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Confirmation Biases and Emotional Probabilities

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ABSTRACT

This paper focuses on the idea of belief forming, and how it relates to subjective interpretations of evidence regarding everyday theories. Hypotheses with an emotional attachment may undermine our ability to recognize confirmation biases within closely held beliefs. Should we allow ourselves to do so, the subjective origin of our beliefs can be acknowledged to recognize confirmation biases within certain settings. To point this out is to acknowledge we possess the casual explanation for believing what we believe to be true based upon what is best available to us. To adjust this, we must understand the root causes of our own subjective biases. We will work around this issue by adhering to other probable theories first, before asserting that our beliefs are the best available. To do this, I will first introduce Kahneman's (2011) distinction between system types, followed by a psychological experiment involving teaching methods (Allen and Coole 2012), and then discuss the issue between Feldman and Cohen (2001) regarding context sensitivity. The conclusion of this paper will be in favor of searching for more probable theories before we assert our beliefs, thus, eliminating the need of a casual explanation for the availability of belief forming. Thereby recognizing that emotional attachments have a direct impact on confirmation biases within our subjective origin. Being made aware of this will provide more truthlike theories to be available than what we previously had access to.

I. INTRODUCTION

When one finds themselves deciding between rival theories regarding beliefs, we assume that emotion played a role in the acceptance of that belief. In most cases, strongly held beliefs are closely related and justified under our emotional attachments. Although our beliefs are not always accurate, they are reliable enough to confirm a subjective opinion to hold. Scientific researchers and a person that has, we will say, "everyday knowledge," comparatively reason in similar modes of theory testing. They differ in the resources and methods available to know if their theory is best fit to hold. It is unlikely a person with everyday knowledge will have the necessary means to test their theories in the same methodical way a scientific researcher would. In most cases, a person with everyday knowledge does not have access to the resources or knowledge available to claim their theory is the best available. As one with everyday knowledge would easily admit they are not an expert in a certain field, and pass this off as not knowing something. In a scientific environment, whether the hypothesis is of a subjective or objective origin, we believe the scientist who created the hypothesis did their best to not use their own bias to formulate the theory.[1] It may be argued acceptance and formation of a hypothesis both adhere to some type of bias, but a well formulated scientific hypothesis must face the challenge of crucial tests to prove its fitness. Everyday beliefs do not rest upon being critically analyzed by a scientific researcher but can still play a role in being socially accepted within a group of peers. Since scientific research is best left up to those in the field of theory testing, I will be focusing on everyday knowledge, opposed to scientific theory in this paper, as the framework concerning confirmation biases.

II. CONFIRMATION BIASES

Confirmation bias is the tendency to interpret new evidence as confirmation of one's currently existing beliefs. If one is not previously aware of a better available theory, then one is more likely to believe their theory is the best available. Personal beliefs can disrupt the ability to be open to other possible solutions should new evidence become available. As it can be understood, proof of new evidence that

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1. We should assume that scientists are able to look at all the best available theories, because they are more readily available and knowledgeable when one goes into a scientific field.

forces one to alter their prior beliefs can be disorienting. Reacting towards this new information may be met with criticism and strong feelings of emotion, as opinions can react before adhering to other reasonable possibilities. For everyday problems, our beliefs are typically strongly self-biased. This can lead one into forming a confirmation bias towards certain kinds of evidence. Thereby limiting the types of opinion one can hold for that matter.

Confirmation bias may interfere with reasoning by not giving another person merit to their point of view, should one feel their beliefs are being threatened. These biases can range from age, sex, race, political party, religion, or any previously held stereotypes towards a group of people. We can acknowledge that stereotypes exist, as knowledge of them existing does not make a person who knows this one who stereotypes, because one understands that it is not always the case that a belief is biased due to a stereotype being present. This simply provides an additional level of understanding.[2] There is a tendency in this self-reliant mode of reasoning to internalize the hypothesis that our beliefs are the best we have available. While this can produce a boost of confidence in our assertions, if we instead consider more probable theories first, or at least entertain the idea of there being more, the dependency to rely upon our self-reliant bias decreases, thus, increasing a potential for more truthlike beliefs. I want to show that by searching for more probable theories first, i.e. not counting on your theory to be the best available, we can eliminate this type of self-reliant confirmation bias. Based on the grounds that we know there are more truthlike theories available than what we have access to in our limited everyday situations.

Our own beliefs may be true in some cases, along with the further belief of how often we believe we get our beliefs correct, but this is the same type of confirmation bias that is reliant upon the tendency to accept that our beliefs are the best available (Fitelson 2012, 85-88). Thereby affirming that for any belief to be truthlike it must first go through the process of our own subjective origin.[3] This notion falls under the additional tendency to rely upon the belief that we possess the ability to spot the best available theory. To claim this would be to accept that our own beliefs are the best we have available, because we are not

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2. To even mention the word "stereotype" makes it near impossible not to talk about the kinds of stereotyping, but this issue of simply mentioning a word will be looked at more in depth later.

3. It is hard to determine how each person does this, as it is likely we all possess different limits and criteria for our subjective origin.

in the position of another point of view. There is no way to disprove a hypothesis such as this that takes the position of affirming its own superiority. The problem we now face is finding supporting evidence that a belief is solely dependent on misguiding our emotions to push off any rational explanations anyone else may have. I will show throughout the rest of this paper how confirmation biases that have a strong attachment to well-guarded beliefs only need to be emotionally triggered to confirm a hypothesis. Thereby overriding any previous subjective possibilities, one may have.

III. THE TWO SYSTEMS

In this next section I will focus on the different systems of thinking Kahneman (2011) provides concerning the formation and acceptance of a belief. If we can show that objective probabilities can be confirmed without the reliance upon a strongly held belief, then confirmation biases are simply the product of our subjective emotional responses.[4] If we adhere to other probable beliefs first, while understanding a hypothesis may be emotionally charged, we can better align our beliefs towards more truthlike hypotheses. Which should be the goal we are trying to achieve if one is a proponent of believing more truthlike theories. The contrary appeal to beliefs before subjective probabilities allows a hypothesis with a strong emotional attachment to overpower any rational theory. The question we should now ask is this: Why do we have this tendency to affirm an emotionally superior hypothesis even when we know it is self-reliant upon its emotional attachment? It is not uncommon to say "human nature" provides an adequate explanation, but I believe Kahneman (2011) provides us with a better way of explaining why this occurs. He separates the mind as two different systems of thinking: as system 1 and system 2. He describes system 1 as being responsible for quicker, more emotional responses, while system 2 is slower and more reliant upon logical interpretations. We can use this as a base to show that reasons to hold certain beliefs can be doubted, as Descartes may add, even "my own mind can be doubted." However, I would argue this kind of theory Descartes is known for is prone to inflict a certain emotional response on the individual. If the idea is provoked under the guidance of system 1, then a belief (for example) such as nihilism carries with it an emotional

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4. It may be the case that an objective probability like winning the lottery has a subjective pull on the individual's tendency to gamble, but this does not change the odds of the lottery.

attachment that insinuates one must give up all beliefs. A proponent of system 2 may be more skeptical of the origins surrounding its appeal and reasons for accepting a belief such as nihilism. This is a problem, because when we have a well-formed hypothesis, once we accept it, the willingness to change theories decreases under both systems. If the willingness to change theories decreases enough into a firmly held belief, this may fall into the trap of confirmation biases. If there is any correlation to be found between accepting a hypothesis and strongly elicited emotions, the potential for an ulterior motive increases in these cases, as any new evidence will support both rival theories to be more truthlike under the scope of their confirmation bias. Simply hearing the word, "nihilism" may inflict a quicker response time for a person dependent on system 1 as guiding their responses, because emotion plays an important role in this mode of belief forming. If an emotionally charged theory succeeds in its emotional drive, its effect then becomes a matter of reasoning in the following way: by confirming the most likely theory to be truthlike, it acts as a certainty that the most probable theories will turn out to be true. By acknowledging the implications certain beliefs entail, we can use system 2 as a conductor to these types of theories before adding them to our well-founded beliefs (Kahneman 2011, 13-30).

IV. REWARD AND PUNISHMENT RELATING TO BELIEF

It now seems all we would have to do is look specifically at beliefs eliciting stronger emotions, under the guidance of system 1 or 2, and conclude them to be biased. When we are under the influence of either system, in another part of his book, Kahneman provides a reasonable explanation for our tendency to go along with the stronger emotional belief (Kahneman 2011, 176-183). In this segment, he provides an example from his own personal experience, relating this to a time when he was giving a speech in front of a group of flight instructors at an Air Force base. Kahneman claimed rewards for good performance work better than punishments for bad behavior. This was argued by one of the instructors at the base, contesting the opposite of what he was saying was true. For the instructor, punishment seemed to work better than reward, citing his example of screaming into his cadet's ear made them perform better. The instructor's evidence was that most good performances were typically followed by a lackluster job, which made him further believe rewards to be less effective than punishment. Kahneman

pointed out to the flight instructor that his observation was correct, but his inference was off. The point being made here by Kahneman was that punishment or reward did not have an effect determining the outcome of the result. He demonstrated his explanation to the other cadets using the following method. He drew a target on the floor, and then asked the group of cadets to throw a coin at it. Once this was done, they wrote down their names in rank order on a chalkboard of who was closest to the target. When performing a second experiment, those who were far off the mark the first time tended to do better, and those who were closest to the target tended to do worse. Kahneman explained, the names on the board did not cause the outcome of the result, it simply was an observation of regression towards the mean. The instructor may have held a bias that his cadets were lazy or lacked the ability to perform without the use of punishment or reward hanging over them. As the instructor believed that without punishment or reward, the cadets would not perform to their best ability. This belief the instructor held is more prone to be self-reliant upon itself and to adhere to beliefs before any other subjective possibilities. In this example, punishment typically has a stronger effect on the individual's psyche because it acts as a weapon against the commonly held belief that nobody likes being humiliated. Reward can give a positive influence, but failure to receive reward, I assume is not punishment in all instances. To avoid punishment in the situation the cadets were in was to some degree a reward. One does not know if a cadet is performing to the best of their ability unless they were the cadet themselves, which cannot be proven by observation alone. This reliance upon observational evidence supports any belief one may hold should it be fitting. As seen in this example, it is much easier to identify the mistakes of others than oneself.

Within the human psyche, it may be a physical impossibility to determine what exactly causes these biases, besides acknowledging them as our opinions and the actions we consider to be our beliefs. We can infer certain biases if we see them, but it is difficult to trace these origins by observational evidence alone. For example, a doctor typically believes their patient's word as true without question. Both the patient and the doctor's goals align with maintaining good health of the subject. A doctor is not encouraged to lie to their patient about medical practices because they understand the consequences of doing so may lead to their job termination. In terms of job loss, it would not be beneficial for a doctor to assume that most patients behave in this manner. A patient could lie to their

doctor for different reasons, but the consequences the doctor faces are usually far greater than for the patient to lie about their medical condition. If we do not assign a prior probability that the doctor or patient, "could be lying to us," there is no subjective probability to uncover. But we could also say, that if we do not assign a prior probability that the doctor or patient is telling the truth, there is still no subjective probability to uncover. If the setting provides an opportunity where lying is acceptable, i.e. a poker tournament, then it would not always be in your favor to tell the truth. It is an issue of moral obligation if one believes instances like this apply to all situations. We usually do not have to physically tell a person to do this, but as complicated as emotions play a factor into everyday life, the melding between emotional responsibility and actuality have made it difficult to tell how often we should listen to ourselves instead of other people. We can infer to the best of our ability what somebody meant by their actions, but this again depends upon what we are adhering to first, belief or subjective probability.

I believe there is another variable to take into consideration here; that is the immeasurability of emotion. If we backtrack a bit to our original inquiry, it seems that beliefs only need to be emotionally triggered to go along with certain conformational biases because they are the best theories available to us. To combat this, if we appeal to other subjective possibilities before asserting our beliefs, we can better equip ourselves to understand the emotional pull a belief may have. Different kinds of beliefs allow for various degrees of emotion to have a role in accepting a theory, as these all pass through our subjective origin. The pronouncement of a belief should not carry with it an overbearing of emotion, as this would increase the chances of there being a confirmation bias. I now suggest that by looking at the methods in which we are taught as adolescents, we should encounter an explanation as to why emotionally charged beliefs are more likely to be considered truthlike by others, rather than beliefs not needing to say within their pronouncements, "I think I am right, but I could be wrong." Thus, the crux of what we are trying to prove (Sher 2001).

V. METHODS OF TEACHING

To avoid confusion, this next section examines a phycological experiment involving the education system and student learning. It was believed this experiment would show that the more engagement there was in the classroom

from students, the more this led to advanced learning. "Advanced learning" in this instance referred to higher test scores, and a student's ability to recall scientific misconceptions sometime later that year (Allen and Coole 2012, 387). The study was used to compare the effectiveness between two different teaching methods employed on students when learning about scientific misconceptions. This was done to determine if an emotional response played a role in advanced learning. The researchers in this study were focused on the connection between student emotion and remembering lessons about scientific misconceptions. The methods on how the students learned is what we would like to pull out from this study. In the experiment, this was done by allowing students to first predict an outcome of an activity, opposed to the other teaching method that did not allow students to make predictions potentially addressing their confirmation biases (Allen and Coole 2012, 388-90).

The teaching methods used in the study were conducted on randomized students split into control and treatment groups. The control group used a traditional approach of teaching primarily found in English and American schools, while the treatment group relied on reductio-ad-absurdum techniques. Both groups were given a scientific misconception to debunk, and teachers presented the material in their orderly fashion. The researchers conducting the test referred to these as Misconception Intervention Lessons, or (MI) throughout the paper. They were looking to answer three primary questions. These were:
1. Would students who recall (MI) be able to identify correct science?
2. Would one lesson incite a greater frequency or depth of emotion in students?
3. Is there a causal link between learning and student emotions?

The control and treatment lessons focused on the Newtonian principles of gravity, and the heavy/fast misconception. In the controlled lesson, the speed of falling was introduced as the topic to debunk, while the treatment group was first asked to predict if a larger or smaller object would hit the ground first if dropped. The researchers predicted the treatment group would demonstrate a significantly higher learning gain than the control group. The structure of the control lesson went as follows:
1. A pre-test to gauge the student's prior knowledge on the subject.
2. Four mini experiments around the theme of gravity.[5]

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5.   The four mini experiments were carried out by students rotating from station to station conducting

3. The teacher reveals the answer of each mini experiment.
4. A post-test to measure what the student learned.

The treatment lesson structure went as follows:

1. A pre-test to gauge the student's prior knowledge on the subject.
2. Students make predictions.
3. Five activities interrogating the student's predictions.
4. Gathering the data and making a final prediction.
5. Teacher reveals the correct answer, and a post-test to measure what the student learned.

Between these two methods, the main difference is the treatment group was able to make a prediction while the control group did not. Instead, the control group was first introduced to a theme, rather than a question being posed. The teacher also showed how to perform the experiments in the control group, while the activities in the treatment group focused on interrogating student predictions.

The experimenters assumed students in the treatment group would perform better on the post-tests because of the emotional response one would feel from getting their prediction correct. They reasoned this is what drove the students to benefiting on the post-tests because they remembered the results of their predictions more vividly based on how they felt. At the end of both post-tests, all the students were administered a different emotional responsive test. This test inquired the students to answer how they felt when the teacher revealed to them the correct answer. This test asked a range of questions concerning how strongly the student felt after the answer was given. Excited, surprised, pride, relief, embarrassment, where some of the possible answers, with each emotion correlating to how strongly they felt at the time via numerical assignment.

After the emotional responsive tests concluded, the experimenters compared results and found there was no emotional correlation to be tied in with higher test scores of the misconception lesson. Admittingly, the treatment group did perform better than the control group immediately after the lesson, but these benefits dissipated six weeks after the initial post-tests were conducted. As this was later proven when the experimenters gave the same post-test again to all the students in the study. The tests conducted six weeks later where the same post-tests administered directly after the misconception lesson, which showed neither

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the experiments set up by the teacher, who demonstrated how to do each experiment prior to the children doing it themselves.

group performed better at long term retainment of the scientific misconception. In other words, there was no well-founded evidence supporting the idea that emotional stimulation led to advanced learning. However, they argued this study does not provide the evidence of an entire conceptual change potentially happening within the student's cognitive development. This also does not favor one teaching method over another. Although within the traditional method, it may not debunk a specific confirmation bias a student may still have. These results are to show how different teaching methods created a greater short-term growth for students when scientific misconceptions addressed their confirmation biases (Allen and Coole 2012, 393-403).

VI. GROUP MEDIATED TRUTH

While at first this seems counterproductive to the problem we are trying to solve (why our strongly held beliefs react before adhering to other reasonable subjective possibilities), I will point out the difficultly attempting to accurately gauge a young student's emotions based on a paper test. Perhaps the students did go through an exhaustive list of alternative answers on the emotional response test, only to put down what they believed to be what they thought the experimenters wanted to hear. This is considered by the experimenters as a "group mediated truth," which I will mention briefly. A group mediated truth would be if the student took into consideration what other classmates may have also answered, a nod towards appealing to subjective probabilities first instead of strongly held beliefs. Allen and Coole (2012) mention a different study conducted by different researchers that ties into this. In this study, a teacher asked one student to compare the readings of thermometers left in beakers of cold water. One of the beakers had a piece of wool wrapped around it while the other beaker remained unaltered. The teacher then asked the student to report back what the readings on the thermometers were. While the thermometers showed the same temperature on both beakers, the student reported back the beaker with the wool around it was five degrees warmer than the beaker without the wool around it. When the teacher asked the student to check again very carefully, the student then acknowledged the temperatures were the same. This may have been an actual mistake by the student, or they may have just wanted to get the correct answer. The most likely explanation is the student somehow believed

the wool warmed the water, since it was placed there. Incidentally believing the thermometer's reading to be inaccurate. However, the experimenters pointed out the student's ability was called into question, and the misconception played right into their confirmation bias. The confirmation bias in this case was that the wool was somehow able to "warm up" the water, since it was placed there, thereby inhibiting the student's ability to give the correct answer.

In this experiment, we can confidently guess the student probably held a prior bias, but we simply do not know for sure whether they appealed to their own beliefs, or a group mediated truth, since this would need to be asked. As previously stated, the follow up (MI) tests administered six weeks after the initial post-tests found no benefits retained by either the treatment or control group. The wool experiment was independent of this study, but similarities on debunking scientific misconceptions are apparent. By this I mean, if one is given the opportunity to make a prediction, especially when the consequences of being wrong makes one feel embarrassed, it is likely one will fall trap to a popular confirmation bias. (Allen and Coole 2012, 393-95).

VII. ADDRESSING CONTEXT SENSITIVITY

The methods on how we learn about a misconception, whether it be scientific or social interaction, should help us better understand this next segment concerning context. We should now ask: Where do these misconceptions come from if they need to be addressed in the first place? A problem we run into, is if one believes the methods forming the hypothesis contain a certain bias. Having a good reason to doubt the entire theory itself and related theories based on the methods used is an adequate reason to justify doubt. However, the source of these claims must be understood as trending towards a type of confirmation bias. In any case, there does not seem to be any adequate reason to accept a less likely hypothesis unless one were skeptical of the methods used under which it was formed. To address this issue, I propose that we need to look at different logical relations and how these misconceptions can form under contextual errors.

A common problem we face is confusion on the context of which we are given, or lack thereof. For example, beliefs can be held towards questions that are context sensitive, such as: "Is Greg tall?" Compared to: "What is the probability that Greg is tall?" These are not exactly questions that have a direct answer without

prior context. Any evidence supports or denies the hypothesis by observing how tall Greg is compared to your own subjective opinion on what qualifies as "tall." If anyone is to agree or disagree with your belief that, "Greg is tall," we expect most people act from their best intentions to judge for themselves what is truthlike, because "being wrong" in this instance is strictly subjective interpretation. Thus, leading back to your criteria of tallness within your subjective origin. It should not provide evidence towards purposefully misguiding an opinion. As these intentions would be less than truthlike and be a cause for creating misconceptions.

In most cases, subjective theories are usually confirmed by a strongly held belief. There are no objective measures to determine whether, "Jim is a nice person," without resorting to the biases we tend to have on the actions observed by "Jim." It can then be a challenge to prove that the actions Jim took do not provide evidence that, "Jim is a nice person." To call this out would seem to conclude that any theories surrounding "Jim" are biased because you took action into account. It may not be true that "Jim is nice," and in fact, "Jim is not a nice person," or perhaps, "Jim is a mean person." But this belief still depends on passing through our own subjective origin. Where these originate from, whether a person is used to system 1 or 2, provides an easier opportunity to prove the opposite is true. To explain, if one has a prior belief that "Jim is a nice person," under the emotional influence of system 1, a single "not nice action" is more likely to provide stronger evidence for the counterhypothesis. Again, depending on where a person assigns their prior assumptions to begin with, in contrast, a person dependent on system 2 may be less inclined to assume the actions by Jim go against the hypothesis that, "Jim is a nice person." A person under the guidance of system 2 may notice this because they already know the action of Jim is only inferred from their own subjective origin. To tell somebody, "Jim is not a nice person," may be just as emotionally strong as, "Jim is a nice person." Tone will provide an accurate gauge for this exclamation, as we now start to see how difficult it is for one to form or change a subjective belief. Either way, an emotionally charged hypothesis will overpower any subjective probability the individual may have previously held. This teeters on the notion of, "what one considers to be strongly elicited emotions." However, I insist we cannot recognize biases without resorting to subjective opinion, since this would diminish any type of reliable measurement. The attack on a strongly held belief relays us back to agree with the stronger emotional hypothesis, thus, creating the tendency to go

along with confirmation biases. If the context is misunderstood in these cases, then there must be an issue of convenient contexts switches within our language that seem to go unnoticed until they are brought up, that is, within the right context. I will attempt to show how this occurs throughout the remainder of this paper.

VIII. CONTEXT SWITCHES IN LANGUAGE

A hypothesis should extend to all available contexts if it adheres to a standard usage of language by a society. By "standard usage," what I determine to be is that it is understood within a community of same language speakers that interpretations can vary depending on the everyday background knowledge of different people. If a person knows that a word can be used to describe two different things (i.e., homonyms), then they possess adequate knowledge about the language, and therefore obtain a standard usage of language. To merely mention a word without knowing how it is properly used to describe a fact or thing within a system of language is next to speaking nonsense. This I believe is how evidence can be construed to support either side of an argument, each in a coherent manner, but different regarding its emotional pull. We will next look at an example of how context switches can occur without our awareness of it even happening.

A tactic used via context switches to convey misleading information within a standard usage of language is called priming. Priming insinuates that it must be true that, "Greg is tall," if the priming information is new, and in the memory of someone thinking about the tallness of Greg. If we are given the priming evidence that, "Everyone in the town Greg is from is tall," it would seem very unlikely that Greg is not tall. It would make us question the origin of the priming information if it did not follow that Greg was tall. If the priming information were instead, "Everyone in the town that Greg is from is below five feet." It would make us more skeptical that the conclusion, "Greg is tall," is false. This again brings up the distinction Kahneman makes regarding system 1 and 2. If we already understand what is meant by when we say, "Greg is tall," under the guidance of system 1 or 2, then there is no need to adhere to context sensitivity. If we are being primed to believe something else, misconceptions can occur from our inability to recognize these context switches. For example, if one strongly believes the death

penalty should be abolished, as death is an emotionally charged occurrence, any new evidence[6] will support the hypothesis that, "The death penalty should be abolished," if one holds this belief. A different individual may also hold the belief that the death penalty should only be used in extreme circumstances, if the evidence is the convicted criminal was in fact a mass murderer. It is safe to assume that in general, we believe the acceptance of one hypothesis denies the counterhypothesis of the same kind. In this example, you cannot be a supporter of abolishing the death penalty while also supporting the case that it should only be used in extreme cases, this does not get rid of the problem. This makes it so that you subjectively decide upon what you consider to be "extreme instances," rather than addressing the original problem; in this case "the death penalty." These context switches conveniently change the attention, and appeal instead to the emotional dependency of the proposition itself. There is a failure to acknowledge context shifts because we are stuck on our previously held beliefs.

IX. PLACEMENT OF NEGATION IN LANGUAGE

Feldman is a proponent against holding onto our knowledge ascriptions, claiming that we should only appeal to context sensitivity when a contextualist solution is not plausible.[7] "Sometimes," he claims, "We just have good arguments for opposing views (Cohen 2001, 87)." But I believe that sometimes bad arguments come about from reasoning in such a manner. The issue of context sensitivity leads us back to the problem of not knowing what to do in everyday situations. Claiming that we already know what we mean by something does not entail that a hypothesis has been cleared of confirmation biases. I will argue this point, on the grounds that being made aware of multiple different contexts can only increase our understanding of different background relations. Being aware of these context shifts will provide us with more truthlike theories, as this should only have a minimal effect on our ability to self-analyze. For example, if one is speaking in front of group of people, we understand the phrase, "All men are

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6. This could be a story of how devastating it was to find out an accused criminal was falsely convicted to the death penalty.

7. Feldman (2001) provides examples of moral disputes that can be argued without an appeal to context sensitivity such as abortion or the origins of dinosaurs.

created equal," applies to everybody.[8] It is the concern of some that there are examples of it not being the case that, "All men are created equal." Since, if one is to speak in front of a group of people who hold the same interpretations of the words being spoken, it is less likely that a different interpretation will come about. If one provides a counterexample to "All men are created equal," two different interpretations are unintentionally produced. These are, "Not all men are created equal," and "All men are not created equal." According to Feldman (2001), in cases like this it is believed the majority will understand that "men" in this sentence still means "everyone," so there is no need to adjust this statement. When speaking to a mixed group of men and women the context still adheres to the firmest held belief in the room, but we must understand that different variables are present. These variables include different interests the group may have as pertaining to certain ideologies. If one is speaking to a group of women, and the speaker is a man, then the issue would be shifted more on the phrase itself, that, "All men are created equal," applies to no person in the room who holds the same belief, because the counterexample is right in front of them.[9] It should be safe to agree everyone has their own method of interpreting truthlike statements because we all come from different unique backgrounds. Learning about these methods has a different appeal to everyone, as context sensitivity will call to attention different background relations within a group. The issue of conflicting evidence occurs when a hypothesis depends upon the transparency of the group understanding the words used in the statement are referential to an existential or universal claim. If universal and existential statements are not properly understood within a group, this limits the number of interpretations that can be made upon context awareness. Our dependency of using existential statements that apply to universal theories inhibits our ability to confirm evidence. As it is the case, the number of counterexamples available does not diminish the hypothesis that, "All men are created equal." Nor does it provide evidence that the context is misinterpreted. What I believe to be the cause of our misconceptions is where one positions the negation, "not" in our cognitive sentencing. If we apply this to our example, "All men are created equal," we can see a bit more clearly where negation relies upon our ability to properly categorize counterexamples. Creating both, "All men are not created equal," and "Not all men are created equal." Once

8. Should one hold the belief that, "All men are created equal."

9. That the entire room is of the opposite gender.

this is called into question the stronger the belief is, the less likely it is that one will appeal to counterhypotheses, or, the stronger the belief is, the more likely it is that one will not appeal to counterhypotheses. It is possible that all subjective theories are prone to be confirmed by a stronger emotional theory, but these emotional eliciting theories typically include universal terms to exaggerate the point being made.

Relating back to our dependencies of system 1 and 2, it is safe to assume the majority believes, "All men are created equal," applies to everybody because of its dependency of being proven false. The problem does not rest upon whether we should or should not ignore our everyday knowledge, it is an issue of understanding why it is easier to use this method of language in everyday situations. This tendency to drive out any negation related hypothesis settles on the belief that our best available theory is whatever we have available at the time. It may be fitting to envision a well confirmed belief within a group that a claim is untrustworthy, since confirmation of universal and existential statements remain difficult for us (Sprenger 2013, 737). However, retaining this information does not raise or lower any subjective probability one may hold. If the group is convincing enough, it can overpower just about any subjective probability one may hold.[10] Should it be the case that a hypothesis calls attention to conflicting context resolutions, the probability of the hypothesis put into question has a higher chance of conforming to a confirmation bias.

X. CONCLUSION

I have shown that a tendency in this self-reliant mode of reasoning is to internalize the theory that our beliefs are the best we have available. If one puts forward their closely held beliefs first before adhering to any subjective probabilities, they may be prone to being overridden by an emotionally driven hypothesis. While adhering to beliefs before subjective probabilities can produce a boost of confidence in our assertions, if we instead consider more possibilities before asserting our beliefs, the dependency to rely upon our self-reliant beliefs decreases, thus, decreasing the potential of falling into confirmation biases. To

10. The Asch conformity experiments were a group of studies ran by Solomon Asch examining how individuals (in this case students) defied a majority group and the effects of these influences and beliefs.

internalize the theory that our beliefs are not the best we have, believing this prior to asserting our beliefs, is an appeal to searching for more subjective probabilities. Under this, if by accepting any hypothesis to be truthlike, you simultaneously confirm other closely related hypotheses to be truthlike as well. On the condition it is well known that any rival theories are not formed based on subjective opinion as we saw with the "tallness" example. This applies to our everyday knowledge assertions, and comparatively, we should note that scientific hypotheses are not based around emotional input so we should accept these as rational. The formation of a hypothesis is typically founded upon the basis that any well-prepared theorist is not going to include their own subjective bias surrounding the theory. It may be argued that any hypothesis put forward will have some subjective bias, but as we saw with the scientific misconception lessons, if one is first given the opportunity to predict a different hypothesis as better fitting, it is the methods used that gain the advantage over an emotionally driven hypothesis. We can eliminate this type of self-reliant confirmation bias, on the grounds there are more truthlike hypotheses than what we initially believe to be available, before we apply a probability to our own as being the best available theory.

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