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Does extraversion correlate with style of epistemological justification?

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Abstrakt

Vi har alla trosuppfattningar, och vi rättfärdigar dessa trosuppfattningar för oss själva och till andra när de ifrågasätts. Den struktur som dessa övertygelser är byggda på är en logisk grund, som i sig består av olika typer av epistemologiska rättfärdiganden. I den här studien undersöktes om nivån av extraversion är associerat med på vilket sätt vi gör epistemologiska rättfärdiganden. Hypotesen var att det finns en korrelation mellan graden av extraversion och benägenheten att göra externalistiska epistemologiska rättfärdiganden. Denna korrelation skulle uttryckas genom att extraverta individer skulle rättfärdiga sina epistemologiska övertygelser som Externalister (genom att hänvisa till saker i världen om kring dem), och introverta individer som Internalister (genom att hänvisa till ett kognitivt privat referenssystem). En skala för att mäta epistemologiska rättfärdiganden bestående av nio påståenden konstruerades och samlades in tillsammans med en standardiserad extraversion-skala. Femtiosex personer deltog i studien. Skalan som mätte epistemologiska rättfärdiganden hade relativt låg reliabilitet och korrelerade inte med graden av extraversion. Baserat på deltagarnas svar drogs slutsatsen att antingen så var de epistemologiska rättfärdigande påståenden för abstrakta för att förstås, eller så visste inte deltagarna varför de trodde det de trodde, det vill säga på den abstrakta epistemologiska nivån av trosuppfattningar. Nyckelord: Extraversion, Epistemologiska rättfärdiganden, Externalism, Internalism

Abstract

We all have beliefs, and we justify these beliefs to ourselves and to others when questioned. The structure that these beliefs are built upon is a rationale, that itself, consists of different types of epistemological justifications. In this study I examined if the level of extraversion an individual expresses correlated with different styles of epistemological justification. The hypothesis was that there is a correlation between level of extraversion and propensity to make externalistic epistemological justifications. This correlation would be expressed as extraverted individuals would justify their epistemological beliefs like Externalists (by referring to things in the world), and that introverted individuals would justify their epistemological beliefs like Internalists (by referring to a private reference system of cognitions). An epistemological justification scale consisting of nine statements was constructed, and collected together with a standardized questionnaire measuring extraversion. Fifty-six people participated in the study. The epistemological justification scale did not achieve a sufficient level of reliability and the correlational results were non-significant. Based on the participant's answers, it was concluded that either the epistemological justification statements were too abstract for the participants to understand, or that the participants did not know why they believed what they believed, on the abstract epistemological level.

Keywords: Extraversion, Epistemological justification, Externalism, Internalism

Introduction

Background

The purpose of this study is to examine if the personality trait extraversion correlates with the manner in which individuals justify their beliefs. Being that there does not exist a scale that measures epistemological justifications, it is also the purpose of this study to develop a scale measuring the phenomenon of how one justifies their beliefs. By beliefs I mean, statements about reality that you regard as being a matters of fact i.e., a personal conviction.

So why is the justification of beliefs even important? Because, without justifications, there can be no knowledge.

Imagine that you believe “That the sky is blue”. When asked why you believe this, you run into a problem, as illustrated below.

You believe that the sky is blue.

You justify it by saying “because you can see that the sky is blue”.

You justify this by saying that you trust your senses.

You justify this by appeal to experience of data.

You justify this by appeal to induction.

You justify this by appeal to further induction, deduction and abduction (inferences).

At this point you might ask yourself, how do I continue?

There are two main manners in which one can go about solving this problem. Within epistemology these two manners are referred to as Externalism and Internalism. Scientifically speaking, Externalism means that you attribute your beliefs to things out in the world like empiricists, whereas Internalism means that you attribute your beliefs to internal psychological phenomena and processes like rationalists. It is the hypothesis of this paper, that depending on your levels of extraversion, that you will have dominant tendencies towards one or the other of these two, i.e., that extraversion correlates with style of epistemological justification.

The rationale for this, is that, because extraverts interact more with the physical world than introverts do, they logically have more justifications (that are external) at their disposal when justifying their beliefs. Hence, the more extraverted an individual is, the more likely it should be that the individual is externalistic in their epistemological justifications.

The belief that the world exists is called Realism (Hacking, 1983). And while this belief is healthy and practical, philosophically it does have a major drawback; you cannot know if Realism is true. Logically speaking, it is impossible to prove that anything besides

your own consciousness exists. This problem is called the egocentric predicament (Malcolm, 1958). Everything you believe to know about the world is a product of your mind. This implies that what you believe, is at best a representation of the world, filtered by your senses, and at worst not even real. Yet, we still act as if the world and our friends and family etc. exist. This is because we either do not ponder this matter, or, that we have a conviction that these things exist based on a justification (a belief that explains why we should believe that the world and our friends and family etc. exists).

Different people believe different things, and the manner in which one justifies one's beliefs varies across cultures and has changed throughout history. Before the enlightenment age, religion held dominion over justificatory beliefs. Prior to that, philosophy structured the manner in which our beliefs were justified. When analyzed, all modes of reasoning boil down to one of the five following ways upon which one can view the world and one's own existence (Kattsoff, 1956).

For instance, some people assume without hesitation, that the world is as they perceive it to be (Nuttall, 2013). What they see exists, and is as it is, otherwise they would not see it. This is their rationale, their belief, and their justification for holding the beliefs that they hold.

Some people believe that the world is approximately as they perceive it (Psillos, 2005). These individuals are aware that our senses can only identify some of the existing light waves and sound waves. And as such, we only perceive an approximation of things and occurrences. The belief that these individuals rely on, is that our senses along with our experience portrait a somewhat accurate picture of reality. Hence, we are justified in holding the beliefs that we hold, as long as our senses and experiential data is sufficiently coherent and non-contradictory.

Some people are on the other hand skeptical regarding that the world is as we perceive it to be (imagine The Matrix movies, where people are getting fed illusory sense data by machines); (Wachowski & Wachowski, 1999) . The rationale of these people, is that while we can be certain that we are experiencing some form of data input from our surroundings, we do not have any reasons to believe that the world is as we perceive it to be, which means that the nature of reality is a complete unknown. These people deduce the belief that, because they have an equal amount of reasons to assume that they exist in a simulation (created by external forces) as they have in order to accept the nature of reality as they actually perceive it, that they are not justified in assuming one over the other.

Others flat out deny that the world's most basic components are material, i.e., Idealism (Moore,1903). These people believe that science itself illustrates that the nature of reality is

immaterial. A modern justification for this kind of belief, is that a particle can be both a solid particle and a wave at the same time, and that our choice of observing the particle determines the outcome of it, i.e., quantum mechanics. In “New age” circles this is interpreted as, that our immaterial consciousness is manifesting a reality that appears as if material.

At the most extreme, are people who from the egocentric predicament deny that anything besides their own consciousness exist, i.e., Solipsism (Searle, 1983). This conviction simply states that the only thing we actually can know, is that I (as an immaterial individual consciousness) exist, and that I am unjustified in assuming anything that is not a direct logical consequence from the statement “I think, therefore I am”.

The reasons (justificational beliefs) that these different types of people accept or reject, is what separates them from each other. Beliefs depend on what you accept as (being) proof, be it axioms, induction, deduction, abduction, experience, hearsay or revelation. It therefore follows that you justify your beliefs in accordance with your conviction of what counts as proof. For some people, no amount of evidence/proof is enough for them to accept reality as they perceive it to be. For some people no amount of evidence/proof beyond their experiential data, is required. And in between these two polar opposites, there exists numerous different belief structures, religious dogmas, and distortions. That which differentiates these different views of reality, are their required criterion in so far as what counts as proof for the existence of literally everything.

Rationale and approach

In the following section, a couple of examples of what constitutes as justificational beliefs will first be given. Then, the consequence of what a potential failure of justification means will be stated. Studies and theories that imply that extraversion and epistemological justification correlate will then be discussed, along with examples. After this we will take a close look at extraversion and its facets. It will then be clarified why justifications are important in science, and more so, in studies that question but also assume one major justification as a given. This will be followed by a short synopsis of epistemological justifications, along with examples of justifications that are external and justifications that are internal. The major theories within Externalism and Internalism will then be summarized, in order to give a clearer picture of the statements that are used in the questionnaire that the present study aimed to develop.

Examples of justificational beliefs

Below are clarifications that illustrate the relationship between beliefs and justifications.

Example1: I believe that I see an actual horse. This belief necessitates the following beliefs: B1: That my vision is accurate (trusting my perception). B2: That I know what a horse is (trusting my mental faculties). B3: That the horse actually exists (trusting that you are not in a simulation) B4: That I am not being fooled (trusting my surroundings). If I were asked why I believe that I saw a horse, then beliefs B1, B2, B3 and B4 would serve as my justifications.

Example2: I believe that unicorns do not exist, even though I am seeing one right now. This belief necessitates the following beliefs: B1: That I am being deceived or that I am hallucinating (trusting my mental faculties). B2: That my mental faculties are not jeopardized (trusting my recollection of prior experience) B3: That I know what a unicorn is supposed to look like (trusting my memory). If asked why I do not believe in unicorns despite my claim of seeing one, then beliefs B1, B2 and B3 would serve as my justifications.

It should hopefully now be more clear, how justifications (reasons to believe) can be constructed. Some beliefs refer to mental phenomena and some to experience. Most beliefs are justified by a mixture of mental phenomena and experience, some by either or, and in most cases if not all; a belief is both necessitated by, as well as necessitates, another belief. In order to justify a belief, another belief (justification) is necessary, but this justificational belief is not by itself sufficient, because this belief will also then need to be justified. If you are confused upon reading this, then you are in good company. If potentially every belief needs justification, then it's a catch 22. In philosophy this is known as "The Regress Problem" (Cling, 2008), and for any parent of a small child, the infinite "why problem" (when answering the child's multiple why questions with because statements).

The techniques that are used when attempting to solve this mess, are techniques that every coherently thinking individual uses, whether they know it or not. Meaning, that everybody utilizes inferences (deduction, induction and abduction) in order to reason. However, the axioms and premises that their belief systems rest upon, are at their core either a form of Externalism or Internalism. The question is whether extraverted individuals have a tendency to justify in an externalistic manner (referring to things out in the world), and the introverts in an internalistic manner (referring to psychological phenomenon)? This is the subject matter that will be addressed in this paper.

As will be illustrated in this paper, there are numerous ways in which an individual can technically justify their beliefs, but there are only two main categories of rationale. You are

either convinced that the main reasons (main justifications) you have for holding your beliefs as true, can be found in the physical world, or not. This is what separates the externalists from the internalists. While externalists justify their beliefs by referring to things and occurrences out in the world (like empiricists), internalists justify their beliefs by referring to internal psychological phenomena (like rationalists).

It is the intention of this study, to examine whether extraverted individuals are more prone to justify their beliefs like empiricists (by way of justifying their beliefs with externalist justifications), and if their counterparts the introverts are more prone to justify their beliefs like rationalists (by way of justifying their beliefs with internalistic justifications).

Related theories and research

A reason to expect that extraversion would be associated with externalism, is because there have been done studies that indicate that extraversion correlates with multiple types of convictions, where of some are epistemological in nature. It is also worth noting that all forms of religious theism counts as Internalism, because Gods are regarded as the first causes (Mackie & MacKie, 1982). A faith based belief, that God is the ultimate reason for our existence, would be a definition that most if not all theologians would agree upon, and this belief is unequivocally Internalism (see details on this, in the Epistemological justification section).

Studies in the past have shown a significant negative correlation between religiosity and extraversion (Francis & Pearson, 1985). And being that the fundamental beliefs of all religious dogmas are internalistic in nature (main justifications are beliefs based of faith), this translates to a negative correlation between one version of Internalism (both religiosity and rationalism are Internalism) and extraversion. This is consistent with the hypothesis of this paper, that Externalism (empiricism), Internalisms polar opposite, correlates positively with extroversion. However, the opposite has also been reported, i.e., a positive correlation between religiosity and extraversion (Francis & Pearson, 1985). Both these results stem from the theoretical framework of Eysenck's model of extraversion (Eysenck, 1954). Further studies examining this phenomenon exist, but that which separates them besides the vast array of conflicting results, is that they utilize different scales when measuring extraversion. And a further complication, is the problem of defining what accounts as, a person being religious. Many definitions of religiosity exist, and we can be sure that not everyone agrees upon the multiple definitions that do exist (Francis, Pearson, Carter, & Kay, 1981).

Another theory that also ties in with justification of beliefs and extraversion, is Attribution theory. Attribution theory, which concerns attributing causes of behavior (a belief) to internal and external factors, i.e., making judgments is relevant in the sense that it concerns how people justify their beliefs about themselves and others (Heider, 2013). A significant positive correlation has been found between extraversion and self-attribution (Hosseini, Pishghadam, & Asghari, 2012). The direction of the correlation indicated that when levels of extraversion rose, so did the levels of belief in one's own capabilities and competence (self-image beliefs).

There are some similarities regarding how and why, beliefs can be constructed that attribution theory addresses, that are relevant to this paper. According to attribution theory, when attributing causes of our own socially unwanted behavior we tend to attribute causes to external phenomenon, such as social context and other peoples will, whereby our own behavior is justified to us. In such instances, our levels of extraversion could also affect the extent to which a religious person attributes their own behavior to piety (if good behavior) or to being a victim of circumstance (if bad behavior) seeing that self-image has been found to correlate with extraversion (Fiske & Taylor, 1991).

If two non-religious individuals (an extravert and an introvert), witness multiple distinctive and consistent observations (miraculous spiritual healings) that tend to imply that God exists and intervenes, despite of a general consensus that God does not exist and therefore does not intervene. Then their distinctive individual personality traits (extraversion) or facets of a trait (tendency of situational motivation), surely will dictate different levels of conviction regarding who believes that God exists and intervenes, and to what extent they believe it (explaining the spiritual healers behavior). Depending on their levels of extraversion, they might be more or less willing and able to attribute their observations to the existence of a God, based on the research from Eysenck's correlational studies mentioned above. In other words, the individual's personal past experiences, and innate tendencies dictate to what extent the individual is convinced that God exists and intervenes, or that God does not exist and therefore does not intervene, based on observations of spiritual healings. This would be in line with Kelly's model of attribution theory (Kelly, 1967). This would mean that of these two individuals, the extraverted individual would be more prone to attribute the spiritual healer's behavior to divine intervention, because the extravert is prone to justify their belief in an externalistic manner, and also has a stronger belief in their own competence to make that judgment.

Attribution theory also concerns how we as social observers attribute causes to other people's behavior, in order to justify our own beliefs about someone, by judging that whatever perceived flaw they express in a social context, is more likely due to that person's own internal beliefs and motivations, than by social circumstances.

Within the psychology of religion it is maintained that religious explanations of events (attributions) are a result of the person's own characteristics (personality) and context (life and worldview), and the events characteristics and context. This means that if a religious person finds themselves in a situation where a religious explanation of an observation is congruent with that person's own belief system, then a religious explanation of the event is most likely to be made (Spilka, Shaver, & Kirkpatrick, 1985).

Imagine then example: Person A has a belief about person B (that person B is evil). Person A attributes the cause (blame) of person B's immoral behavior to person B's own mental life (bad morals). By attributing the blame of immoral behavior to person B's lack of good morals, person A justifies his own belief that person B is an evil person. This would be an example of attribution theory in action, when a person justifies one of their beliefs by way of empiricism (observed behavior, then conclusion). If person A was an extreme introvert, then he might have instead acted (reasoned) like a rationalist and concluded that there is a possibility that person B has a mental illness, or that he has a brain tumor that compromises his judgment. And that he (person A) therefore is not justified in holding the belief that person B is evil.

According to these aforementioned studies on attribution, and on religiosity, and the phenomena's subsequent correlations with extraversion (positive and negative), when all other things being equal, the level of extraversion influences the construction of (amongst other) attributional beliefs (self-image beliefs); (Hosseini, Pishghadam, & Asghari, 2012), religious beliefs (ontological beliefs); (Francis & Pearson, 1985) and combinations there in. This is apparent, because the phenomenon of a person justifying their beliefs to themselves and to others, permeates all structures of beliefs and belief systems, be they religious or social in nature.

The working hypothesis in this paper is that the tendencies belonging extraversion help facilitate (or are facilitated by) the level to which an individual is prone to justify their beliefs about reality. That which differentiates attribution theory from the theory in this paper, is that attribution theory exclusively concerns beliefs about causes and occurrences (internal and external) regarding people. The theory in this paper, concerns all kinds of beliefs (including

those discussed by attribution theorists) that necessitate other beliefs and the justification of these, and asks whether an individual's level of extraversion plays a part in the process.

Theories on Extraversion and Epistemological justification

Extraversion. Historically extraversion was described as: It connotes an orientation towards things outside oneself, whereas the other side of the spectrum, introversion connotes an interest for inner phenomenon such as one's own emotions, and experience of being. An individual can have tendencies of both states, however, one mode of being is dominant for every individual (Jung, 1921/1967). Whereas this original description by Jung is somewhat outdated compared with contemporary personality theorists views of personality, it still encompasses and holds true in regard to what the hypothesis of this thesis is built upon, tendencies of directional focus.

The modern take on extraversion by McCrae and Costa define traits as being: “dimensions of individual differences in tendencies to show consistent patterns of thought, feelings and action.” (McCrae & Costa, 2003, p.24).

So what is it that is being expressed by an individual with a high level of extraversion? Highly extraverted individual are exemplified by their preference for and willingness to seek out social stimulation. The concept of extraversion is best understood in contrast with its own absence or low level of it, i.e., introversion. Whereas extraverts have a tendency to be affectionate to others, introverts tend to be reserved in their approach. And while extraverts have a tendency to socialize, introverts tend to seclude themselves from groups and gatherings. Extraverts have a tendency to be talkative, whereas introverts tend to be soft spoken and quiet. Extraverts have a tendency to be active, while introverts tend to be passive, and more reserved with their actions. Extraverts have a tendency to be fun loving (excitement seeking), while introverts have a tendency to be sober (excitement pleased, or avoiding). And lastly, while extraverts have a tendency to be passionate, introverts have a tendency to be less caring or unfeeling (McCrae & Costa, 2003). In short, extraversion can be looked at, as an individual's level of craving for, and tendency to partake in, the world.

As a personality trait, extraversion is comprised by six generally agreed upon facets (subscales) that correlate amongst themselves (John & Srivastava, 1999). These six facets are Gregariousness, Assertiveness, Activity, Excitement-seeking, Positive emotions, and Warmth. These facets all have something basic in common, and that is their connection to and relation with, the concrete world. It is because of this connection, that it is expected, that high levels of

extraversion has an association with externalist justifications, and low levels of extraversion has an association with internalist justifications.

One study suggest that these facets are connected with a person's biological substrates, that has a proclivity to exert/manifest a certain level of enthusiasm and assertiveness in us, depending on the situations we find us in (DeYoung, Quilty & Peterson, 2007).

Furthermore, because dopamine is the neurochemical basis for extraversion and is also related to novelty seeking and behavioral reinforcement (Reuter & Hennig, 2005), this would seem to indicate that extraverts and introverts not only act differently, but also believe differently. This is further substantiated by studies that demonstrate that a positive correlation between extraversion and subjective well being exists (Argyle & Lu, 1990). Of course beliefs differ greatly between people who are happy and those who are miserable, and everywhere in between. So, it seems obvious that extraversion and beliefs actually do correlate, but the question is, if they do so on the abstract (epistemological) level?

Theoretically, they should, because extraverted individuals interact more with the concrete world than introverted do. By interact with the concrete world, it is meant that an individual acts upon (an actual thing) or focuses upon (the qualia of) a thing, in the concrete world, rather than focusing on one's own thoughts and sensations (introspection or mindfulness).

The connections to the concrete world that the facets imply are: Gregariousness implies that an agent is sociable with someone in the concrete world. Assertiveness entails enacting forceful upon someone in the concrete world. Activity, the concrete world is a prerequisite for energetic behavior. Excitement-seeking, being adventurous is by definition the willingness to engage in something, presumably in action, which also requires an actual concrete world. Positive emotions, being enthusiastic towards someone/something, or because of someone/something also entails a conscious awareness of a concrete world. And lastly, warmth, being interested in and responsive to others, also entails something outside of one's own cognitive faculties, i.e., events with others in the concrete world (Costa & McCrae, 2008 ; John & Srivastava, 1999).

Being that extraversion is seen as spectrum, it is rational to expect that because individuals vary in the amount of emergent extraversion they possess and express (enthusiasm and assertiveness), that they also vary in the amount of conscious awareness they enact upon, and have enacted upon themselves from the concrete world, given that personality traits are: “relatively stable cognitive, emotional and behavioral characteristics.” (Holt et al., 2015, p. 645).

Epistemological Justification. The following section contains details that are essential in order to understand the concept of epistemological justification. However, only two things are essential to keep in mind when reading it: That the problem that arises when one tries to justify one's beliefs ("The Regress Problem) can be solved (hindering skepticism), and that there are two (main) ways of reasoning when attempting to solve it. The details of how one can go about it is mentioned in the text, but it is no requirement that one understands the entire process of justification, only that one understands the basic concepts of empiricism (external justifications) and rationalism (internal justifications). In this section, these aforementioned concepts will be explained on a more abstract level, and they can be viewed as the mechanics of empiricism and rationalism. In epistemology these concepts are represented as Externalism (external justification) and Internalism (internal justification).

The main purpose of epistemology is to seek out the structure of knowledge. For roughly 2000 years knowledge has (by the majority of philosophers) been defined as justified true belief. However, since Gettier (1963) illustrated that knowledge is not justified true belief, with his "Gettier cases" (counterexamples), the focus of the epistemologists has been concentrated upon the subject matter of epistemological justification, i.e., how you justify your justifications themselves (Gettier, 1963).

Many belief systems have been constructed in the undertaking of saving the conception of knowledge (ending the regress), and whilst there are numerous different systems to choose from, all fall in one of two possible main categories. Either your most basic beliefs (justifications) are based in the actual concrete world (Externalism/Empiricism), or they are based in the realm of the mind with logic axioms and a priori truths, whereby the mind intuitively grasps a necessary fact about the nature of reality (Internalism/Rationalism); (Wingren, 2016).

Whereas it seems obvious that the facets of extraversion all are acted out in the world (implying the existence of an actual world), it is not an assumption that one can take lightly and just presuppose without justification (given the subject matter of this paper), if one is to speak in a responsible scientific manner. Many philosophers of science including Kuhn (1962), Lakatos (1980) and Popper (2005) all emphasized the importance of proper scientific methodology, which requires that assumptions should be built upon stable structures of reason and evidence. In cases such as this, referring to prior observations of the world in order to conclude that the world is today as the world was yesterday and the day before, leads us into the problem of induction, upon which no sound or valid theory ever should or could be constructed. According to Hume (1739/2003) the problem therefore remains, as, how we are

to explain why we can form any conclusions that go beyond the past instances of which we have had experience? This is “The Problem of Induction”.

Hopefully it is now apparent that: The subject matter of this section (justifications) demands that it is explained (why) justifications for one's belief that the world is actual and concrete must be given, in order to proceed with talks of a concrete world. Meaning, that I have to justify my assumption that the world is actual and concrete, in order to talk about it as if it exists. Remember, in the introduction it was mentioned that some people assume without hesitation, that the world is as they perceive it. This line of reasoning is not consistent with scientific methodology, hence I have to justify my assumption. Whereas it is (a given) within science that the concrete world exists (has objective form), it is not a factual statement if it is not justified by actual reasons to believe it. Justifications for why it is ok that we assume that the concrete world exists (during this paper), will not be given due to the fact that this is a psychology paper and not a philosophy of science paper. What is of importance in this instance is that it is mentioned that: (If) mentions are made regarding the regress problem in a scientific paper, then a justification (explanation) should be given as to why the problem is not addressed in the paper and/or a reference to a possible solution. Ordinarily, no empirical journal actually would bring up the regress problem, being that it is a problem that science alone cannot answer. The circumstances of this thesis (that the regress problem is at the core of justifications) dictate that a reference is provided (that I justify my assumption), hence I reference my prior work (Wingren, 2016).

As mentioned before, there are many ways upon which an individual can justify their beliefs. Sometimes people justify their beliefs by referring to perceptions of events in space and time. Example: Q: “Why do you believe that the car company Tesla sent a car into space?” A: “Because I saw it happen yesterday!”.

Whilst at others occasions they refer to inferences derived from prior knowledge. Example: Q: “Why do you believe that the earth is spherical?” A: “Because I understand Euclidean geometry, and ships disappears over the horizon, and because the shape of the shade at a lunar eclipse is curved, then it must be the case that the earth is spherical”.

This would seem to indicate that individuals rationale consist of part empiricism and part rationalism, given that people utilize references to both prior experiences as well as references to, for example, axiomatic systems (geometry). However, no human utilizes these reference techniques in an exact 50/50 manner; everybody has a dominant predisposition to justify their beliefs by referring to either external matters or internal phenomenon. If personality traits vary, then so should tendencies of justification. The extent to which

individuals tendencies of epistemological justification actually does vary, and if they are logically consistent, is what will be examined and correlated with extraversion, in this study.

On to justifications themselves. The main question is, how are we are justified in holding the beliefs we hold? When attempting to justify our beliefs we run into the regress problem, which can be viewed as the problem arising as the effect of a (linear) chain of justifications (beliefs) that each require further justifications. If no final justification or alternative explanation regarding the structure of the belief system is reached (that is sufficient), all our beliefs about the world lead us into skepticism (Lehrer, 1990).

Technically speaking, there are numerous individual theories of epistemological justification that attempts to reconcile the regress problem, but for the purpose of this paper, it is only important to remember that all of them can be categorized as either Externalism or Internalism. Rudimentary descriptions of the most common systems of epistemological justification are illustrated and categorized below, in order to highlight that regardless of the philosophical complexities, all forms of justification are either external or internal. All the statements that are utilized in the questionnaire are statements that represent these diverse epistemological theories of justification.

Externalism. That which exemplifies Externalism is that these types of theories try to solve the regress problem by referring to things in the concrete world. Some argue that the reason why a basic belief (the main justification) is likely to be true, need not be known to the believer. All that is required (depending on which version of Foundational Externalism one subscribes to) is the obtaining of an appropriate relation (causal or nomological in character) between the believer and the world. What this description is saying, is that you could say that you believe that the sky is blue, because you are experiencing it. And this justification would then (despite your lack of actual knowledge) imply that you believe that the sky is blue, because the forces of nature make you believe it, and this should suffice. This means that a Foundational Externalist must either argue that a person need not have a cognitive grasp as to why the basic belief is true, or that one's justification arises from immediate experience, i.e., the idea of the empirically given (BonJour, 1985).

Another theory claims that the number of justifications required in order to justify a belief, has to be infinite and non-repeating, for the purpose of avoiding circularity and arbitrariness. This dismissal of the regress problem is called Infinitism (Klein, 1999). Understanding Infinitism can be both easy and hard. It is easy if you quite simply already believe that the conception of knowledge is useless, and that a pragmatic form of justification is the best that we can come up with. i.e., we justify to the best of our abilities and that should

suffice. What Infitism is actually stating is that the regress problem isn't a problem at all, and that it is unfair to ask of us that we should be able to justify our beliefs from A - Z, considering that you can always be questioned why you believe that Z. So basically, you are justified in holding your beliefs as long as you can continue on justifying them. It is however more difficult to understand Infitism, if you believe that knowledge about the world can be held by the mind. Infantilism's entry into the Externalism category is philosophically controversial, yet justifiable. Proponents of Infitism claim that the theory should be classified as Internalism, however, as a means to give a claimed "known reason" for holding a belief as true, i.e., knowledge, Infitism cannot abide without reference to an external world. Meaning: sooner or later the mind will need new data from the external world, in order to create new beliefs/justifications. Aristotle pointed out that a man cannot believe in anything more than in the things he knows, and since infinite justifications are unknowable, both in practice and in theory, an Infitist cannot claim to have a infinitely justified Internalist belief, i.e., knowledge (Aristotle, 50BC).

Internalism. That which exemplifies Internalism is that the core belief(s) are unequivocally internal (and knowable) to the person. Meaning, that the final justification you would present if questioned why you believe something, is actually cognitively accessible to you (memories), i.e., you actually do know, and can express your ultimate justification(s).

Internalist Foundationalism purports to terminate the regress with a basic belief. Such a belief is so fundamental that it does not require further justification because it is "self-justified". An example of this would be: The belief in God and the validity of The Bible as an absolute truth. All theist religions have dogmas that are versions of Internalist Foundationalism. The central thesis of Internalist Foundationalism is that some beliefs possess a measure of epistemological justification which is somehow intrinsic to them, in the sense that they are not dependent on other beliefs (like God's existence is obvious and irrefutable). These basic beliefs are regarded as the ultimate source of justification for all of empirical knowledge (BonJour, 1985). An example of this would be: I believe that Noah became 950 years old, because the bible is the word of God, and God does not lie.

A second example of Internalism, are Coherence theories of justification. And while these theories are difficult ones to understand (in depth), it is worth noting that Einstein's theory of general relativity is a coherence theory, i.e., a theory whose different aspects, are of reciprocal support. These types of theories also claim that the justifying belief(s) are required to be at least accessible to the believer of the belief system, in order for the holder of such a system to be in a justified position. Coherentist versions of epistemological justification often

at first glance (understandably) face the charges of being circular in its reasoning, as in (A-B-C-A). But this is a common misconception, because it is not the case that the justification process in a coherent system, necessarily “moves” along a linear circle of the form (A-B-C-A). Rather, the envisioned structure of justification in BonJour’s version, takes a non-linear form that is multidimensional. Imagine a web where every intersection-point is a belief/justification, with connections to all their neighbors.

On this account the problematic regress dissolves, because there is no linear demand that one justification must be placed prior another justification in a “chain of justifications”. Instead, the justifications are (figuratively) surrounding each other without epistemological priority. On this nonlinear account of justification, beliefs are inferentially justified in the overall context of a coherent system. The system is thereby holistic in character, meaning that the relations between the beliefs in the system are of reciprocal support. The justification of a particular empirical belief therefore depends on the coherence of the overall system of beliefs of which it belongs. Whereby a person is allowed to trust their acknowledged beliefs/justifications, provided that they show a sufficient degree of coherence. (BonJour, 1985).

Purpose

A potential association between the degree of extraversion an individual possesses and their style of epistemological justification (Externalism or Internalism) will be examined in this correlational study.

Being that there does not exist a scale that measures to which extent an individual justifies their epistemological beliefs in either a Externalist manner or in a Internalist manner, a second purpose of this study, is the development of a scale that measures the phenomenon.

The justification portion of the questionnaire, will comprised of statements regarding what individuals believe regarding epistemological justification, i.e., what they believe gives credence to their own beliefs. Statements from numerous philosophical theories will be used, in order to create a clear demarcation between the category of statements that are Externalist, and the category of statements that are Internalist. This is possible because all theories regarding epistemological knowledge claims, utilize either an Externalist approach or an Internalist approach. (See the method section for the full information on the development of this scale.)

Hypothesis

The hypothesis of this study was that extraversion would be associated with tendency of epistemological justification. This would be expressed as a correlation between scores on the extraversion scale and scores on the epistemological justification scale, in the direction that extraverted people would justify their epistemological beliefs in a Externalistic manner, whereas introverted people would justify their epistemological beliefs in a more Internalistic manner.

Method

Participants

In order to participate in the survey, the participants had to be literate in English and at least 18 years old. Individuals, who were philosophers or scientists by College/University degree, were not permitted participation. The requirement that the participants may not hold a degree in philosophy or science was present, because there are biases within both disciplines, regarding which epistemological justification theory that is correct.

Sixty-seven people participated in the survey, whereby 56 surveys were deemed usable. The 11 discarded answers contained one extreme outlier, who had a maximum score of 40 on the extroversion scale. Further, there were five incorrectly filled out surveys, where multiple tick boxes regarding the statements had been ticked, despite this function being disabled by the administrator. There were three un-eligible participants who realized during their completion of the survey that they were not eligible because of their degrees. And there were two complete misunderstandings regarding the justification statements, as illustrated by participants personal comments in the comment section of the survey. One participant disagreed with the definitions of beliefs and justifications, claiming that a epistemological justification can be both internal and external at the same time (violating the law of the excluded middle, law of logic). The other participant stated their interpretation of what beliefs and justifications were, but their definitions were (to the administrator) unintelligible, as if to confuse the administrator. Based on this, the participant's questionnaires were discarded, because either they did not understand the concepts underlying the statements, or they were just messing about.

Of the 56 answers, the mean age of the respondents was 25.25 ($SD= 4.77$). The gender distribution (biological sex) in this survey was 23 males, 32 females, and one "Rather not say". The level of completed education distribution was Elementary school zero, Secondary

school 29, College/University 27 and Doctoral zero. A calculation of Power was not possible, because it was unknown what the effect sizes should be.

Due to time restrictions, recruitment of participants was done by convenience sampling. Participants were acquired by face to face interactions (on campus at Lund University), and by invitations to participate via email, social media and phone calls. On campus, candy was offered as an incentive for participation. The recruiter was male.

Material

The survey was constructed in English, with the motivation that because the philosophical source material was written in English, and the epistemological statements were constructed from said sources material, a translation to another language might possibly change the semantic connotations of these statements. The eight statements regarding extraversion remained in their original language (English) for the sake of language consistency across the survey.

Extraversion scale. Considering that previous research regarding extraversion is plentiful, The Big Five inventory questionnaire served as the base from which extraversion statements were gathered. For practical reasons, the short version statements measuring extraversion facets were used (John & Srivastava, 1999). (See the appendix section to view the scale in full.)

Participants had five options when they answered: Disagree strongly, Disagree a little, Neither agree nor disagree, Agree a little, and Agree Strongly. Scores 1 through 5 were awarded from Disagree Strongly up to Agree strongly, with reversed scoring on items number (two, five, and seven) as according to Goldberg BFI 44-item inventory (John & Srivastava, 1999). Scores on this scale range from 8 to 40 and represent the possible range between minimum extraversion (introversion) and maximum extraversion. The BFI 44-item inventory has displayed moderate to strong levels of reliability and showed substantial discriminatory validity, upon the development of the scale (Soto & John, 2009).

Epistemological justification scale. The participants of this study were encouraged to question their own belief structure, and to give a wholly subjective account of what they considered to “give credence to “ their beliefs i.e., justify their beliefs.

Statements representing the Externalism/Internalism demarcation were gathered from the theories discussed in the Epistemological justification section. These nine best represent

the demarcation between Externalism and Internalism according to my expertise (Bachelor's degree in theoretical philosophy with a focus on epistemological justification).

The construction of the epistemological justification scale was completed after a selection process was carried out. This process entailed an analysis, whereby the statements were philosophically scrutinized (finding logical contradictions was the goal). Nine statements were deemed appropriate (for a general population). A short trial run was conducted. The results were mixed, but there were tendencies amongst the participants towards both Externalism and Internalism.

Below, in table 1, are the statements and information regarding how to interpret the participant's answers. The statements are presented in the order that they were presented in the survey. Details regarding the statements origins or theoretical background, and references to where further information regarding the particular statements can be found is listed after the table.

Table 1

Epistemological justification scale

Item number	Statement	Affirmation implies
1.	I believe that only beliefs can justify another belief.	Internalism
2.	I believe that you must ultimately refer to something out in the world to justify your beliefs.	Externalism
3.	I believe that there are technically an infinite amount of justifications at my disposal when I justify my beliefs.	Externalism
4.	I believe that there exist beliefs that are "self-justified" by way of being self-evident and undeniable.	Internalism
5.	I believe what I believe because I have seen it with my own eyes.	Externalism
6.	I believe that the ultimate justification for my beliefs is solely determined by factors that are internal to me as a person	Internalism
7.	I believe that additional factors that are external to me as a person are required for me to justify my beliefs.	Externalism
8.	I believe that I do not necessarily need to have a cognitive grasp as to why I believe what I believe, all that is required is that (my belief) has some sort of causal relation from the physical world.	Externalism
9.	I believe that trusting my senses is more rational than trusting my analytical skills.	Externalism

The consecutive nine paragraphs are descriptions of the nine statements in the adjacent table1.

Item one was taken from D. Davidson's "Coherence Theory of Truth and Knowledge". This theory on epistemological justification and truth, is exemplary of the main principle of Internalism, i.e., that beliefs exclusively can be justifications. For an exhaustive description of this theory, please refer to Davidson (1986).

Item two is the main principle of Externalist versions of Foundationalism. As the principal states, in order to justify your beliefs, you must refer to something that is external to your own mind. For details on this principal see, Wingren (2016).

Item three is the main principle of Infitism. The categorization of this principal is contested, but in this study it is categorized as an example of Externalism (see details on why, in the epistemological justification section). For a detailed description of Infitism see, Klein (1999).

Item four is the main principle of Foundational Internalism. This principle is often utilized in religions as it pertains the existence of God, whom guarantees that the beliefs of a disciple are justified, because of the self-evident existence of God and his creation (see details in the epistemological justification section). For further details on Foundational Internalism see, Wingren (2016) or Moreland and Craig (2003).

Item five is an example of "Naive Realism" which is an Externalist version of Foundationalism. This statement is the belief that everything is as you perceive it to be, because our senses have a direct connection to the external world. Further details on Naive Realism, see Nuttall (2013).

Item six is the main principle of Cartesian Foundationalism which illustrates the rationale of an Internalist. The origin of the Cartesian mindset, stems from Descartes famous dictum "I think, therefore I am." i.e., his "Cogito". For further details on Cartesian Foundationalism, please refer to Descartes (1641).

Item seven is an example of Externalism, and is similar to item two. But, whereas item two claims that the justifications must be external to one's own mind, item seven claims: that the justifications must also be external to one's own sensory modalities and proprioception. For further details see, Wingren (2016).

Item eight is an example of "Scientific Realism" which is an Externalist version of Foundationalism. The rationale behind this statement is that it is assumed, that our senses can be trusted, because they present a somewhat consistent and coherent picture of reality in sober

states of consciousness. For further details on Scientific Realism, see, Psillos (2005).

Item nine is the main principle of Empiricism. The rationale behind this statement is that while our reasoning skills can falter, the visual picture of reality remains stable over time. Details on empiricism can be found in (Curd & Psillos, 2013).

Scores and validity. A perfect score (all nine answers either Externalism or Internalism) would mean that an individual is completely consistent in their reasoning, in regards to what the statements connote (a specific type of belief structure). An inconsistent answer however (a mixture of Externalism and Internalism) would indicate that the person is inconsistent in their reasoning. This should not be taken as an insult, the statements are complex, but this is not an IQ test, only a measurement of how people (when put to the task) justify their beliefs. It is worth noting that, any test constructed to measure epistemological justification, would be limited (by) and to the extent that the statements connote. Meaning, that a perfect score only reflects that they are consistent within the parameters of the survey. This also means that a person could (hypothetically) have an inconsistent result on this specific scale, but their own complete belief system allows for this inconsistency without logical contradiction. Details on this can be found in the author's bachelor thesis in theoretical philosophy (Wingren, 2016).

The participants were not asked to construct entire belief structures (such as those mentioned in the epistemological justification section), they were only asked by the questionnaire, to indicate whether they subscribed to a empiricist or rationalist conception of justification. Few, if any, perfect scores were expected to be yielded. A clear indication of a preference (for), was however expected to show up in the dataset.

A major part of this study was the testing of the scale itself, besides actually correlating the results with extraversion. If the scale is reliable, then it can be used in future investigations regarding epistemological justification.

Additionally, practical applications of this scale, could be the implementation of a justification test, as to further research individuals line of reasoning, in order to ascertain their logical, consistent and coherent levels of reasoning. This could be useful at a job interview at an important societal position.

Although the epistemological portion of the questionnaire is a new and its reliability unproven, the validity of it should not be a matter of concern, because all of the utilized statements have been through rigorous debates of philosophical discussion and been peer reviewed. Hence they should at minimum, be logically sound and valid, consistent and coherent. Because the implications of externalist propositions are diametrically opposed to

internalist propositions, meaning that they connote separate concepts that are expressed in each and every statement (epistemological justifications are either obtained in the physical world, or in your mind), and the questionnaire only gives you two options.

Design and procedure

The general research design was a correlational study, and a test of the reliability of the new epistemological justification scale.

A questionnaire was constructed in order to measure the phenomenon at hand. After this, the study began, and the complete questionnaire was handed out via social media, emails and on location. Upon receiving the survey, participants were asked to read the participation criterion and then asked to tick the tick box indicating that they were at least 18 years old, and that they did not hold a College/University degree in either philosophy or science. The participants were then asked to take a stance towards eight statements regarding extraversion, followed by nine statements regarding epistemological justification. Upon completion of the survey, participants were asked to submit their level of completed education, with the following options to tick: Elementary school, Secondary school, College/University and Doctoral. Participants were also required to submit age and biological sex, with the options of Male, Female and Rather not say. The questionnaire was created in Google-forms.

Data analysis

The resulting individual scores on the Epistemological scale were meant to be interpreted in the following manner: If an individual's answer (true or false) corresponded with Externalism, they scored 1. If an individual's answer (true or false) corresponded with Internalism, they scored 0. The score variance 0-9 indicated to what extent the participants had tendencies towards either conception of epistemological justification. A score of 9 meant that the participant's tendencies were exclusively externalistic. A score of 0 meant that the participant's tendencies were exclusively internalistic.

Given that the variables were normally distributed Pearson's r was used to test the correlation between Extraversion and style of epistemological justification.

Ethics

Ethical considerations were implemented in this study. Participants were informed about their anonymity and that no personal data was to be collected. Information that participation was voluntary, and that they could withdraw participation at any time without

providing a reason if ever they felt like it, was also given to the participants. They were also informed that the gathered data would be deleted upon the studies completion. If the participants wished to ask any questions before, during or after the completion of the survey, they were provided with the option to ask questions face to face (if survey is done on site) or/and via an email address provided on the front page of the survey.

Results

Scale reliability

Cronbach's alpha reliability tests concluded that the eight statement Extraversion scale had a .857 alpha value. The nine item Epistemological justification scale initially had a .086 alpha value. Below, in table 2, are the statistics for each item.

Table 2

List of items included in the Epistemological Justification Scale

Items	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
1. I believe that only beliefs can justify another belief.	-0.078	0.176
2. I believe that you must ultimately refer to something out in the world to justify your beliefs.	0.271	-.082 ^a
3. I believe that there are technically an infinite amount of justifications at my disposal when I justify my beliefs.	-0.183	0.249
4. I believe that there exist beliefs that are "self-justified" by way of being self-evident and undeniable.	0.034	0.105
5. I believe what I believe because I have seen it with my own eyes.	0.01	0.121
6. I believe that the ultimate justification for my beliefs is solely determined by factors that are internal to me as a person	0.291	-.087 ^a
7. I believe that additional factors that are external to me as a person are required for me to justify my beliefs.	0.27	-.053 ^a
8. I believe that I do not necessarily need to have a cognitive grasp as to why I believe what I believe, all that is required is that (my belief) has some sort of causal relation from the physical world.	0.016	0.118
9. I believe that trusting my senses is more rational than trusting my analytical skills.	-0.192	0.241

Upon analysis, it was that concluded that three of the nine items correlated negatively with the other items (to a higher degree than the others did). Based on this, only the six items that gave an optimal Cronbach's alpha value were used.

Item-Total Statistics, in table 2 above, showed that if items one, three and nine were to be removed, then the Cronbach's alpha value would increase to .419. So these three items were removed. For scales with less than 10 items, an alpha value of .5 is required. However, .419 was the value that was rendered for the adjusted six item Epistemological justification scale. And because the Cronbach's alpha value was optimal with these six items (of the total nine), and in the interest of further development of the scale, these six items is what was used for the correlational test.

Descriptive statistics

With a possible top score of 40 on the extraversion scale, the mean level of extraversion amongst the participants were 26.95 ($SD=3.25$).

With a possible top score of 6 on the adjusted (six item) epistemological justification scale, the mean level of epistemological justification amongst the participants were 3.32 ($SD=1.48$).

No significant correlation between extraversion and epistemological justification was found $r(54)=.00$. $p=.98$. This did not support the hypothesis.

Discussion

Interpretation of the results

As it relates to the theory of the paper and its hypothesis that extraversion positively correlates with tendency of epistemological justification, the results do not support it. This result may stem from the scales potential inadequacies or from the absence of an actual correlation between the phenomena.

Besides the tendencies of extraverted people, the basis for the hypothesis that there would be a correlation stems from observations of people that (at least on the surface) act as if they are polarized regarding their beliefs, when it comes to what they consider as evidence for ordinary day propositions. So it was expected that even if there were no correlation with extraversion, then at least the results would illustrate a tendency that shows that people have a preference for either Externalism/Empiricism or Internalism/Rationalism. This would of course mean that the participants tended to get scores that were either above or below three on the adjusted scale. On this matter the results were unquestionable. On the adjusted six item scale the mean was approximately three. This would seem to put to rest the idea that people have an actual coherent preference, given that they understood the statements.

It is apparent that the epistemological justification scale either needs a complete semantic analysis of its content and a potential rephrasing of the statements, or it needs to be discarded in its entirety. According to the results, there were three items that were inappropriate for this study, and the remaining six items were not sufficiently reliable. These results along with the distribution being unimodal instead of bimodal as expected, leaves us with a couple of explanations of the results. As it pertains to the scale, either it is incorrectly

constructed, or it is too abstract, making it difficult for the participants to understand. Pertaining the participants, either their belief systems allow contradictory beliefs to subsist simultaneously (which is theoretically possible from the perspective of the egocentric predicament), or they do not know why they believe what they believe, in the epistemological sense.

Error sources. That some participants had trouble understanding the statements was evident. Conversations with participants have illustrated some tendencies of confusion. Despite a clear illustration in the survey regarding what justificational beliefs are (The “The sky is blue” illustration) the most common question that was asked was, “What do you mean by belief?” To which the response: “A conviction that you hold as true” was given.

In the comment section of the survey two participants gave their personal opinions on what constituted a justificational belief. One of them wrote a definition that this administrator found unintelligible, and the other person claimed that (main) justifications can be both internal and external at the same time. So misunderstandings during this survey did occur. These participants wrote comments illustrating that they did not understand, and this raises the question: How many of the 56 participants that did not comment on the surveys subject matter, also misunderstood the statements?

Perhaps the statements were too abstract for comprehension, or perhaps the people who answered the survey found the statements tediously complicated. While it might come across a bit arrogant to presume that the scale is too abstract for non-philosophers, atheists, or people without scientific degrees, and that this is the reason for the unexpected results of this study, please keep in mind that: This should not be viewed as a fault of the questionnaire (as an instrument), the questionnaire is as logically solid as a math test. But as with math, there exist a level of abstraction that most people cannot comprehend without formal training, so there is a possibility that this survey was on such a level.

These epistemological statements have all been extracted from philosophical literature spanning across 2000 years. And while this, in and of itself, is not a valid argument, and neither is the appeal to authority that the statement implies, one cannot disregard that: Socrates, Plato and Aristotle (amongst others) all dedicated their lives to answer the most basic question that exists “What reasons i.e., justifications, do, can and will grant the status of “justified” to the proposition that is being thought?”, meaning, how do I know that I am justified in believing my own current thought?

It is highly unlikely that the most well renowned philosophers of history are all incorrect when they state explicitly, or implicitly (through their theories) that statements

affirming Externalism are diametrically opposed to statements affirming Internalism, in regards to epistemological justification.

This does not mean that the scale is perfect, because what was just stated is not a real argument, only a reminder that these individuals gave a lot of thought on the subject matter. But, illogical answers throughout the questionnaire that thereby lower its Cronbach's alpha reliability value should not be regarded as proof of the questionnaire's poor design either.

Math is built on propositional logic and so is this scale. If someone fails a math test, the first reaction is not that there is something wrong with the test, rather, the test is most likely to difficult or abstract for the student. The statements themselves are valid and logically sound. If there is an error involved, then it most likely is a human error.

The mechanics of the scale were as follows, Example: Item five states: "I believe what I believe because I have seen it with my own eyes." This statement is, in and of itself, unequivocally Externalism, and the participant could either affirm or repudiate. If the participant affirmed item five, then their answer were to be classified as externalistic. The participant affirmed, therefore externalistic. (If P then Q, P therefore Q) basic propositional logic with sound and valid premises.

If confusion arose, and guesses were made, then that would explain the results. The other possible explanation is that surface beliefs i.e., automatic thoughts, influenced the participants (what was to be) epistemological thoughts, and the participants answered sincerely regarding what they thought the statements connoted (which the statements did not connote).

Another conceivable reason for the results might be that, humans (in general) just do not question their belief systems to an extent that reveals an actual structure, because they do not need to, unless it is required of them in their profession. This of course has terrifying implications (that people do not know why they believe, what they believe). People have a tendency to rely on religion and ideology and often use these as ends to justify their means, but these are belief systems, not structures. The belief system is the religion, and the axioms that the faith is built upon is the structure, which of course can be a part of the religious canon. Point being, that most people are not devoutly religious, or scientists or philosophers, hence they do not ponder the type of questions that give rise to epistemological subject matters. If people do not have a conviction from which they can justify themselves and their behavior, then they cannot be expected to give coherent answers when questioned.

As with the results of the correlational studies regarding extraversion and religiosity, which both had significant correlations (positive and negative) as well as non-significant

correlations (Francis & Pearson, 1985), there seems to be something that these studies (regarding religiosity and Internalism) cannot grasp. Why else did those studies produce weak correlations at best and non-significant at worst. And this study got underwhelming results for the same reason, meaning that there is some (content of thought) that statements regarding fundamental beliefs cannot mediate from the mind of the thinker to the reader of the statement. The nine original statements were meticulously chosen because, together they paint two logical pictures from which the reader can actively choose a side that coincides with their view of reality, all they have to do is choose. Now imagine ordinary people with jobs and families and activities, if people who have a list of two ways to justify their beliefs cannot do it, how can the busy family person be expected to know how? Exposure to science, philosophy or religion seems to be required, in order for a structure to form.

Regarding religious beliefs specifically, the problem seems more obvious. How do you stipulate epistemological justifications regarding an entity that is immaterial and omnipotent? I dare to speculate that no two religious people view God in the exact same manner, hence their beliefs vary.

The results of this study truly were surprising, because, whereas the manners in which one can believe (about) a deity are potentially infinite, the epistemological justification scale had a binary structure. Participants were given two options of justification styles, represented by high or low numbers, yet individuals tended to be located in the middle. From a philosophical point of view, this is odd. From a logicians point of view this is contradictory. The participants were given a choice to justify their beliefs by either pointing at something in the world (like Aristotle), or by pointing at something in their mind (like Plato), and they chose both.

If I may be afforded to speculate one step further, I would venture to say that the reason why correlations between extraversion and religiosity, and extraversion and epistemological justification does not give any considerable significant results, is because the act of justifying one's most fundamental/basic belief(s) is at best difficult, and at worst paradoxical. As mentioned in the introduction, some people assume without hesitation that the world is as they perceive it to be. This is not true for the majority of people, who are well aware that our senses can be deceiving.

This ties in with Solipsism, as mentioned in the introduction, some people (Solipsists) deny that anything besides their own consciousness exist. While this at first sight seems childish or like a disorder, these people are real life victims of the egocentric predicament, but they are not irrational per se, they are just logically “stuck” in an argument that does not offer

a way out of it, hence they suffer. The reason why they do this is because, you cannot logically derive justifications for “The world exists” from “I think, therefore I am” without making an unfounded assumption about the nature of reality. Solipsists excluded, everybody makes a minimum of one unfounded assumption as regards to life, the world and literally everything in it. It is logically impossible to prove the existence of literally anything besides your own consciousness, without making at least one assumption. Everybody does a leap of faith (consciously or unconsciously), and this is the core problem as it pertains to why epistemological justifications (including the religious sort) are highly problematic for the mind to overcome logically, and hence difficult to test; they are based on faith and are entirely subjective and are at their core, unfounded (logically speaking). While, Realism is the healthier way of viewing the world, it comes with a price, Realism cannot be proven true (Hacking, 1983), therefore you can only justify your beliefs up to a point, and then you can no more.

Fortunately, this is most often an irritating conundrum for philosophers and not something that afflicts the major population. What this illustrates is that for better or worse, philosophers reason differently than the major population, and while religious people and scientists do tackle some difficult questions that have major implications on mental health (fear of Hell and cosmic Nihilism), some questions are just not worth the risk.

Possible improvements

It might have been possible to get consistent responses, if this survey was an interactive computer program with a database of statements. It could then have fed the participants with new statements, that were based on the answers of prior statements. If this was possible, then the computer programs algorithm could pick and choose which statements the participant should answer, based only on prior data and a few axioms such as “The participant is a theist” or “The participant is an atheist” that the participants themselves clicks on. That way the computer could remove all the non-essential statements, and orient the participants towards the appropriate sort of metaphysics, if it was programmed with the basic rules of propositional logic (modus ponens and modus tollens). This kind of survey would achieve consistent answers. However, the beliefs that the program extracts from the participants would be inferences created there and then when taking the survey, and not deeply held beliefs.

Strengths and weaknesses

The weaknesses of this study are first and foremost its unproven capabilities as it regards to measuring actual preferences and tendencies of justification. This study was meant to be something that would connect psychology and philosophy on a concrete matter. While beliefs undoubtedly are psychological phenomenon, their mechanics and inner workings (the induction, deduction and abduction etc.) coupled with ideology and theism or atheism, undoubtedly belong to the philosophical discipline. It is unfortunate that no tangible results were produced, as it would at least given both sides an incentive to communicate across faculties and universities.

And while suspicions have arisen regarding, that this study was perhaps a bit too ambitious, the situation remains unchanged. The people that easiest would have understood the epistemological justification portion of the questionnaire (philosophers and scientists) cannot partake in it, because of the biases within the educational system as regards to the philosophy of science. The results would have been entirely skewed towards Externalism/Empiricism, because of the assumption that Internalism/Rationalism is intended for skeptics and religious people, which just is not true (as illustrated in the epistemological justification section). Besides, an immediate experience (of “God”) while high on psilocybin mushrooms, would serve as a Foundational Externalism justification, whereas theories on the Big Bang derived from introspection would constitute a basic belief and Internalism. So how does one examine a subject matter where one category of people understand the statements but have been subjected to biases that exclude them from partaking, and the other category of people have trouble understanding the statements, but have not been subjected to biases that would exclude them?

The method used in this study (survey, coding, reliability tests and correlational analysis) would have benefitted from an actual discussion setting between the survey administrator and the participants. Even though the participants were given the opportunity to contact the administrator via email with questions, a face to face setting would have facilitated a more optimal opportunity for spontaneous questions to be answered, as was the case on location. Furthermore, visual illustrations could also have been provide to the participants, in order to help them visualize what an actual belief structure looks like, this could have facilitated a deeper understanding. Actual interviews would have eliminated some misunderstandings, given that the participants felt had comfortable admitting their confusions.

However, in order to carry out such a study, a team of researchers would be required in order to determine interrater reliability upon categorization of the participant's convictions.

So weaknesses of this study are first and foremost its failure to operationalize the complicated inner workings and mechanics of rational and logical thought, into concepts (statements) that people can understand without getting an education about it first. And that the survey probably would have been more successful in ascertaining coherent answers, if it were conducted as an interview instead of a digital survey.

Furthermore, there is also the problem of semantics. I defined the word belief as a personal conviction, and this is the common conception of the word. However, whilst most people understand the words "I believe that" as I (me) believe (hold the conviction) that (it is factual), what comes next is highly problematic. We cannot assume that most people both can conceptualize, and will conceptualize the combination of words such as: only beliefs can justify another belief, or, there exist beliefs that are "self-justified" by way of being self-evident and undeniable, in the same manner. Not to mention talks of infinity. And while the problem of reference and meaning afflicts all studies that use language in or as variables, it is still important to draw attention to that when we hear or see language; it creates psychological concepts (beliefs) that are not tangible.

So just as the language of our thought limits us in expression and description of personality traits, as so do the limits of language hinder us from conceptualizing and expressing our justifications. This fact most certainly affects the result of this and any other survey built on abstract structures such as factors, clusters, traits and justifications. If statements (as words) have the property of stating a fact, and statements (as expressions of thought) have the property of expressing an abstract concept confined to semantics of modern language, then these two are not equivalent. Yet, humans have the unenviable task of explication via this method. Meaning, that the trait tendencies that we have and express with words, are limited by (shaped by) our language, and in actuality; are only dimensions built in to our language, i.e., there just aren't enough adjectives, but the ones there are, fall into five categories regarding personality traits (Digman & Inouye, 1986). And while this seems to suffice for the established dimensions of personality, the same cannot be said about beliefs/justifications themselves, so how are we supposed to standardize statements of thought, when they automatically lose parts of their meaning upon publication?

Conclusions and future perspectives

Although the scale seems unusable, at least some progression was made, in the sense that if someone would care to further its development, then at least they know which items that should probably not be included (or that should be rephrased) in their version of the scale. This study can be seen as a first step on the road, which is an achievement in and of itself. Furthermore, I would also recommend that if someone were to continue the endeavor of bridging the gap between the psychological and philosophical disciplines, that they do conduct the survey as an interview. This would allow for questioning, making sure the participants understood the statements as they are intended to be understood, that would be the next logical step. And, there surely exists more propositions in the philosophical literature that could come in handy when constructing a new improved scale.

One reasonable conclusion regarding the scale can be made, either it is too abstract for comprehension, because people actually do have preferences that are external or internal which this scale failed to detect, or people do not know why they believe what they believe on the epistemological level (which the results strongly implies).

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Appendix

The standardized extraversion statements that were utilized, were gathered from and scored according to Goldberg BFI 44-item inventory (John & Srivastava, 1999).

1. I see myself as someone who is talkative.
2. I see myself as someone who is reserved.
3. I see myself as someone who is full of energy.
4. I see myself as someone who generates a lot of enthusiasm.
5. I see myself as someone who tends to be quiet.
6. I see myself as someone who has an assertive personality.
7. I see myself as someone who is sometimes shy, inhibited.
8. I see myself as someone who is outgoing, sociable

(See Materials section, for further information regarding the scale.)