sweden, in agreement with the *United Nations High Commissioner for Refugees*, grants asylum to each year (1900 refugees), and were asked to rate if this was too many or too few, and to write how many refugees at least should be granted asylum in Sweden each year. The assumed correlation here was that if you show a more liberal stance in regard to migration, this should correlate with the proposed refugee quota.

The results of the first pilot study showed that there was no correlation between the answers on the political statements on the one hand and the answers on the four attitude measures on the other. Another finding of the pilot was that, overall, the answers to the political statements generally seemed to be too polarized (meaning that the answers generally were very close to the extremes 1 and 8) to be able to hope to make any undetected manipulations using those statements in the future main study. In hope of finding a correlation between the stimuli and the additional attitude measure, a reworking of the stimulus material and the general attitude measure was made for a second pilot.

**Evaluation.** No correlation could be found between how important the participants in the first pilot study thought each of the three areas of politics were and how they were willing to spend their tax money. For this reason, the second pilot study shifted focus to the importance of the political questions themselves. Instead of asking the participants how much they agreed with a certain statement, the second pilot asked the participants to rate how important they thought certain political issues were. Examples of the type of stimuli used for the second pilot are "Whether specialist medical care should be nationalized is an important question" or "The structure and quality of the teacher education is an important question" (see Appendix A). As in the previous pilot, the participants got to rate how much they agreed with the statement on a scale from 1 to 8. Further, the group of questions concerning migration were dropped altogether because of the overall polarization of the answers, and issues regarding environmental politics were used instead. Instead of measuring how important the participants thought each area of politics were using the tax distribution task, the participants got to rate the importance of the three areas environment, schools, and health care. Again, no correlation was found between the answers to the stimulus material and how the three political areas were rated. Due to the time constraints involved in a master's thesis, the idea of finding a measurable transferability between answers to singular statements and more general attitudes regarding whole areas of politics had to be put on the shelf for the present study.

#### *Pilot using Choice Blindness*

The CB pilot was the final step in the construction of the experiment, and the main motivation behind it was to evaluate the stimulus material in regard to CB manipulation. In other words, to see which stimuli items could successfully be used



as targets for possible manipulations. In addition to this, the design was evaluated as a whole to learn if there was anything in it that did not work, if the stimuli items made sense to the participants, and to gain insight to the participant's overall impression of the experiment.

**Participants.** 15 volunteers (10 female) in the ages ranging from 19 to 30 ( $M = 22.6$ ,  $SD = 2.8$ ) participated in the pilot. These were approached at the LUX building at Lund University and were asked if they would like to answer a few questions, after which they would get to talk about their answers. After the pilot, all participants were fully debriefed, gave informed consent, and received a gift card at *Café LUX* worth 40 SEK.

**Materials and procedure.** Although the two pilot studies of the proposed stimuli did not yield any results in regards to the proposed additional attitude measure, it gave an indication of which of the political statements and issues that possibly could be used for a CB experiment. The choice of stimuli for the CB-pilot was based on how the participants had answered the statements in the two previous pilots. An as even spread as possible from 1 to 8 were considered most optimal in regards to manipulation. Thus, twelve statements with the most even spread were chosen, resulting in four statements in each subcategory of health care, school-, and environmental politics. Since the idea of an additional attitude measure had been dropped, the kind of meta-statements used in the previous pilot was dropped as well, and once more the stimuli consisted of political statements (see Appendix B).

To try to minimize the polarization of the answers, this time the statements were given a more specific form. For example, the first pilot one item had been "Sweden should nationalize specialist medical care". Now, instead, it was formulated as: "In order to guarantee equal care across the whole country, specialist medical care should be nationalized instead of being run by local authorities. A lot of smaller establishments could shut down in order to make it easier for the care to be run centrally, which in turn would result in fewer, more powerful specialist care establishments with higher capacity". The underlying assumption for this change was that the more information each stimuli item contains, the more the participants will have to think about and weigh different arguments concerning the underlying political issue, for against each other, thus resulting in less polarization of the answers, and hopefully a lower detection rate. This assumption is based on the idea that ease of confabulation is in part based on the accessibility of arguments for or against statements.

All 12 statements were implemented in a tablet application, which randomized the order of the statements. During the pilot test, each participant first answered all questions by writing an "X" somewhere on a horizontal axis ranging from "Disagree completely" to "Agree completely". After this, they were presented with the four statements concerning school politics and the four statements concerning environmental politics in randomized order. Two randomized answers from each category had now been manipulated across the midpoint of the axis, and the participants were asked to explain their choices. At this point, the participants had been

divided into two conditions. Participants in the first condition (C1) were asked to explain their choices with only one sentence, while the participants in the second condition (C2) were asked to explain their choices as thoroughly as possible. If the participants indicated that the answers that were showing did not correspond with their view, they were told that they could now change the answers. After this, all participants were asked a series of questions concerning if they had understood what was expected of them, if they found any stimuli items difficult to understand, and their impression of the experiment. After the interview all participants were fully debriefed, gave informed consent and received their payment.

**Results of Choice Blindness pilot.** Of all manipulated answers, 75% were changed by the participants, and were categorized as detected. Out of all stimuli items, two each in the subcategories of school- and environmental politics were chosen as targets for manipulation in the experiment on account of them being the least detected manipulated items. The way of dividing the participants into the two different confabulation conditions did not work as expected. Some of the participants in C1 provided more than one sentence and some of the participants in C2 provided not much more than one sentence, even though encouraged by the experimenter to elaborate. Because of this, it would be impossible to differentiate between possible effects on the strength of the attitudes the length of confabulation could have. Thus, a reworking of the experimental design was in this respect needed.

### 3 Method of the main experiment

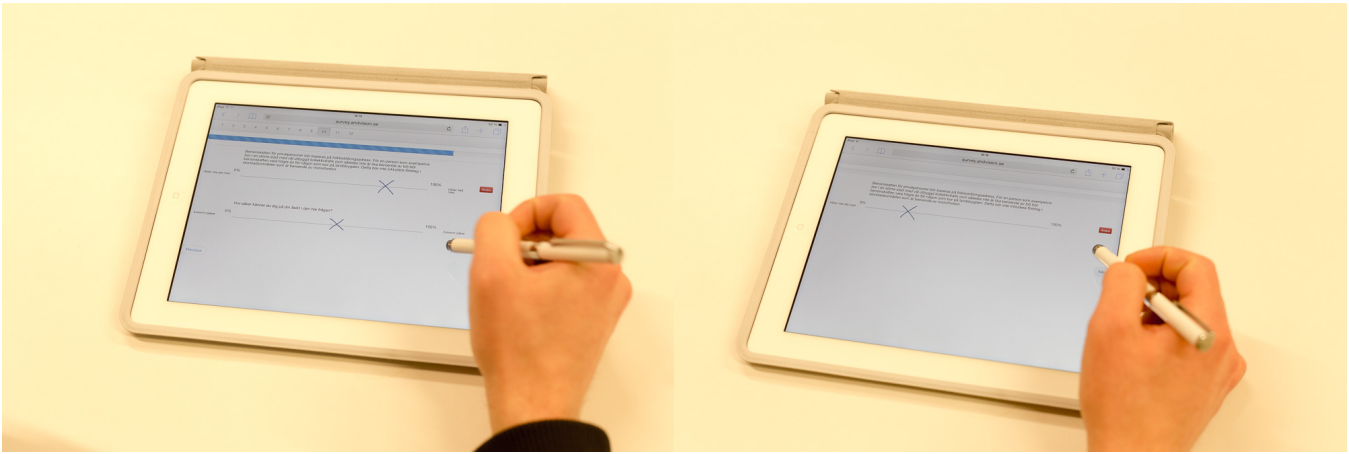
The experiment took place in the Swedish city of Lund between the 30 of March and the 8 of June 2015. The experimenters were David Sivén, master's student, and Thomas Strandberg, Phd student, from the department of Cognitive Science at Lund University.

#### *Participants*

In total, 141 paid volunteers participated in the experiment. The data recorded from 48 participants had to be discarded due to a mishap with the recorded data, bugs while interacting with the tablet application, or because of not returning for T3. For the analysis, 93 paid volunteers (57 female) in the ages 18 to 40 ( $M = 23.16$ ,  $SD = 3.18$ ) remained. These were recruited at the LUX building at Lund University. All participants received a full debriefing, gave informed consent to their data being used, and received either two cinema vouchers or one cinema voucher and a gift card at *Café LUX* worth 40 SEK, as payment. The 93 participants used for the analysis returned six ( $M = 6.25$ ,  $SD = 1.82$ ) days later for the second session of the experiment. The participants who choose not to come back received a full debriefing over e-mail or text message. They did not, however, get to sign a form of consent. Consequently, these participants were not included in any form of analysis, and their data was discarded.

#### *Materials*

For registering answers and manipulating the participants' choices, a web-based survey application running on a tablet



**Figure 1.** The CB application in action. To the left: Initial rating of a manipulable statement. The X on the upper axis corresponds with agreeing with the statement. The X on the lower axis corresponds to neutral confidence regarding the raters attitude. To the right: After the 12 statements have been answered. The application has now moved the X to correspond with not agreeing with the statement.

was used (Fig. 1). This application presents political statements (see Appendix B) one at a time in a randomized order. The political statements are, as in the pilot using CB, very specific, and divided into the three subcategories of medical care, school politics, and environmental politics. The four manipulable target statements were chosen on account of the low detection rates the manipulated answers to these statements had during the CB pilot study. These four statements were:

- (1) “The government should subsidize purchases of energy efficient major household appliances. These subsidies would be financed by an excise on out-dated and from an energy consumption perspective ineffective technology.”
- (2) “Gasoline tax for individual citizens should be based on registered address. For a person who for instance lives in a larger city with a well-developed system for public transportation (and thus is not that dependent on a car), the gasoline tax should be higher than for a person who lives in a rural area. This should not include businesses in metropolitan areas that are dependent on motor vehicles.”
- (3) “The Swedish elementary school should be re-nationalized. Apart from the fact that local municipalities would loose much, albeit not all, influence, a re-nationalization would mean that the state becomes head of the school and assumes the responsibility for resource allocation and quality assurance.”
- (4) “Help with homework after school hours should be offered by all schools and be free for all elementary school students, irrespective of school results and family situation.”

Apart from the survey application, two different paper-based surveys (S1 and S2 (see Appendix C)) were used for the measuring of the attitudes post-CB, and for the measuring of the attitudes after a week, respectively. These surveys both

had 12 statements each, out of which the four possible targets for manipulation as well as two statements regarding medical care remained exactly the same in both surveys. The remaining six statements in both surveys were unique for each survey, and neither of them had been used in the tablet application. Finally, an audio recorder was used to record the confabulatory explanations of the manipulated answers.

#### *Experimental task*

The statements are answered by writing an X somewhere on a horizontal axis ranging from 0% to 100%, respectively corresponding to “Disagree completely” and “Agree completely”. The midpoint of the axis, at 50%, corresponds to having no opinion or to uncertainty. Each political statement is followed by the secondary question “How certain are you about your own opinion regarding this matter?” followed by an axis ranging from 0% to 100%, respectively corresponding to “Extremely uncertain” and “Extremely certain”. The reason for incorporating the secondary question was that if it turns out that no long lasting effect of the manipulations of the participants’ attitudes can be found, maybe an effect on the participants’ certainty regarding their own attitudes can be found instead. After all 12 statements and secondary questions have been answered, the application presents two target statements from the subcategory of school politics and two target statements from the subcategory environmental politics again as well as the participants’ answers to these statements. These statements are presented in a randomized order one at a time. One of the two target statements in each subcategory have at this point been randomly picked out and manipulated by the application by moving the X written on the axis across the midline.

To keep the detection rate at a reasonable level, the X is moved by the application to the other side of the axis and placed either somewhere between 15% and 35% or between 65% and 85%. The reason for not moving them closer to the middle than this is to manipulate the participants into believing that they have a somewhat clear attitude for or against the statement. X’s written between 35% and 65% on the axis are not manipulated, since these X’s corresponds to not having a

strong enough opinion or uncertainty. X's written between 0–15% and between 85–100% are not manipulated, since manipulations of these answers were thought to be too detectable.

### Procedure

**Recruitment.** The participants were approached by the experimenters who introduced themselves as coming from the Department of Philosophy at Lund University, stating that they were conducting a study investigating different kinds of measurements of political attitudes, and how they correlate. The participants were asked if they were willing to partake on two occasions separated by a week. Each participant was guaranteed total anonymity throughout the study, and that they would as payment receive with two cinema vouchers.

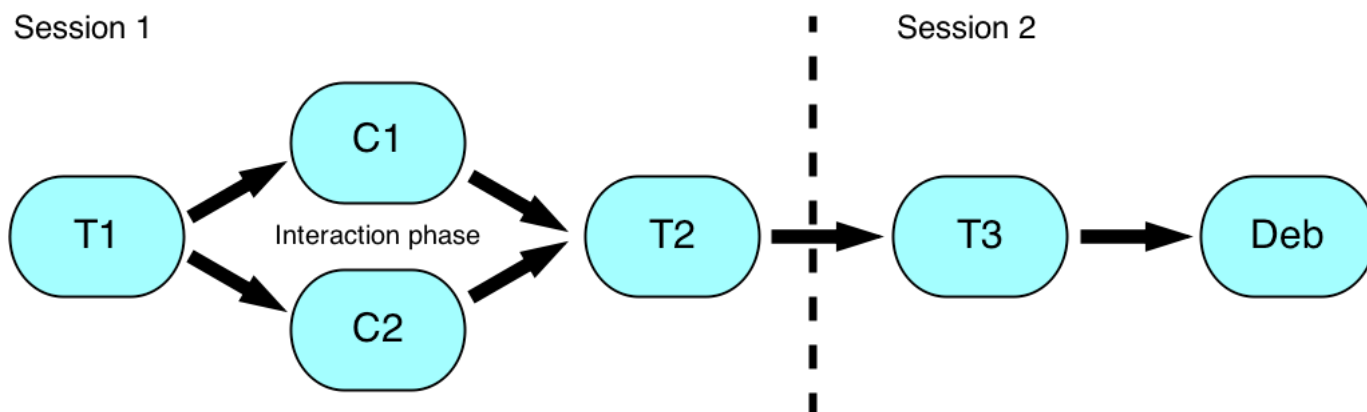
**First session.** The first session consisted of three subtasks: initial rating, interaction with manipulated answers, and post-CB rating (Fig. 2). First the participant was asked to answer 12 statements (T1) on a tablet, by marking an X along an axis in response to each statement. The experimenter also made it clear that the ends of the axis did not represent “Disagree/Agree” or “No/Yes”, but rather two extremes of a spectrum. This was done to maximize possible manipulable answers, the assumption being that it is much easier to spot a manipulation if original X was on the far end of the axis rather than somewhere along the axis. When sure that the participant understood what was going to happen, the experimenter left the room to let the participant respond to the statements with as few distractions as possible. Before leaving the room, the experimenter asked the participant to call for him after answering all 12 questions. This instruction was also presented by the application when the 12 statements had been answered.

Upon returning to the room, the experimenter explained the second subtask (the interaction phase; C1/C2). During this subtask, unbeknownst to the participants, the choice blindness manipulation took place. Each participant was told that the tablet would now randomly present four of the 12

statements and also the participants' answers to each of these statements. Two of these answers had now secretly been manipulated by the survey application running on the tablet. To measure the effect of the length of confabulation on the temporal extent of the attitude change, the participant was assigned one of two conditions. In one of the conditions (C1), the participant was asked to read aloud each statement as they appeared on the tablet, state where on the axis they had written their X and if this meant that they agreed or disagreed. In the other condition (C2), the participant was asked to read aloud each statement as they appeared on the tablet, state where on the axis they had written their X and if this meant that they agreed or disagreed, as well as to as thoroughly as possible account for the reasons behind the answer.

The intended effect of explicitly asking the participants to state where on the axis *they* had written *their* X was to make sure that they would be thinking about the X's as their own, and no one else's. Hopefully, this would result in providing the participants with optimal conditions under which to detect the manipulations, and at the same time strengthen the possible effects of an undetected manipulation. By controlling for the confabulation condition in this manner, the way in which to divide the participants into C1 and C2 was now also solved, since there is a clear distinction between stating that a manipulated X belongs to oneself, which indeed is a confabulation, and to in addition to this provide an explanation justifying the position of the X, even if this explanation should happen to be condensed into only one sentence. While performing the second subtask, all participants were knowingly and willingly recorded by an audio recorder. In the event of a participant clearly indicating that the answer they saw did not correspond with their view, they were told that they could change their answer if they wanted to, after which they could base their explanation on the position of the X in the now corrected position.

The third subtask (T2) consisted of the participant answering a survey (either S1 or S2) very similar to the one they had previously answered on the tablet, only it was in the



**Figure 2.** A flowchart illustrating the procedure of the experiment. In **T1**, the participants make the initial ratings. In the **interaction phase**, they get to review their answers to the four target statements, out of which two have been manipulated, either with a minimal amount of confabulation (**C1**), or with an unlimited amount of confabulation (**C2**). In **T2**, the participants rate the four target statements again, together with 8 new statements. Approximately a week later, in **T3**, the participants rate the four target statements once more, together with a new set of 8 new statements. After this, they get a full debriefing, give informed consent, and receive payment (**Deb**).

form of a traditional pen-and-paper survey. Six of the 12 statements were new to the participants, but the four possible target statements as well as two statements concerning medical care, remained in the exact same form as in the tablet application. The participants were told that the motivation behind this additional survey was to measure if there was any difference in answers if a survey was conducted electronically or physically. Further, the participants were told that it was likely that some of the statements that they had answered on the tablet also would be included in the paper survey, since they were all randomly selected from the same bank of statements. Upon completion of this third subtask, the experimenter and the participant agreed on a time and date for the second session, preferably seven days later or as close to seven days as possible.

**Second session.** The second session (T3) took place seven ( $M = 7.03$ ,  $SD 1.60$ ) days after the first (T1). The participants were now asked to fill out an additional survey (if S1 the last time, now S2, and vice versa) similar to the one they had filled out the previous week. Upon completion, the participants were fully debriefed, signed a form of consent, and received payment.

#### Analysis and measures

Since the participants were divided into two different groups who received different treatments, the experiment is, in respect to H2, one with a between-subjects design. The main advantage of designing an experiment in this way is that the independent variable (in this case the length of confabulation) can be isolated, resulting in minimal contamination by other variables. The obvious disadvantage with a between-subject design of this sort is that the population receiving the same treatment is considerably lower than that of the whole population of subjects. In this case the participants received one of two possible treatments, resulting in two smaller analysable groups. In respect to H1a and H1b, the experiment can be seen as a within-subjects experiment, since these hypotheses only predicts that CB can be used to induce attitude change regarding political attitudes both immediately after a manipulation as well as a week later, irrespective of treatment.

All the manipulated answers were either categorized as detected or undetected, based on if the participants changed the position of the X answering the manipulated questions during the second subtask (T1). A change/correction was categorized as a detected manipulation, whereas a manipulated answer not changed by the participants was categorized as an undetected manipulation. For the manipulated answers, each rating in T2 and T3 in the direction of the manipulated rating, with a significant difference from T1 was categorized as an attitude change. An attitude change across the midpoint of the axis was categorized as an attitude reversal. To measure the effect the two lengths of confabulation had on the attitude change, the total means between attitude changes in C1 and C2 was compared. Analysis and testing on the recorded data was mainly carried out using t-tests, as well as linear regression models. The method of analysis was chosen on account of the clarity and straightforward manner in which the results of these tests are presented.

All ratings in this section are stated in mm, in relation to a scale from 0 to 100. In total, 55 participants were assigned the condition C2 (detailed confabulation), and 38 participants were assigned the condition C1 (minimal amount of confabulation). An individual question will henceforth be denoted as a “trial”, a “NM-trial” (non-manipulated) is to be understood as a control question, and a “M-trial” is to be understood as a question manipulated in the interaction phase.

## 4 Results

### Differences in ratings (NM-trials)

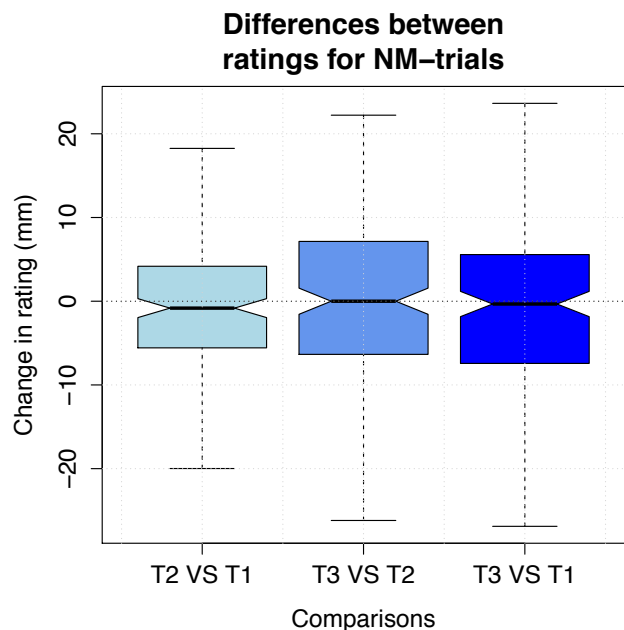
For the 186 NM-trials, the total difference in ratings between T1 and T2, T2 and T3, and between T1 and T3, were shown with t-tests not to be significant (T1 vs T2 ( $M_{diff} = -1.63$ , 95%  $CI [-4.11, 0.84]$ ,  $t_{129} = -1.30$ ,  $p = .579$ ,  $d = -0.11$ ), T2 vs T3 ( $M_{diff} = 0.62$ , 95%  $CI [-1.61, 2.86]$ ,  $t_{122} = 0.55$ ,  $p = .581$ ,  $d = 0.04$ ), T1 vs T3 ( $M_{diff} = -1.59$ , 95%  $CI [-4.33, 1.15]$ ,  $t_{122} = -1.14$ ,  $p = .579$ ,  $d = -0.10$ ). See Figure 3 for an illustration of these differences in ratings.

### Detections

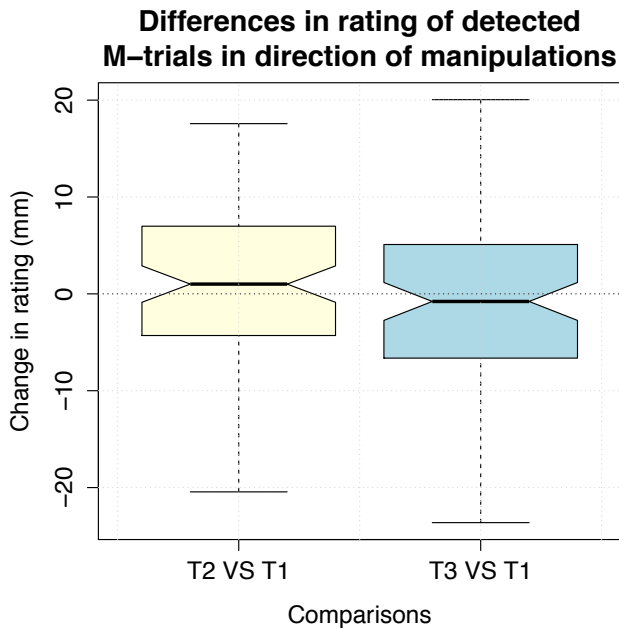
Out of all 186 M-trials, 90 (48%) were detected and corrected by the participants, resulting in 96 non-detected M-trials.

### Differences in ratings (detected M-trials)

For the detected M-trials, the difference in ratings in the direction of the manipulations (i.e. the change in attitude regarding a certain statement) between T1 and T2, and between T1 and T3, were not significant (T1 VS T2 ( $M_{diff} = 1.92$ , 95%  $CI [-0.75, 4.60]$ ,  $t_{89} = 1.42$ ,  $p = .092$ ,  $d = 0.15$ ), T1 VS T3



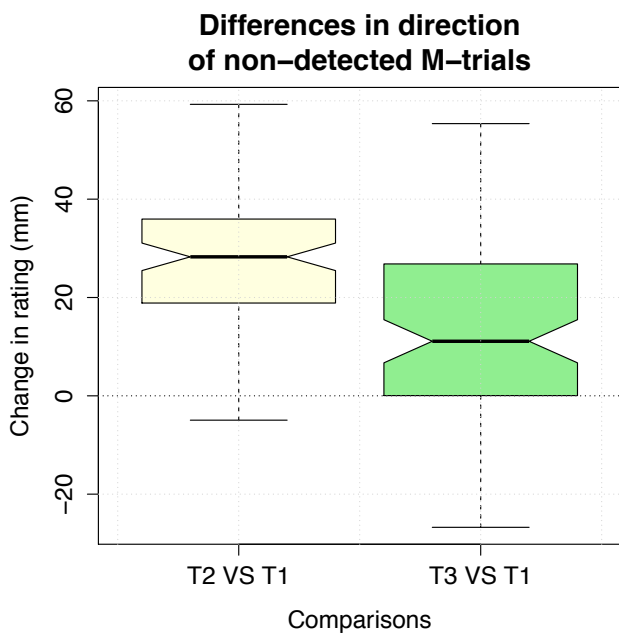
**Figure 3.** A box-and-whisker plot depicting the distributions of differences in ratings of NM-trials between the three times of rating (T1, T2, T3). The notches display a 95% confidence interval around the median.



**Figure 4.** A box-and-whisker plot depicting the change in ratings for detected M-trials in the direction of the manipulation. The box on the left illustrates the distribution of difference in ratings between T2 and T1, and the box on the right illustrates the distribution of differences in ratings between T3 and T1. The notches display a 95% confidence interval ( $M_{diff} = -0.23$ , 95% CI [-2.88, 2.40],  $t_{89} = -0.17$ ,  $p = .643$ ,  $d = -0.01$ ). This result is illustrated in Figure 4.

#### Differences in ratings (non-detected M-trials)

A t-test on the participants' ratings on the non-detected M-trials in T2 and T3 compared to the answers in T1 shows a significant movement in the direction of the manipulations (T2 VS T1 ( $M_{diff} = 26.05$ , 95% CI [22.25, 29.86],  $t_{92} = 13.59$ ,



**Figure 5.** A box-and-whisker plot depicting the differences in ratings for non-detected M-trials, in the direction of the manipulation. The box on the left illustrates the difference minutes after CB and the box on the right illustrates the difference still there a week later. The notches display a 95%

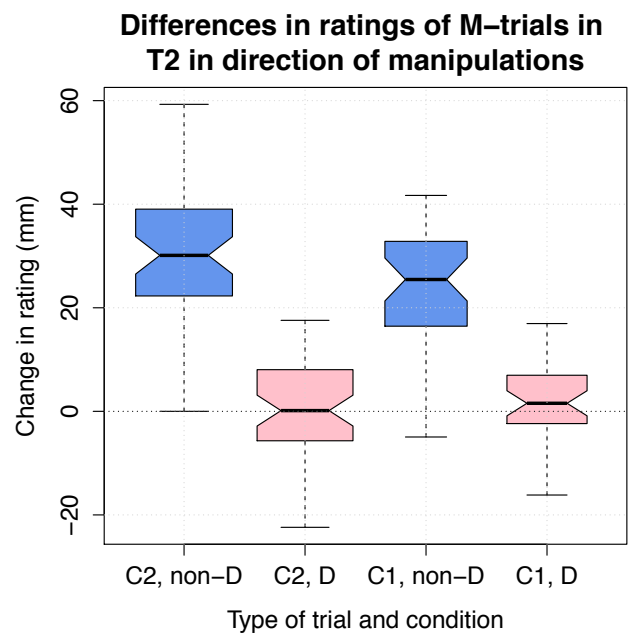
$p < .001$ ,  $d = 1.41$ ), T3 VS T1 ( $M_{diff} = 13.69$ , 95% CI [9.52, 17.87],  $t_{92} = 6.51$ ,  $p < .001$ ,  $d = 0.67$ )). A t-test between the difference in ratings between T1 and T2 for non-detected M-trials, and the difference in ratings between T3 and T1 for non-detected M-trials shows a significant difference ( $M_{diff} = 12.35$ , 95% CI [8.30, 16.41],  $t_{92} = 6.05$ ,  $p < .001$ ,  $d = 0.62$ ). This result is illustrated in Figure 5.

#### Effect of confabulatory condition

In order to assess the effect of confabulatory condition on the changes in ratings, a linear regression analysis was conducted examining the relationship between detection and experimental condition. One model was fit for the difference between T1 and T2, and another for the difference between T1 and T3.

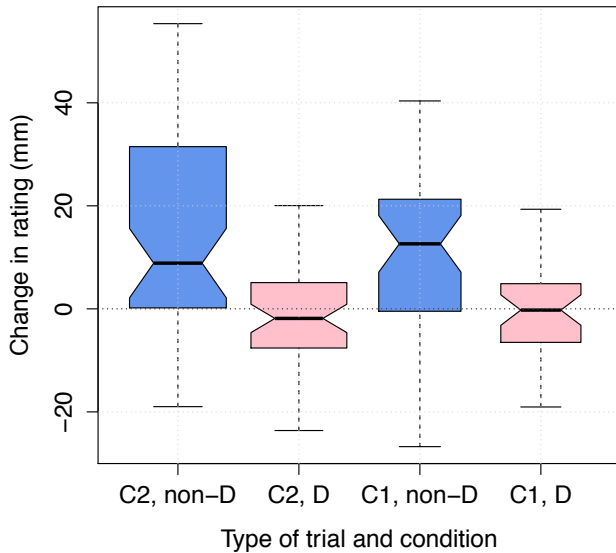
The first model provided a good overall fit to the data ( $Intercept = 24.55$ ,  $detection = -24.15$ ,  $condition C2 = 2.58$ ,  $F_{(2, 180)} = 53.07$ ,  $p < .001$ ,  $R^2 = .36$ ). A detected manipulation was shown to be a significant predictor of the difference in rating ( $b = -0.60$ ,  $SE = 2.35$ ,  $p < .001$ ), while condition was not ( $b = 0.06$ ,  $SE = 2.39$ ,  $p = .281$ ). The distributions of rating in T2 in the direction of undetected M-trials for can be seen in Figure 6.

The second model, examining differences between T1 and T3, provided a good overall fit to the data ( $Intercept = 13.14$ ,  $detection = -13.94$ ,  $condition C2 = 0.96$ ,  $F_{(2, 180)} = 15.44$ ,  $p < .001$ ,  $R^2 = .13$ ). As was found in the first model, a detected manipulation was shown to be a significant predictor of the difference in rating ( $b = -0.38$ ,  $SE = 2.51$ ,  $p < .001$ ), while condition was not ( $b = 0.02$ ,  $SE = 2.54$ ,  $p = .707$ ). The distributions of ratings in the direction of undetected M-trials can be seen in Figure 7.



**Figure 6.** A box-and-whisker plot depicting the distributions of rating in the direction of the manipulation for M-trials in T2. The blue (in grayscale: dark grey) boxes illustrate the rating distributions for non-detected trials, and the pink (in grayscale: light grey) boxes illustrate the rating distributions

### Differences in ratings of M-trials in T3 in direction of manipulations



**Figure 7.** A box-and-whisker plot depicting the distributions of rating in the direction of the manipulation for M-trials in T3. The blue (in grayscale: dark grey) boxes illustrate the rating distributions for non-detected trials, and the pink (in grayscale: light grey) boxes illustrate the rating distributions for detected trials. C1 and C2 corresponds to the confabulatory conditions. The notches display a 95% confidence

#### Confidence

Regarding the participants' confidence in their own attitudes, t-tests shows no significant difference in ratings for all trials between T1 and T2 ( $M_{diff} = -0.53$ , 95% CI [-2.54, 1.48],  $t_{370} = -0.51$ ,  $p = .604$ ,  $d = -0.02$ ), T2 and T3 ( $M_{diff} = 0.49$ , 95% CI [-1.29, 2.29],  $t_{371} = 0.54$ ,  $p = .585$ ,  $d = 0.02$ ), and between T1 and T3 ( $M_{diff} = -0.03$ , 95% CI [-2.12, 2.06],  $t_{370} = -0.02$ ,  $p = .977$ ,  $d = -0.001$ ).

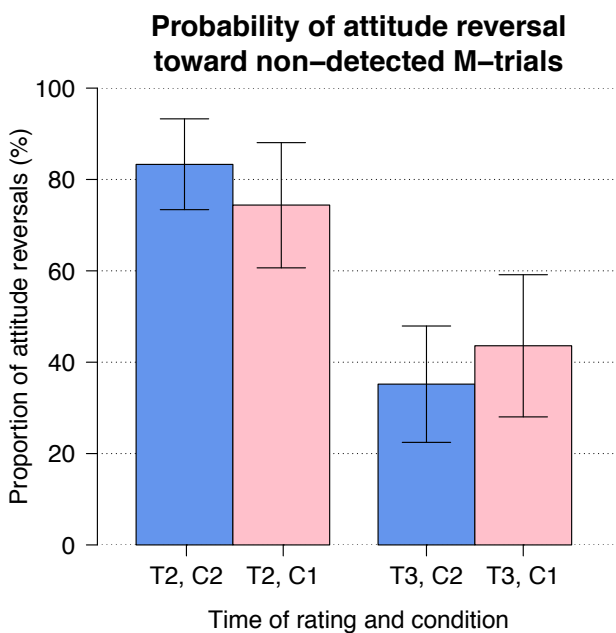
#### Attitude reversals

Attitude reversal was defined as ratings crossing the midpoint of the axis compared to the original (T1). In M-trials, attitude reversals were exhibited in 45% of T2 trials and in 25% of T3 trials. In T2 for C1, 8% of the ratings for detected M-trials were attitude reversals, and 74% of the ratings the undetected M-trials were attitude reversals. In T2 for C2, 11% of the ratings for detected M-trials were attitude reversals, and 83% of the ratings for non-detected M-trials were attitude reversals (A Welch Two Sample t-test between these groups:  $M_{diff} = 0.72$ , 95% CI [0.58, 0.85],  $t_{102.922} = 10.67$ ,  $p < .001$ ,  $d = 2.06$ ). Subdividing the M-trials into detected and non-detected, in T2 for both C1 and C2, 79% of the ratings for undetected M-trials were attitude reversals. In T3 for C1, 10% of the ratings for detected M-trials were attitude reversals, and 43% of ratings for the undetected M-trials were attitude reversals. In T3 for C2, 11% of ratings for detected M-trials were attitude reversals, while 35% of ratings for undetected M-trials were attitude reversals. In T3 for both C1 and C2, 38% of the ratings for undetected M-trials were attitude reversals. A proportions test on the ratings for undetected M-trials between T2 in C1 and T2 in C2 shows no significant difference in the probabilities of attitude reversal between the two conditions ( $prop 1 = 0.74$ ,  $prop 2 = 0.83$ , 95% CI [-0.28, 0.10],  $X^2 = 0.63$ ,  $p = .424$ ). Neither does a proportions test on the ratings for the undetected manipulated trials between T3 in C1 and T3 in C2, ( $prop 1 = 0.43$ ,  $prop 2 = 0.35$ , 95% CI [-0.13, 0.30],  $X^2 = 0.36$ ,  $p = .544$ ). The difference between these proportions can be seen in Figure 8.

## 5 Discussion

The design of the current study was very similar to previous studies within the CB paradigm (Hall, Johansson & Strandberg, 2012; Hall et al., 2013; Taya et al., 2014) with the intention that the data can be analysed and understood in the light of previous findings. When analysing the result of the main experiment of this thesis, four notable findings becomes apparent.

The first finding is that the CB paradigm can be used to induce a significant attitude change regarding specific political issues of high saliency within the same session as a CB manipulation. This finding is in line with what previous research in the field has found (Johansson et al., 2014; Taya et al., 2014; Pärnamets et al., 2015b). For the answers to the undetected manipulated trials in the first post-CB rating (T2), there was a substantial significant movement (26 mm) of the X in the direction of the manipulated answers. Compared to in the first rating (T1), 78% of these answers were placed on the opposite side of the axis. For the non-manipulated trials, the proportion of attitude reversals was 12%. These results provide further strong support for longevity of choice induced attitudes, as well as the validity of using the CB paradigm as a mean to influence and change people's attitudes regarding highly salient questions. In light of theories of decision-making, the results provide support both for theories adhering to economic, as well as to a constructivist approaches, since 22% of the answers to previously undetected manipulated questions in T2 still ended up on the



**Figure 8.** A bar chart depicting the proportions of attitude reversals for each rating (T2, T3) and for each condition (C1, C2). The whiskers illustrate a 95% confidence interval.

original side of the axis. This could of course be explained by a number of factors, such as that some participants noticed a manipulation but did not bother to correct it, or that some participants did not understand how the axis worked. This is, however, always a possible confound, but one inherent in all empirical research reliant on interactions with people, and not specific to the CB paradigm.

The second, and indeed the most notable finding is that the effect induced by CB and measured within the same session as the manipulation, is still present and significant a week later. Although the total mean in ratings of previously undetected manipulated questions was 11 mm less than in the post-CB rating a week before, the result is still significant, with 36% of the undetected M-trials still being attitude reversals.

This result stands in contrast to the one measured in Taya et al. (2014), where no lasting preference change could be found. As to the reasons of these different results, one can think of a number of possible explanations. One possibility could be that there is an underlying difference in the nature of facial preference compared to political attitudes. However, there is no reason to assume that we for example would hold stronger attitudes toward faces than we do in politics. On the contrary, it is probably more reasonable to suppose that people hold stronger and more deeply rooted attitudes regarding salient political issues than they do towards faces of unknown individuals. An alternative possibility could be that it is much easier to subconsciously construct a coherent and convincing confabulation regarding a face, since a picture of a face is much more information-packed than a political statement, and thus this superior confabulation would result in a stronger attitude. This explanation assumes that we subconsciously construct confabulatory justifications, even if not verbally expressed, and would be hard to disprove. What is most likely however, and as stated in the introduction, is that Taya et al. (2014) did not find any effects due to the fact that they debriefed their participants prior to the last rating.

The results found in the ratings in T3 provide strong support for the existence and longevity of attitudes induced through choice, and for the validity of using the CB paradigm to influence and change peoples attitudes. The results also support the notion that the effects observed in the CB paradigm is not only an artefact inherent to the paradigm, raised by confusion or indifference within the participants regarding their own choice, but rather that these effects are real and lasting. These insights can open up for usage of the CB paradigm outside the laboratory to practical applications in for example therapeutic and commercial purposes.

The third finding is that no significant effect between the post-CB ratings and the confabulation conditions was recorded. There are three possible explanations for this finding. The first explanation is that the strengthening effects of time spent thinking about an issue is not applicable to verbal reasoning as well, contrary to the conclusion drawn in the introduction from the work of Petty and Cacioppo, (1986), Petty, Briñol, and Tormala (2002), and by Clarkson, Tormala, and Leone (2011). If this happens to be true, it would lead to questions regarding the essential difference between silent reasoning and verbal reason. The second possibility is that

there was some kind of flaw in the experiment that passed by unnoticed. One possible flaw could be that there was not enough difference between the two confabulation conditions to produce different effects. The third possible explanation is as simple as that not enough participants in the condition of minimal confabulation to provide a reliable result. However, in light of the results of this study, it seems that the length of confabulation does not influence the strength of a CB induced attitudes.

The fourth finding, not surprising in light of the finding just mentioned above, is that there was no significant difference in the participants' rating of their own confidence in manipulated questions, both detected and undetected. Following Clarkson, Tormala, and Leone (2011), there should have been an increase in confidence for participants who were allowed long confabulation, since only one participant spent more than 300 s on confabulations for a single question. Following from the same prediction, there should have been a decrease in confidence for the participants who were only allowed the minimal confabulation length. One possible explanation for this could be that the participants did not fully grasp the point of the confidence axis.

### *General discussion*

What the first two findings tells us is that choices can induce drastic changes in peoples' preferences. By showing this without directly influencing the participants' preferences (only their choices), the objection raised by Chen and Risen (2010) has been further rejected. This objection stated that what the FPC produced was not a real change in preferences, only a way to make visible already existing attitudes. Since Johansson et al. (2014) made it clear that CB can be seen as an updated version of the FCP, the fact that CB in the present study has been shown to induce preference reversals, this objection becomes even more unbelievable.

Hall et al. (2013) managed to, in a study similar to the current one, induce a remarkable change in voting intention of the participants, but not a reversal regarding specific issues. By making visible that choice can change preferences for something as charged as highly salient specific political issues provides more evidence that choices can have a dramatic forming or altering effect on preferences and future choices. For half the undetected M trials in the present study, the participants consolidate these newly formed or altered preferences, and express them a week later. This finding provides strong support for the constructivist view (Slovic, 1995), which states that preferences are formed or altered in a specific task in a specific context, which in the present study would be during the interaction phase. There is a popular belief regarding the nature of preferences, which states that preferences are formed both in a specific context, as well as them something we carry with us (Hoeffler & Ariely, 1999; Fischhoff, 1991). This view is supported by the common sense notion that we both can discern a pattern in our own and others behaviour, as well as that we and others have been known from time to time to change our minds. The finding in the current study that the participants overall were consistent in their choices does not, however, support the view that preferences are something we have over extended

periods of time (Slovic, 1995). This could as easily be explained by theories of self-perception, albeit an unconscious one. The fact that we act in an expected way in a certain situation could be explained by good recollection of how we previously acted in a similar situation.

Apart from elucidating the power perceived choices can have on future choices and preferences, the current study has shown that, in contrast to Taya et al. (2014), CB can be applied to induce attitude change. Previous studies of choice induced preference change not using CB have shown preference reinforcement, rather than preference reversal. In showing that choice can induce temporally lasting preference reversals, the power of choice induced attitude change and FCP is shown to be even stronger than previously known. This study itself provides the first recorded evidence that the effects elicited by the CB paradigm has a temporal persistence. It is also the first study to provide evidence that choice can induce a lasting preference reversal.

### *Limitations*

For the present study, two limitations can be construed as having a large enough impact on the recorded data to warrant a discussion. These have to do with participants' knowledge of the CB paradigm itself, and a flaw in the experiment.

What seems plausible, and indeed has been noted previously in regards to Taya et al. (2014), is that knowledge of the CB paradigm and awareness that manipulations of one's attitudes has taken place, should influence the effect an undetected manipulation has on one's attitudes. Since no time was available to study the veracity of the previous statement, this is also the biggest possible confound of the present study. The fact that the participants were recruited at the LUX building, sometimes in groups, inevitably lead to the participants discussing their experiences of the first session of the experiment at some time between the two sessions. A possible scenario could be that one participant who detected the manipulations asked other participants who did not detect the manipulations if their X's also moved around, which could in turn lead to a higher rate of retrospective detection. This confound was not controlled for in this study since no possible way to do it was conceived. However, this confound is not thought to have any effect on the reliability of the recorded data, only on the effect the manipulations and treatments had on the attitude measured in T3. Since an effect still was found in T3, there is reason to suppose that when able to control for this confound, the recorded effect of the manipulation should be even stronger.

The second limitation, and the one with the largest impact on the recorded data and its reliability, really is more of a flaw in the experiment that went unnoticed through the entire experimental design process. This flaw becomes evident when reviewing the audio recordings of the confabulations. Apparently, and in retrospect not surprisingly, people are not very good at giving a precise estimations in per cents as to where an X is drawn on an unlabelled horizontal axis, resulting in their estimations sometimes being off by more than 10 per cent. Consequently, the participants will base their argumentation justifying their X on where on the scale they estimate their X to be, not where it in fact is. Therefore, one can

argue that the comparison in the analysis should have been between where the participants put their X in T2 and T3, and between where they believed they put it during the interaction phase. If this analysis would have yielded a very different result is unclear, since it is uncertain whether the choices the participants make in T2 and T3 are mostly influenced by their own verbal reports or by their recollection of the position of the X they encounter in the interaction phase. Due to, and in light of this limitation or flaw, the result presented above is possibly not as fair or accurate as it could have been.

## **6 Conclusion and future investigations**

In this thesis, it has been shown that choices have the power to induce temporally lasting attitude reversals. It has also been shown that the Choice Blindness paradigm are able to induce a lasting political attitude change. This is the first recorded evidence in support of the CB paradigm possessing this capability. Knowledge of this capability not only support the notion that the effects recorded in a CB setting are something else than just an artefact of the experimental paradigm in itself, it opens up for meaningful use of CB in previously unexplored areas of research.

There are many possible objects for future investigation in light of the results presented above. The most obvious one would be to carry out an extended replication of the main experiment for this thesis, in which the delay between session 1 and session 2 should be longer than 7 days, to find if there is some temporal limit for the manipulations. This would make it possible to see if all manipulated attitudes eventually fade away, or if some stick, and in the case of some attitudes sticking, conduct further investigations into possible reasons for this.

Another interesting object for future research would be to investigate the effect participants' knowledge of possible manipulations has on temporal attitude change in CB. These effects are not obvious if one looks at advertising as a way to manipulate people. It is well known that the expected effect of advertising is to change the behaviour of those exposed to it, but it still works. So the question remain to what extent CB induced attitude change can be expected to work on people with knowledge of the paradigm itself.

A third possible, and highly interesting, object of future investigation would be to conduct a study directed towards trying to find transferability between answers to singular statements regarding one area of interest and some kind of measure regarding attitudes toward this area as a whole. One could then perform CB on these singular statements to find if this would result in an attitude change toward the whole area.

Lastly, in order to further validate the findings of this study, one could construct an experiment in which the effect of choice on attitude change is more clearly separated from the effect of confabulation. This experiment should incorporate a control group in which no participants are exposed to a CB manipulation. Instead, during the interaction phase, this group should get to argue for what they did not chose. If this would not produce an attitude change, there is even stronger reason to believe that choice indeed can induce lasting attitude change.



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## APPENDIX A

Stimuli statements used in Pilot 2. Below each statement is a translation of the statement to English.

Huruvida specialistsjukvården bör förstatligas är en viktig fråga.

“Whether specialist medical care should be nationalized is an important question”

En eventuell återförstatling av skolan är en viktig fråga.

“A possible re-nationalization of the school is an important question”

Fridlysandet av rödlistade djurarter, såsom ål och rödspätta, är en viktig fråga.

“Protection by law of redlisted species, such as eel and plaice, is an important question”

Lämplighetsbedömningen av personal inom sjukvård och hemtjänst är en viktig fråga.

“Susability assessments of staff in medical care and home care is an important question”

En utvärdering av det fria skolvalet är en viktig fråga.

“An evaluation of the free school choice is an important question”

Subventionering av energisnåla vitvaror är en viktig fråga.

“Subsidization of energy efficient kitchen appliances is an important question”

Tandvårdens relation till den allmänna sjukvården är en viktig fråga.

“The dental care’s relation to the universal medical care is an important question”

Läxhjälp hemma för alla grundskoleelever är en viktig fråga.

“Help with homework for all elementary school pupils is an important question”

Bensinskatten är en viktig fråga.

“The gasoline tax is an important question”

Lönenivån för sjuksköterskor är en viktig fråga.

“The wage level for nurses is an important question”

Läroutbildningarnas struktur och kvalitet är en viktig fråga.

“The structure and quality of the teacher education is an important question”

Statlig subvention av miljöfordon är en viktig fråga.

“State subsidises of green vehicles is an important question”

## APPENDIX B

Stimuli statements used in the choice blindness pilot and in the main experiment. Below each statement is a translation of the statement to English. Statements written in italics were used as target statements for manipulations in the main experiment.

*Staten bör subventionera inköp av moderna och mer energieffektiva vitvaror. Dessa subventioner skulle finansieras av en punktskatt på föråldrad och ur energisynpunkt ineffektiv teknik.*

*“The government should subsidize purchases of energy efficient major household appliances. These subsidies would be financed by an excise on out-dated and from an energy consumption perspective ineffective technology”*

För att bibehålla den ekologiska mångfalden bör arter som rödlistas i samarbete med Internationella naturvårdsunionen (exempelvis ål, torsk, varg och kronhjort) fridlysas.

“In order to maintain the ecological diversity should species redlisted in collaboration with the International Union for Conservation of Nature be protected by law”

Sverige bör likt Norge införa fler ekonomiska och praktiska förmåner, exempelvis reducering av moms och trängselavgift, för personer som väljer att investera i el- och miljöbilar. Dessa förmåner kan finansieras av högre bensinskatt, samt högre skatt och moms på bilar som inte uppnår de utsläppsmål som krävs för att klassas som miljöbil.

“Sweden should, like Norway, introduce more economic and practical benefits, for example reduction of VAT and congestion tax, for people who chooses to invest in electric and green vehicles. These benefits can be financed by higher gasoline tax, as well as higher tax and VAT on vehicles which does not reach the emission goals required to be classified as a green vehicle”

*Bensinskatten för privatpersoner bör baseras på folkbokföringsadress. För en person som exempelvis bor i en större stad med väl utbyggd kollektivtrafik (och således inte är lika beroende av bil) bör bensinskatten vara högre än för någon som bor på landsbygden. Detta bör inte inkludera företag i storstadsområden som är beroende av motorfordon.*

*“Gasoline tax for individual citizens should be based registered address. For a person who for instance lives in a larger city with a well-developed system for public transportation (and thus is not that dependent on a car), the gasoline tax should be higher than for a person who lives in a rural area. This should not include businesses in metropolitan areas that are dependent on motor vehicles”*

För att garantera likvärdig vård över hela landet bör specialistsjukvården förstatligas istället för att drivas av de enskilda landstingen. Många mindre inrättningar skulle kunna stängas för att göra det enklare för vården att styras centralt, vilket också skulle resultera i färre, mer kraftfulla specialistvårdinrättningar med högre kapacitet.

“In order to guarantee equal care across the whole country, specialist medical care should be nationalized instead of being run by local authorities. A lot of smaller establishments could shut down in order to make it easier for the care to be run centrally, which in turn would result in fewer, more powerful specialist care establishments with higher capacity”

Tandvård bör vara fortsatt fristående från den allmänna sjukvården, förutsatt att högkostnadsskyddet sänks.

“Dental care should continues to be independent of universal health care, provided that the cost ceiling is lowered”

Istället för att höja alla sjuksköterskors lön med en viss summa bör denna yrkesgrupp få en lagstadgad försäkran om en mer gynnsam löneutveckling över tid.

“Instead of raising all nurses pay a certain sum should this profession get a statutory declaration of a more favourable wage raise over time”

Lämplighetsbedömningar i form av intervjuer och personlighetstest för att undersöka empatisk förmåga och genuint intresse av omvårdnad bör vara obligatoriskt vid tillsättandet av tjänster inom sjukvård och hemtjänst.

“Suitability assessments in the form of interviews and personality tests in order to evaluate empathy and a genuine interest in nursing should be mandatory in appointments of services in health care and home care”

*Den svenska grundskolan bör återförstatligas. Förutom att kommunerna skulle mista mycket, men inte allt, inflytande innebär ett återförstatligande att staten blir huvudman för skolan och övertar ansvaret för resursanslag, resurstilldelning och kvalitetsuppföljning.*

*“The Swedish elementary school should be re-nationalized. Apart from the fact that local municipalities would lose much, albeit not all, influence, a re-nationalization would mean that the state becomes head of the school and assumes the responsibility for resource allocation and quality assurance”*

*Läxhjälp efter skoltid bör erbjudas av alla skolor och vara gratis för alla grundskoleelever oavsett skolresultat och familjesituation.*

*“Help with homework after school hours should be offered by all schools and be free for all elementary school students, irrespective of school results and family situation”*

Det fria skolvalet bör begränsas till att endast kunna utnyttjas av elever som söker sig till utbildningar som inte erbjuds inom pendlingsavstånd från deras hemort.

“The free school choice should be limited only to be utilized by students applying to educations not offered within a commuting distance from their home town”

Istället för höga lärarlöner är det framförallt andra egenskaper såsom kompetens, engagemang och personlig lämplighet som skapar förutsättningar för en framgångsrik grundskola. Genom att fokusera på dessa faktorer istället för en höjning av lärarlöner upptäcks och anställs bra lärare istället för personer som kan tänka sig att arbeta som lärare på grund av ekonomiskt intresse.

“Instead of high salaries for teachers, factors such as competence, commitment, and personal suitability are the main conditions for creating a successful elementary school. By focusing on these factors instead of on raising salaries, good teachers will be discovered and hired, instead of people who can imagine working as a teacher because of economic interest”

## APPENDIX C

The two types of surveys (S1 and S2) used for post-CB ratings.

**Sätt ett kryss på linjen som motsvarar hur du förhåller dig till frågan såväl som hur säker du är på din egen åsikt.**

Grundskolebetyg från årskurs 4 är ett bra sätt att i god tid fånga upp elever som inte uppnår lärandemålen. Förutom att ge eleverna ett incitament att göra sitt bästa skulle dessa betyg också göra det lättare för lärare att kunna tillsätta extraåtgärder i syfte att hjälpa elever som inte uppnår målen.

Håller inte [0%] \_\_\_\_\_ [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] \_\_\_\_\_ [100%] Extremt  
osäker säker

Alla nyförlösta kvinnor bör få lov att stanna kvar på BB i tre nätter efter förlossningen. Till skillnad från hur det ser ut på många ställen runt om i landet bör även partnern bli erbjuden kostnadsfri övernattnings i samma rum.

Håller inte [0%] \_\_\_\_\_ [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] \_\_\_\_\_ [100%] Extremt  
osäker säker

Den svenska grundskolan bör återförstatligas. Förutom att kommunerna skulle mista mycket, men inte allt, inflytande innebär ett återförstatligande att staten blir huvudman för skolan och övertar ansvaret för resursanslag, resurstilldelning och kvalitetsuppföljning.

Håller inte [0%] \_\_\_\_\_ [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] \_\_\_\_\_ [100%] Extremt  
osäker säker

Varje år används uppemot en miljon försöksdjur i Sverige. Bland annat i syfte att testa eventuella hälsorisker hos nyproducerade läkemedel, tvättmedel och rengöringsprodukter. På grund av etiska skäl bör alla försök på djur upphöra och ersättas med djurfria alternativ.

Håller inte [0%] ————— [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] ————— [100%] Extremt  
osäker säker

Tandvård bör vara fortsatt fristående från den allmänna sjukvården, förutsatt att högkostnadsskyddet sänks.

Håller inte [0%] ————— [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] ————— [100%] Extremt  
osäker säker

Läxhjälp efter skoltid bör erbjudas av alla skolor och vara gratis för alla grundskoleelever oavsett skolresultat och familjesituation.

Håller inte [0%] ————— [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] ————— [100%] Extremt  
osäker säker

Staten bör subventionera inköp av moderna och mer energieffektiva vitvaror. Dessa subventioner skulle finansieras av en punktskatt på föråldrad och ur energisynpunkt ineffektiv teknik.

Håller inte [0%] ————— [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] ————— [100%] Extremt  
osäker säker

Staten bör erbjuda friskvårdsbidrag till alla svenska medborgare. Detta friskvårdsbidrag ska täcka 80 % av kostanden för motions- och friskvårdsaktiviteter, till ett maxbelopp av 2000 kronor per år.

Håller inte [0%] ————— [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] ————— [100%] Extremt  
osäker säker

Alla skolor, sjukhus och vårdhem i Sverige bör endast erbjuda ekologiskt framställd mat. Utöver detta bör denna mat i så hög utsträckning som möjligt vara producerad i närheten av var den serveras.

Håller inte [0%] ————— [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] ————— [100%] Extremt  
osäker säker

Bensinskatten för privatpersoner bör baseras på folkbokföringsadress. För en person som exempelvis bor i en större stad med väl utbyggd kollektivtrafik (och således inte är lika beroende av bil) bör bensinskatten vara högre än för någon som bor på landsbygden. Detta bör inte inkludera företag i storstadsområden som är beroende av motorfordon.

Håller inte [0%] ————— [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] ————— [100%] Extremt  
osäker säker

Sverige bör införa grundläggande programmering som en obligatorisk del av läroplanen i grundskolan. Förutom att detta skulle hjälpa unga individer att utveckla ett datalogiskt tänkande och strukturerat arbetssätt skulle det även förhoppningsvis hjälpa till att skapa en jämnare könsfördelning i IT-sektorn.

Håller inte [0%] ————— [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] ————— [100%] Extremt  
osäker säker



För att garantera likvärdig vård över hela landet bör specialistsjukvården förstatligas istället för att drivas av de enskilda landstingen. Många mindre inrättningar skulle kunna stängas för att göra det enklare för vården att styras centralt, vilket också skulle resultera i färre, mer kraftfulla specialistvårdinrättningar med högre kapacitet.

Håller inte  
alls med [0%] ————— [100%] Håller  
helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt  
osäker [0%] ————— [100%] Extremt  
säker

**Sätt ett kryss på linjen som motsvarar hur du förhåller dig till frågan såväl som hur säker du är på din egen åsikt.**

Staten bör erbjuda friskvårdsbidrag till alla svenska medborgare. Detta friskvårdsbidrag ska täcka 80 % av kostanden för motions- och friskvårdsaktiviteter, till ett maxbelopp av 2000 kronor per år.

Håller inte [0%] \_\_\_\_\_ [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] \_\_\_\_\_ [100%] Extremt  
osäker säker

Alla skolor, sjukhus och vårdhem i Sverige bör endast erbjuda ekologiskt framställd mat. Utöver detta bör denna mat i så hög utsträckning som möjligt vara producerad i närheten av var den serveras.

Håller inte [0%] \_\_\_\_\_ [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] \_\_\_\_\_ [100%] Extremt  
osäker säker

Läxhjälp efter skoltid bör erbjudas av alla skolor och vara gratis för alla grundskoleelever oavsett skolresultat och familjesituation.

Håller inte [0%] \_\_\_\_\_ [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] \_\_\_\_\_ [100%] Extremt  
osäker säker

Alla nyförlösta kvinnor bör få lov att stanna kvar på BB i tre nätter efter förlossningen. Till skillnad från hur det ser ut på många ställen runt om i landet bör även partnern bli erbjuden kostnadsfri övernattnings i samma rum.

Håller inte [0%] \_\_\_\_\_ [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] \_\_\_\_\_ [100%] Extremt  
osäker säker

Staten bör subventionera inköp av moderna och mer energieffektiva vitvaror. Dessa subventioner skulle finansieras av en punktskatt på föråldrad och ur energisynpunkt ineffektiv teknik.

Håller inte [0%] ————— [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] ————— [100%] Extremt  
osäker säker

Sverige bör införa grundläggande programmering som en obligatorisk del av läroplanen i grundskolan. Förutom att detta skulle hjälpa unga individer att utveckla ett datalogiskt tänkande och strukturerat arbetssätt skulle det även förhoppningsvis hjälpa till att skapa en jämnare könsfördelning i IT-sektorn.

Håller inte [0%] ————— [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] ————— [100%] Extremt  
osäker säker

För att garantera likvärdig vård över hela landet bör specialistsjukvården förstatligas istället för att drivas av de enskilda landstingen. Många mindre inrättningar skulle kunna stängas för att göra det enklare för vården att styras centralt, vilket också skulle resultera i färre, mer kraftfulla specialistvårdinrättningar med högre kapacitet.

Håller inte [0%] ————— [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] ————— [100%] Extremt  
osäker säker

Bensinskatten för privatpersoner bör baseras på folkbokföringsadress. För en person som exempelvis bor i en större stad med väl utbyggd kollektivtrafik (och således inte är lika beroende av bil) bör bensinskatten vara högre än för någon som bor på landsbygden. Detta bör inte inkludera företag i storstadsområden som är beroende av motorfordon.

Håller inte [0%] ————— [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] ————— [100%] Extremt  
osäker säker

Varje år används uppemot en miljon försöksdjur i Sverige. Bland annat i syfte att testa eventuella hälsorisker hos nyproducerade läkemedel, tvättmedel och rengöringsprodukter. På grund av etiska skäl bör alla försök på djur upphöra och ersättas med djurfria alternativ.

Håller inte [0%] ————— [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] ————— [100%] Extremt  
osäker säker

Den svenska grundskolan bör återförstatligas. Förutom att kommunerna skulle mista mycket, men inte allt, inflytande innebär ett återförstatligande att staten blir huvudman för skolan och övertar ansvaret för resursanslag, resurstilldelning och kvalitetsuppföljning.

Håller inte [0%] ————— [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] ————— [100%] Extremt  
osäker säker

Tandvård bör vara fortsatt fristående från den allmänna sjukvården, förutsatt att högkostnadsskyddet sänks.

Håller inte [0%] ————— [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] ————— [100%] Extremt  
osäker säker

Grundskolebetyg från årskurs 4 är ett bra sätt att i god tid fånga upp elever som inte uppnår lärandemålen. Förutom att ge eleverna ett incitament att göra sitt bästa skulle dessa betyg också göra det lättare för lärare att kunna tillsätta extraåtgärder i syfte att hjälpa elever som inte uppnår målen.

Håller inte [0%] ————— [100%] Håller  
alls med helt med

Hur säker känner du dig på din åsikt i den här frågan?

Extremt [0%] ————— [100%] Extremt  
osäker säker