The objective of this study was to examine whether representations of nonhuman animals could affect prejudice toward immigrants. Previous research has indicated that belief in a large divide between humans and other animals may underlie dehumanization and prejudice, whereas a belief in the continuity between humans and nonhuman animals can decrease dehumanization and prejudice. Based on Costello and Hodson’s (2010) study, an experimental framework was designed with two conditions, the *animals are like humans* (experimental) condition and the *geology* (control) condition. Specifically, the effect of the *animals are like humans* editorial on prejudice toward immigrants was examined, as well as the potentially mediating roles of humanization (traits and emotions), empathy, and recategorization. Values were also analyzed, to determine if and how one’s moral universe relates to these variables. Further, the social representations held about the groups *Finn*, *Immigrant*, *Animal*, and *Human* were examined, both quantitatively and qualitatively.

The participants were Finnish students from Laurea Polytechnic and the University of Helsinki (*N* = 195), all of whom self-selected to take part in an online survey. After being randomly divided into the experimental (*n* = 99) and control (*n* = 96) groups and reading the applicable editorial, participants answered questionnaires measuring prejudice, dehumanization (traits and emotions), empathy, recategorization, animal-human similarity, and values. They also completed a word association task.

The results of the intervention were mixed. The editorial did not have a direct effect on prejudice, or on most of the potential mediators. Only humanization emotions was significantly affected. Beyond the experimental manipulation, humanization (traits and emotions), empathy, and recategorization, as well as gender, school, and program of study all affected prejudice, accounting for 33.3% of its variance. Values relating to moral universe (universalism concern, nature, and tolerance; power resources and dominance) were significantly correlated with prejudice, humanization (traits and emotions), empathy, and recategorization. The trait and emotion scales were also examined for their content, and all traits and half of the emotions were significantly attributed to either Finns or immigrants, corresponding to stereotypic social representations of each group.
Finally, word associations for *Finn, Immigrant, Animal, and Human* were examined in total and by experimental group, both qualitatively and quantitatively. Cohesive hegemonic social representations were most commonly expressed for the *Finn, Animal, and Human* groups, whereas *Immigrant* was more variable, comprising multiple polemic representations. Parallels between the *Immigrant* and *Animal* groups were discussed, and the valences given to all groups were analyzed and found to differ significantly across groups. Additionally, a significant effect of the experimental condition on the *Immigrant* group was found.

The mixed results are discussed in light of methodological concerns and cultural implications. Overall, results indicate that representations of nonhuman animals may affect prejudice toward immigrants, and that targeting these representations could be a promising prejudice reduction method. Further research accounting for the issues raised by this study should be conducted.
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1 Introduction

Prejudice is a central area in social psychology because it is a massive social problem for which solutions need to be found. Intergroup enmity is increasing throughout much of the world; it is even becoming socially and politically acceptable to openly endorse prejudice toward certain outgroups, which has not been the case for several decades. Right wing, anti-immigrant political parties are on the rise throughout Europe, and similar rhetoric is beginning to crop up in immigrant-based societies, such as the United States and even Canada. This is a serious domestic issue in many countries, as well as a concern for international relations. Prejudice must be addressed for its own sake, as well as so that global solutions can be found and implemented to combat our shared problems such as climate change, worldwide resource depletion, and overpopulation.

Prejudice toward various human groups has been studied extensively in social psychology and other disciplines. However, even with the planet-wide problems facing our world today, one aspect that has not been scrutinized thoroughly is biases toward nonhuman (NH) animals\(^1\) and/or the rest of the natural world, or whether there is a relationship between biases against NH animals and prejudice toward other humans. In this study, I wanted to find a way to examine these different – but I believe intimately related – topics.\(^2\) My original inquiry could be summed up as such: if you include nonhuman animals and/or the natural world within your sphere of moral inclusion, are you then more likely to include other outgroups in your moral universe?\(^3\)

A recent approach has postulated that the roots of prejudice, and specifically dehumanization, grow out of cultural beliefs in a wide divide between humans and other

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1 I use the term nonhuman (NH) animals, as is the custom among many researchers in this subject (e.g., Kwan, Gosling, & John, 2008), to highlight the scientific reality that humans are also animals. The very fact that we do not consider ourselves to be, and that we socially recognize the term “animal” to mean all other creatures, is just one example of the exaggerated animal-human divide being examined.

2 In the interest of full disclosure, although my research almost exclusively discusses how representations of NH animals affect human issues, I am equally concerned with how they affect NH animals and the rest of the natural world. In this way, I see minimizing the animal-human divide as beneficial to both humans and other animals, and to life across the planet more generally.

3 Moral universe, or moral ingroup, consists of “(categories of) persons to whom (s)he thinks (s)he has duties and/or who (s)he thinks are equal to her or him” (Helkama, 2009, p. 139, brackets in original).
animals. Viewing humans as a distinct and exceptional group, separate from and superior to the rest of the natural world, allows one to exclude all NH animals from moral consideration. It also provides a referent category into which other, disliked human groups can be put. This thesis is an investigation of this topic; specifically, it is a replication of Costello and Hodson’s (2010) experiment, with several variations. I attempt to induce the perception of humans and other animals as part of a continuum, rather than being strictly divided, to see if this lessens the degree to which participants feel prejudiced towards immigrants. This intervention is intended to increase humanization (traits and emotions), empathy, and recategorization, each of which is also theorized to decrease prejudice. Beyond the replication, I also explore the social representations that are held of Finns, immigrants, animals, and humans; how they related to each other and how they relate to prejudice.

Following the introduction in section 1, the extensive and varied theoretical underpinnings of this research is discussed in section 2. Section 2.1 addresses prejudice, and is comprised of a brief overview of some of the mainstream theories (2.1.1), the intersection of various prejudices (2.1.2), and prejudice’s relationship with dehumanization (2.1.3). Section 2.2 focuses on dehumanization and, inversely, humanization, including the socially represented nature of dehumanization (2.2.1), studies on those emotions and traits that are considered to be either uniquely human or not uniquely human (2.2.2), and (de)humanization’s links to recategorization and empathy (2.2.3). Recategorization makes up the subject of section 2.3, namely the application of recategorization (2.3.1), and recategorization’s relationship with both empathy and one’s moral universe (2.3.2). Section 2.4 is an exploration of empathy, addressing dispositional empathy and other traits (2.4.1), inducing empathy (2.4.2), and empathy’s relationship to one’s moral universe (2.4.3). This leads into section 2.5 and an examination of moral universe, both specifically via Schwartz’s perspective (2.5.1), and in terms of the animal-human divide and hierarchy (2.5.2). Section 2.6 surveys a few issues pertinent to NH animals more generally within science, culture, and history. These include a brief historical analysis of the roots and propagation of the animal-human divide (2.6.1), a look at the links between attitudes toward humans and other animals, both historically and empirically (2.6.2), NH animals in science, notably anthropomorphism and its counterpart, anthropodenial (2.6.3), as well as the effect of
Finally, section 2.7 outlines Costello and Hodson’s (2010) study, both what they found in their first exploration of the subject (2.7.1), as well as the results of their attempt to experimentally induce continuity between humans and other animals (2.7.2), after which I will briefly introduce this study (2.7.3).

Once the background has been addressed, the research questions are delineated in section 3. They are divided into those questions relating to the replication of Costello and Hodson’s (2010) study (3.1), as well as those unique to this study, which address the social representations of the groups in question (3.2), regarding traits and emotions in the questionnaires (3.2.1) as well as the qualitative word association questions (3.2.2). Next is methodology in section 4. This includes participants (4.1), instruments (4.2), and the analytical strategy (4.3), split into strategies used for the quantitative data (4.3.1), and those used for the qualitative data (4.3.2). This is followed by the results in section 5, once more broken into the replication results (5.1), and the social representation results (5.2), by emotions and traits (5.2.1) and word associations (5.2.2). The discussion is presented in section 6, comprised of general discussion (6.1), methodological issues (6.2), the study’s strengths and contributions to the field (6.3), suggestions for future research (6.4), and final thoughts (6.5). A number of appendices are also included, after the references.

2 Theoretical Background

There is a wide breadth of research that applies to this study that must be addressed. This includes contributions from multiple sub-disciplines of social psychology, as well as from outside of the field. However, one theoretical framework frames most of the study, which must be explicated, and that is social representations theory (SRT). SRT is at the crossroad between individuals and society, as well as between the cognitive and social (Sakki & Pirttilä-Backman, 2009), making it a natural framework through which to examine this topic. Though no absolute definition of SRT exists, Sakki (2010) has articulated it in this way: “Social representations have two primary functions, they enable people to master their material and social worlds and they enable people to communicate. Social representations are shared knowledge by a community” (p. 39). A
forthright examination of this shared knowledge, particularly about the animal-human divide, underpins this thesis.

The key variables are prejudice, dehumanization, recategorization, empathy, and moral universe, so each will be attended to in turn. Further, the topic of NH animals and their relationship to prejudice must be socially anchored and explicated, which necessitates some level of scrutiny about how they are framed and enacted within society more broadly. Finally, before going into the details of this study, Costello and Hodson’s novel approach and findings must be examined in brief. To begin, prejudice will be addressed.

2.1 Prejudice

Prejudice has been discussed and defined in numerous ways over the years by both researchers and laypeople, sometimes in contrasting and even contradictory ways. For example, there has been a historical debate in social psychology about whether all thought is inherently prejudiced, versus whether prejudiced thought is fundamentally different from non-prejudiced thought (Billig, 1985). There have been controversies about whether prejudice is always necessarily bad, whether it is simply an attitude (and what is meant by attitude), and how closely behaviour is related to said attitude (Duckitt, 1992). Some researchers question if prejudice really needs to include derogation of outgroups, or if it can simply mean “preferential positivity toward ingroups” (Brewer, 1999, p. 430). These dialogues have abounded ever since Gordon W. Allport’s (1979/1954) famous treatise on the subject, which made prejudice – and its nature – a focal point in social psychology. According to Allport (1979/1954): “Ethnic prejudice is an antipathy based upon a faulty and inflexible generalization. It may be felt or expressed. It may be directed toward a group as a whole, or toward an individual because he [sic] is a member of that group” (p. 9). This definition alone contains numerous debates within it.

Some researchers distinguish between a traditional form of overt, blatant prejudice and a more recent type of covert, subtle prejudice (e.g., Pettigrew & Meertens, 1995). Others examine the various moderators of prejudice (see Hewstone, Rubin, & Willis, 2002). Some concentrate exclusively on certain elements of prejudice; for example, there have been numerous critiques of models that focus on cognition and miss other
important factors, such as Tajfel’s social cognitive approach to prejudice (Billig, 2002). What is obvious is that prejudice is a central focus in social psychology. As noted by Brewer (1997): “Understanding prejudice and intergroup conflict invokes virtually every area of social psychological inquiry—including the study of person perception, social attitudes, aggression, self-esteem, social comparison, equity, cooperation and competition, conformity and compliance, and group identification. Further, the study of prejudice crosses all our levels of analysis, from intraindividual to interpersonal to intergroup processes” (p. 198). It seems that almost every area of social psychology can be applied, in one way or another, to the understanding of prejudice.

Paluck and Green (2009) recently conducted an overarching review of hundreds of published and unpublished studies on prejudice reduction and have designated a simple yet comprehensive definition based upon those regularly used by prejudice researchers, namely that prejudice is “a negative bias toward a social category of people, with cognitive, affective, and behavioral components” (p. 340). This is the working definition that will be kept in mind throughout the following discussion, paired with this crucial addition from Moscovici (2010): “What we call a prejudice is neither an expression nor a definition of a given reality, but of the goal or aim of a group or a society” (p. 3). Some pertinent theories about prejudice will now be examined, as well as the intersectional nature of prejudice, and how it is linked to dehumanization.

2.1.1 Social psychological theories of prejudice

There are almost as many theories about prejudice as there are definitions of it. These theories understandably differ depending on what definition is used, but also depending on the ontology and epistemology of the theorists. One notable distinction is contingent upon where on the continuum from realism to constructionism the theorist falls; that is, whether they believe in a knowable reality hidden in a person’s mind, based on such things as their personality, upbringing, and cognitive abilities, or whether they believe that all reality is socially constructed and dependent upon context. Still others see these two elements as concurrent rather than contradictory. (Madill, Jordan, & Shirley, 2000.) Prejudice has been researched in all main sub-fields of social psychology; social cognition (e.g., Pettigrew & Meertens, 1995; Pratto, Sidanius, Stallworth, & Malle, 1994), social identity theory (e.g., Hewstone et al., 2002; Tajfel, 1970), social
representations (e.g., Joffe & Staerklé, 2007; Moscovici & Perez, 1997), and discursive psychology (e.g., Billig, 1985; Augoustinos, Tuffin, & Rapley, 1999); some even bridge several sub-fields (e.g, Potter & Wetherell, 1998; Verkuyten, 2005). Prejudice has been studied within each sub-discipline from different angles (see e.g., Augoustinos, Walker, & Donaghue, 2006). As noted, prejudice is incredibly complex; thus, theories about it generally focus on a certain type or factor, while acknowledging (explicitly or implicitly) that other elements are involved (Duckitt, 1992).

One of the earliest social cognitive theories of prejudice, the authoritarian personality, suggests that people are predisposed to prejudice when their personality is characterized by rigidity of thought, deference and anxiety toward authorities, conformity to conventions, and scapegoating weaker members of society. Its early methodology was somewhat flawed, which for a time lessened the enthusiasm for this theory and its explanatory power. (Brown, 1995.) However, authoritarianism along with a later incarnation, termed social dominance orientation (which indicates the desire for one's ingroup to maintain dominance over outgroups), have had a recent resurgence as explanatory factors for prejudice and have been shown quite conclusively to predict prejudice (McFarland, 2010; as well as Costello & Hodson, 2010). An inversely related personality characteristic is empathy, which will be discussed in detail in section 2.4. Allport’s (1979/1954) well-known quote: "Defeated intellectually, prejudice lingers emotionally" (p. 328), is well founded and has stood the test of time. Emotions play a central role in prejudice, and ought to be addressed for interventions to be effective (see Sinisterra, Finell, & Geschke, 2009, for an overview of recent research on prejudice and emotions).

Another early and leading theory, intergroup contact theory (Allport, 1979/1954), stipulates that individuals may be afraid of the unknown, and may assume that those unlike them are much more different than they may actually be, which produces fear, anxiety, and feelings of threat (Stephan & Finlay, 1999), though this varies from person to person. Contact theory affirms that interaction between groups improves intergroup relations, which has been widely proven to be true, although only under specific conditions (see Pettigrew & Tropp, 2006, for a review). If contact with an outgroup member is generalized to the entire outgroup, this will occur for both positive and
negative experiences, so contact also has the potential to exacerbate intergroup tensions (Brown, 1995). Among the many refinements suggested to boost positive contact (see e.g., Hewstone et al., 2002), an additional extension to the theory has been delineated, namely extended contact theory. This theory suggests that even knowing that an ingroup member has a close relationship with an outgroup member can act as a positive model, leading to better intergroup relations (Liebkind & McAlister, 1999). This minimizes the chances of negative experiences while retaining the positive aspects of contact theory.

Other early causal theories include tension between models of prejudice that assume an inherent instinct for aggression that precludes rational thought, and models with a rational cognitive approach that emphasizes the changeable nature of prejudice and revolts against the idea that humans are hardwired for outgroup aggression. There is a fear that presumption of such an instinct at best merely accepts prejudice as inevitable and at worst can justify or condone it. (Billig, 2002.) The more cognitively oriented theories of prejudice can slip into similar problems if they over-rely on categorization as an explanatory tool for prejudiced thinking. This can lead to the same inevitability problem in that all human thinking requires categorization, therefore potentially all thinking predisposes humans to prejudgement, a supposition that has been heavily criticized (Billig, 1985). Both prejudiced and non-prejudiced thought requires and makes use of both categorization and particularization.

Another critique of this issue has come from social representations theory. Moscovici and Perez (1997) suggest that it is rather more likely that categorizations are used intentionally to magnify even slight distinctions (e.g., “the well-known narcissism of minor differences,” p. 29) in order to make the outgroup more different from oneself than they actually are, to make them completely other. This perspective of categorization sees it as a rather more effortful pursuit, whereby differences are overblown and similarities dismissed, for the very purpose of separating oneself from the other. To take gypsies as an example, “It really seems too far-fetched to imagine

4This argument is of course not limited to SRT. For example, Reicher and Hopkins (2001) note that, for the past three decades, there has been increasing acknowledgment throughout social psychology that people only act like cognitive misers in “momentary conditions” (p. 395) and that generally, people process information in a more detailed and nuanced way, corresponding to their aims in a given situation.
that people discriminate against the Gypsies as a result of erroneous generalizations or for the sake of conserving mental energy. The history of oppression shows, on the contrary, that a great deal of mental energy, physical violence, strategic skill... and a whole cultural tradition had to be mobilized on its behalf” (Moscovici & Perez, 1997, p. 35). They further postulate that the discriminatory power of prejudice may well be more about repudiating likeness than about emphasizing dissimilarities per se: that it may be a deliberate effort to exclude (Moscovici & Perez, 1997).

Theorists with a constructivist viewpoint also emphasize the socially constructed nature of prejudice, and how that prejudice arises directly out of discourse (Billig, 1985). Considerable evidence has been found to indicate the “situational specificity of prejudice” both in smaller and more regional groups as well as more broadly at the societal level; theories focusing solely on individual thoughts or feelings simply cannot fully explain the homogeneity of prejudice across a population in certain times and places (Brown, 1995). Prejudices are not merely isolated thoughts within individuals’ heads (or isolated feelings within their hearts) but are rather a part of social life and shared ideologies. That is, “if ideologies are said to encompass emotions, this does not mean that emotions should be seen as free-floating psychological impulses, lying behind ideologies or social categories. They exist within socially shared explanations, blamings, accountings, and so on” (Billig, 2002, p. 184).

Broadly, causal theories of prejudice fall into one of three different general categories: cognitive, psychodynamic, or sociocultural. Each of their popularity has waxed and waned over the years for a variety of reasons, and some resonate more for different theorists than for others. Nonetheless, all of them can account for or explain certain aspects of prejudice, and they are perhaps best viewed as a collection of concurrent causes, rather than mutually exclusive possibilities. (Duckitt, 1992.)

2.1.2 Intersectionality of prejudices

These theories of prejudice are each pieces of the puzzle, but one thing that is not often made explicit in social psychology and many other fields are the complexities between the different prejudices experienced by certain individuals, as well as the relationships between various prejudices (Gaines, & Reed, 1995). For example, an African-American
woman does not experience sexism and racism in two separate, distinct ways, but rather these two oppressions intersect and provide a particular quality to the prejudice directed towards her. This has been termed intersectionality research by Crenshaw (1991), and it examines the ways in which oppressions based upon nationality, sex, class, ethnicity, sexuality, etc. interrelate and produce unique forms of oppression that are greater than the sum of their parts, and cannot be wholly understood by looking at them separately.\(^5\)

Intersectionality is a complex concept, originally formulated as a feminist sociological methodology, but which has been further broadened since its inception (Knudsen, 2006). This includes a comprehensive understanding of how various forms of prejudice intersect in a more abstract way, in that prejudice is prejudice is prejudice, regardless of who or what it is directed toward. This is where it applies to Costello and Hodson’s (2010) and the present study of the topic, in seeing the correspondences between biases against NH animals and prejudice toward human outgroups. Parallels between the oppression of women and NH animals have been explored in detail (Adams, 1990), and multiple human rights movements (e.g., suffrage, civil rights, and Ghandi’s nonviolent campaign) have likewise been directly or indirectly involved with the welfare of NH animal (Patterson, 2002; Singer, 1990). This will be explored further in section 2.6.2.

2.1.3 Prejudice and dehumanization

Costello and Hodson (2010) have proposed the theory that prejudice is inescapably based upon dehumanization, that it is central to its very core. Their work was guided by the premise that “dehumanization depends on a perceived divide between humans and non-human animals” (p. 10), suggesting that narrowing the animal-human divide can “undermine the ability to dehumanize” by “removing the legitimacy of outgroup dehumanization” (p. 5). This is an extension of recent work in social psychology, primarily by Haslam and colleagues (2005, 2006, 2007), which looks at dehumanization in a different way than it has traditionally been considered. Historically, dehumanization was assumed to be an extreme version of prejudice, a version on the most cruel and vicious end of the continuum (Haslam, Loughnan, Reynolds, & Wilson, 2007). This is

\(^5\) See Doise, Deschamps, & Meyers (1978) for a somewhat conceptually similar discussion of intracategory similarities and differences with regards to social identity theory.
still a popularly understood meaning of the word in public discourse. However, in social psychology, many researchers have determined that it can also “take on subtle and everyday forms” (Haslam et al., 2007, p. 409). Dehumanization is therefore not a form of prejudice, but rather an underlying and inextricable part of prejudice.

Dehumanization and its inverse, humanization, will now be examined in more detail, including its socially represented nature, uniquely and non-uniquely human traits and emotions, and its links to recategorization and empathy.

2.2 (De)humanization

By definition, NH animals are excluded by the word dehumanization; in fact, it is defined in terms of treating a person like a NH animal, which is implied to mean like a lesser creature with limited (or no) thoughts or feelings, whose pain and life matter less than others’. Synonyms for dehumanize include animalize and bestialize (Merriam-Webster, 2011). This is directly related to prejudice; even Allport (1979/1954) noted the “inferiority and ‘animal-like’ mentality” (p. 11) with which Ancient Greeks and American plantation owners viewed slaves as proof of their prejudice. For some highly prejudiced people, many individuals and groups outside of their own community can be dehumanized without it causing them moral qualms. Others have a much broader realm of moral inclusion, whereby no sentient creature should be dehumanized. All of this is rooted in social and cultural experience, through interactions with different social representations on these subjects.

2.2.1 Dehumanization as socially represented

Dehumanization as an idea and a practice does not come out of nowhere; it is something taught and learned, discussed and negotiated. How dehumanization is represented – along with how humans and NH animals are represented – is something that is socially created and shared, which suggests that social representations theory may be of use in scrutinizing the process. Howarth (2006) notes that social representations (SRs) can be

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6 This form of dehumanization has been recently called infra-humanization by some researchers (e.g., Haslam et. al., 2005; Leyens et al., 2000; Tileagă, 2007). I use the term dehumanization throughout, for the sake of continuity and clarity, with the understanding that the form of dehumanization that I am referring to is equivalent to infra-humanization.
“drawn on both to naturalize and legitimize exclusion and othering as well as to critique and challenge such stereotypes and marginalizing practices” (p. 79). This applies both to SRs about NH animals as a markedly distinct other, excluded from moral consideration, as well as for the process of engaging in dehumanization to legitimate “othering” by removing outgroup humans from the human category and placing them in the animal category. Alternative SRs critiquing such distinctions and viewing life as a continuum rather than a divide are likewise accounted for in SRT.

Three concepts necessary to fully understanding social representations theory are anchoring, objectification, and naturalization. Anchoring means to classify and name something (Moscovici, 1984), attaching a novel or unfamiliar object to a familiar and ordinary category in order to make sense of it (Sakki, 2010). A relevant example in this case could be the London bombings in 2005, where a new and fear-provoking phenomenon (Islamic terrorism), may well have been anchored to the more familiar, if still disquieting, category of IRA (Irish Republican Army) terrorism. Objectification is “where something abstract is transformed into something almost physical and concrete” (Sakki & Pirttilä-Backman, 2009, p. 151), which involves in some way converting an intangible notion into a more tangible image (Moscovici, 1984). Naturalization can be thought of as the final phase of the objectification process, in which the abstract concept becomes fully real, and is a normalized part of the social reality that begins to “live a life of its own” (Sakki & Pirttilä-Backman, 2009, p. 151). Joffe and Staerklé (2007) note that the “connection or affinity between the nature of animals and humans is an example of the objectification process in social representations: social groups are figuratively construed as wild, dangerous or disgusting animals” (p. 400). When one uses a term such a rat or snake to refer to another human, these objects represent something, which is socially shared and understood among members of a community.

Tileagă’s (2007) exploration of dehumanization (operationalized as an extreme form of prejudice) includes a number of potential definitions, all of which involve it being a social process, requiring examination of the social psychology of the group and relations between groups, as well as the recognition that social-cognitive approaches alone cannot account for extreme prejudice, as noted. This does not mean that there is not a cognitive element to dehumanization. In fact, Moscovici (2010) elucidates that it
involves the “logical” process of freeing ourselves from the burden of morally including a group as human, and indicates that “racism is a rationalization of the differences between men [sic] rather than a hostility towards the foreigner or the group, or a form of discrimination against a group different from one’s own” (p. 12). This point is critical, and illustrates the underpinnings of our perceived divide with NH animals: it is not (necessarily) denoted by any hostility toward NH animals, but is instead an attempt to rationalize our difference from them.

As noted, dehumanization involves legitimizing inhuman acts against other humans who have been removed from moral inclusion (Holtz & Wagner, 2009). This can be done in many ways; less than human does not always equate NH animals (e.g., referents may also be machines or monsters), but removing an outgroup from the human category and placing it in the animal category is perhaps the most common. This can be seen in instances of vilifying cultural groups by referring to them as NH animals, such as calling Romanies rats (Tileagă, 2007) or Jews locusts (Holtz & Wagner, 2009). It is also a short-hand form of discourse used for despised or dangerous groups, such as naming Muslim terrorists vipers or vermin to be hunted, trapped, snared, netted, or corralled (Steuter & Wills, 2010). It is important to note how often they are compared to NH animals classified as varmints, which inescapably involves the implication of extermination (Tileagă, 2007). As Joffe and Staerklé (2007) state, symbolising disliked outgroups in terms of NH animals is “a key aspect of stereotype content” (p. 400.)

Therefore, there is a certain logic to the idea that if one were to remove the distinct reference category of animal, and merge it in a continuum with human, it would be more difficult to dehumanize in that manner. Animalistic words used socially to give immediate connotations that one is excluding a group from moral consideration would no longer have the same weight or power. If one were to genuinely believe (and more importantly, sincerely feel) that NH animals are very similar to humans; that apes, for example, are genetically almost identical to us, and thus deserve moral consideration, then it would not seem as likely that one might refer to a disliked outgroup member as an ape (e.g., Capozza, Boccato, Andrighetto, & Falvo, 2009; Holtz & Wagner, 2009). If one did, the connotations would presumably be at least somewhat different. Of course, sub-categorization is always possible, and there is undoubtedly a difference between
people’s perspectives regarding apes and chickens, for example. Researchers have established that humans generally hold very different ideas about NH animals, contingent upon if they are seen as food animals and on their perceived similarity to humans (see e.g., Bastian, Loughnan, Haslam, & Radke, 2012; Rajecki, Rasmussen, & Craft, 1993). Regardless, seeing life as a continuum rather than two discrete groups for whom different rules apply should affect the ability to dehumanize in this manner.

Perceptions about NH animals’ inferiority, their objectification and reduction to two-dimensional representations that caricature a species – which can also be used to pass that characterization off upon other humans – is imbued in popular culture, into literature and film and everyday speech. As with many stereotypes, they can be thought of as a heuristic tool, but one with many complications: “This kind of objectification is dangerous, not only because it is outmoded from a scientific and social perspective, but more fundamentally because it is reductionist. It circumscribes animals’ existence in relation to the human gaze, appraising them only in terms of their usefulness or threat (to us)” (Malamud, 2010, p. 7, brackets in original). It is problematic both for the sake of NH animals themselves, and for those humans characterized in that fashion. Anyone reduced to a stereotype is, after all, inexorably reduced.

Before moving on, it is necessary to clarify what exactly a stereotype is. Dovidio et al. (2004) explain that, “a stereotype represents a constellation of beliefs about the members of a particular social category” (p. 247). They articulate the long-term debate about whether stereotypes are merely functional and assist us to comprehend our social world (e.g., Fiske, Cuddy, Glick, & Xu, 2002), or whether they are necessarily overgeneralizations that are based upon faulty cognitive processes (Allport, 1979/1954). Dovidio et al. (2004) note that contemporary social psychological and popular usage of the term generally assumes the latter meaning. However, this is not so when talking about stereotypes as social representations. Augoustinos, Walker, and Donaghue (2006) assert that, “Stereotypes are social representations: they are objectified cognitive and affective structures about social groups within society which are extensively shared and which emerge and proliferate within the particular social and political milieu of a given historical moment. Stereotypes do not simply exist in people’s heads. They are socially and discursively constructed in the course of everyday communication, and, once
objectified, assume an independent and sometimes prescriptive reality” (p. 258). In this way, stereotypes can simply be seen as a social category with shared meaning. They are generalizations, but they are not intrinsically faulty.

2.2.2 Uniquely and non-uniquely human traits and emotions

In order to study dehumanization empirically, it must be operationalized; testable variables must be determined in order to examine the level of humanization directed toward various groups. This has been accomplished by research on personality traits and emotions, and the distinctions between those that are popularly considered unique to the human species, versus those that are thought to be common across multiple species'. Obviously, these studies depend on socially shared representations of what it means to be human, and as such, vary from culture to culture. However, some general patterns across the Western world have been established.

Leyens et al. (2000) first tested whether secondary emotions were more commonly attributed to ingroups than to outgroups. Secondary emotions are another term for uniquely human emotions, and include sentiments such as serenity, compassion, hope, guilt, remorse, and shame. These are contrasted with primary or non-uniquely human emotions such as excitement, attraction, pleasure, anger, pain, and fear. “Compared to primary emotions, secondary emotions were rated more human, more internally caused, more invisible, more cognitive, more moral, less intense, longer in time, and appearing later in age” (p. 187). Leyens and colleagues (2000) found that people do more readily attribute uniquely human (secondary) emotions to their ingroup than to an outgroup; this was true regardless of the valence. Follow-up studies by Leyens et al. (2001), Paladino et al. (2002), and Demoulin et al. (2004) have concurred, giving robust evidence for this type of “emotional prejudice” (Haslam, Bain, Douge, Lee, & Bastian, 2005, p. 937).

Research has also been done on the interspecies generalizability of uniquely and non-uniquely personality traits, often with a version of the Big Five personality dimensions. The Big Five are the continuums of extroversion (from sociable to shy), agreeability (from affable to quarrelsome), conscientiousness (from responsible to careless),

Agreement with these categorizations varies by individual, but these distinctions have been generally accepted across studies (Demoulin et al., 2004; Leyens et al., 2000; Paladino et al., 2002).
emotional stability (from calm to neurotic), and openness to new experiences (from open-minded to conventional) (Gosling, Rentfrow, & Swann, 2003). Gosling and John (1999) conducted a review of 19 studies measuring the personality factors found in various species’ of NH animals, and found that openness and particularly conscientiousness were considered more specific to humans, whereas extroversion, neuroticism, and agreeableness were more generalizable across species’.

In the same vein as the studies on the humanness of emotions, Haslam et al. (2005) sought to discover whether uniquely human traits and human nature traits were more likely to be applied to oneself and one’s ingroup than to outgroups. Haslam and colleagues found this to be so across multiple studies (Haslam et al., 2005, 2007) and across cultures (Haslam, Kashima, Loughnan, Shi, & Suitner, 2008). Hodson & Costello (2007) also conducted an earlier study on prejudice, dehumanization, and disgust that measured uniquely human big five traits (conscientiousness and openness) as compared to non-uniquely human traits (extroversion, neuroticism, and agreeableness). They too found that immigrants were attributed less uniquely human traits, particularly by more prejudiced individuals.

2.2.3 (De)humanization’s relationship with recategorization and empathy

Recategorization can be defined most simply as encouraging individuals to “think of people from different groups as part of one superordinate group” (Paluck & Green, 2009, p. 346). Obviously, recategorization is intimately related to prejudice (and by extension, dehumanization), as it was originally conceived as a method to combat it (Gaertner & Dovidio, 2005). Numerous studies have found recategorization to be an effective mediator of prejudice against different outgroups; for example, in Paluck and Green’s (2009) review, they list it as one of the prejudice reduction methods that has been repeatedly shown to be effective across a variety of situations. Since many studies conflate dehumanization with prejudice (as an extreme form of it), it would stand to reason that dehumanization has an equally strong relationship with recategorization.

Haslam (2006; and with colleagues, 2007) asserts that there is a distinct link between empathy and humanization, while Batson and Ahmad (2009) indicate that empathy is the converse process of dehumanization. Bandura (2002) explains that simply
perceiving another person as human stimulates empathy, which makes it very difficult to dehumanize them, as “it is difficult to mistreat humanised people without risking personal distress and self-condemnation” (p. 109). He asserts that, if one is going to be cruel to another human, the only way to avoid this self-condemnation is to divest them of their humanness, which thus allows one to strip oneself of the requirement to feel empathy towards them. Empirically, dehumanization has also been shown to be negatively correlated with both empathy and recategorization (Costello & Hodson, 2010). Recategorization will now be examined in more detail, both in its applications and further on its relationship to empathy and moral universe.

2.3 Recategorization

The roots of recategorization can be traced back over the decades, to Sherif, Harvey, White, Hood, & Sherif’’s (1954/1961) famous Robbers Cave experiment, which examined the limitations of contact for reducing prejudice. Young male campers were put into two random groups, between which competition devolved into overt hostility, subsequent to which contact simply worsened the situation. However, once superordinate goals were introduced (which implies a certain level of recategorization into a common ingroup) the tension between the groups systematically dissolved. One of the conclusions was that real-world zero-sum style conflicts result in intergroup conflict. (Sherif et al., 1954/1961.) However, Tajfel’s (1970) well-known study determined that merely being divided into (random) groups where no competition for resources exists can trigger discrimination; meaning that any categorization of people into separate groups (with or without conflict) can be a recipe for prejudice.

Multiple methods to address this have been articulated that involve a categorization change of some kind, either de-categorizing (emphasizing individual identities as opposed to group identities) or re-categorizing in a number of ways (Gaertner, Dovidio, & Saguy, 2007; Hewstone, et al., 2002; Paluck & Green, 2009). As previously noted, I am looking at recategorization at its most basic, where people are encouraged to think about themselves and others as members of a superordinate group (Paluck & Green, 2009). This is grounded in Gaertner and Dovidio’s (2000) Common Ingroup Identity model, which is based upon the idea of changing us vs. them to a common group of we (Gaertner & Dovidio, 2005).
2.3.1 The application of recategorization

Although merely categorizing people into random groups is enough to foster intergroup bias, in the real world, groups are not generally random – there are many social and historical facets to them that exacerbate biases. As initially theorized by Gaertner, Mann, Murrell, and Dovidio, (1989), when the import of these group boundaries are lessened, intergroup bias should be subsequently reduced. The process of recategorization is meant to replace the separate ingroup-outgroup categorizations “with a single, inclusive superordinate boundary,” (p. 239) which decreases the salience of ingroup-outgroup boundaries, focuses the individual on the shared group, and consequently diminishes intergroup bias. With recategorization into a superordinate group, “bias should be reduced primarily because the social distance with former out-group members has decreased and the social distance with former in-group members has remained relatively close” (p. 240). (Gaertner et al., 1989.)

In a way, recategorization is like switching the lens through which a person or group is viewed. It is like the difference between a telephoto and a wide-angle lens on a camera: you can either zoom in and focus on the boundaries and the differences, or you can pan out and see the bigger picture. Recategorization is a wide-angle way of seeing others; it is like looking at the forest rather than individual trees. When this switch in perspective succeeds, the loyalty and positive regard that are normally reserved for one’s ingroup are broadened to include the larger category as a whole (Brewer, 1997; Dovidio et al. 2004). Gaertner and Dovidio (2005) note that this Common Ingroup Identity model of recategorization was established in particular to combat aversive racism, where well-intentioned people who do not think of themselves as prejudiced nonetheless show bias toward outgroup members. It was a way to “bring the behavior of aversive racists into closer alignment with a professed nonprejudiced self-image” (Gaertner & Dovidio, 2005, p. 627), indicating that there is also an implicit element to recategorization.

2.3.2 Recategorization’s relationship with empathy and moral universe

As noted, Bandura (2002) explicates a conceptual relationship between empathy and recategorization, as he reasons that it is difficult to think of someone as human and not feel empathy toward them. Stephan and Finlay (1999) have posited several theoretical possibilities for why empathy may mediate prejudice, one of which is that it may
increase the salience of shared humanity. Therefore, logically, recategorizing someone from an outgroup into the human category should incite empathy. Recategorization likewise has a theoretical link to a person’s moral universe. This reprint of Allport’s

**Figure 1. Allport’s (1979/1954) Circles of Moral Inclusion**

![Figure 1. Allport’s (1979/1954) Circles of Moral Inclusion](image)

*Figure 1. Reprinted from Allport (1979/1954, p. 43), with the caption “Fig. 2. Hypothetical lessening of ingroup potency as membership becomes more inclusive.”*

Recategorizing a person into a superordinate group inevitably involves the widening of one’s moral universe, whether it is a small jump from one’s family to one’s neighbourhood, or a larger jump, say from one’s state to all of humankind, or beyond. As noted by Helkama (2009), “The ingroup – outgroup boundary seems to be the quickest-changing component of morality. Values and norms do change, but much more slowly. It is easier to change the range of their application, i.e. the boundaries of the moral ingroup” (p. 145). This also relates to empathy, as universalism (the Schwartz value associated with the moral universe) most highly correlates with empathy (Helkama, 2004). Empathy will now be addressed, namely dispositional empathy and its links to other traits, stimulating empathy, and empathy’s connection to moral universe.

### 2.4 Empathy

An element that weaves in and out of numerous prejudice reduction methods is empathy and perspective taking. Paluck and Green (2009) articulate the importance and effectiveness of numerous studies that target people’s emotions, most notably empathy, and Dovidio et al. (2004) note that increasing empathy toward outgroup members is one of the most promising potential mediators of prejudice.

Several main types of empathy have been explicated; cognitive empathy and emotional empathy, with emotional empathy being further divided into reactive and parallel
empathy. Cognitive empathy is another term for perspective-taking, where an individual understands (or tries to understand) the world from another’s point of view. Reactive empathy is an emotional reaction in response to another person’s emotional experience, for example, responding to someone’s distress with sympathy (though sympathy can be defined in many ways, see e.g., Sklar, 2008). Parallel empathy is an emotional reaction similar to what the other person is experiencing, for instance, it could mean experiencing indignation along with another person’s anger in response to discrimination. (Stephan & Finlay, 1999.) There is some suggestion that cognitive empathy or perspective-taking may actually be a precursor to emotional empathy (e.g., Vescio, Sechrist, & Paolucci, 2003), but a causal direction is by no means clear.

2.4.1 Dispositional empathy and other traits related to prejudice

In trying to determine why some individuals are more predisposed to prejudice than others, regardless of being in similar social contexts, several personality traits have been examined. Perhaps most consistently, the authoritarian personality has been identified as a good predictor of individual prejudice, despite early methodological concerns. Right-wing authoritarianism and social dominance orientation’s recent revival has led some researchers to wonder if there are any other personality factors that have significant relationships with prejudice. More specifically, some have questioned why females have been shown to be consistently less prone to prejudice than males, even after controlling for authoritarianism and social dominance orientation. (McFarland, 2010.)

McFarland (2010) theorized that empathy (specifically empathic concern and perspective taking) should be antithetical to prejudice, which could explain gender differences in prejudice, as females have consistently shown higher levels of empathy than males (e.g., Myyry & Helkama, 2001; Silfver-Kuhalampi, 2008). McFarland examined several personality factors beyond authoritarianism, social dominance, and empathy that could relate to prejudice, including narcissism, nurturance, principled moral reasoning, and the Big Five personality traits. Only empathy and principled moral reasoning were significantly negatively related to prejudice. It is important to note that prejudice and empathy are inversely correlated, but further research is needed to determine if people’s innate, dispositional empathy cause them to be less prejudiced or if prejudiced individuals actively suppresses their empathy, or both. (McFarland, 2010.)
2.4.2 Inducing empathy

It has been shown repeatedly that when participants are directed to take the perspective of outgroup members or to try to feel what they feel, their prejudice is reduced (Stephan & Finlay, 1999). A clear causal relationship has been established, which suggests that inducing empathy may be an effective underlying component of many prejudice reduction techniques (Paluck & Green, 2009). Although often considered a hereditary personality trait, recent research has determined that both empathy and sympathy can be induced, encouraged, and taught (see e.g., Batson & Ahmad, 2009; Sklar, 2008).

Numerous studies have shown that it is possible to increase empathy via various training methods. Understandably, this varies by person, as individuals with high dispositional empathy are easier to reach than others. However, specific, clear instructions on thinking and feeling empathically can produce a change in most individuals. Encouraging cognitive empathy can be particularly effective at providing useful information about the outgroup and changing negative stereotypes. Emotional empathy can have more varied results. Reactive empathy can encourage both a negative and positive response; it can either produce compassion-related emotions that encourage prosocial behaviour or it can produce personal distress, including feelings of anxiety and threat, which are not conducive to improving intergroup relations. Even compassion and concern for the outgroup can be problematic, potentially causing condescension if these feelings are not mediated by respect. Parallel empathy can likewise be positive, or negative, or both. Highlighting the suffering of people who are discriminated against can inspire reactive compassion but also produce parallel feelings of uncertainty, fear, or anger toward one’s own ingroup, which can be confusing and troubling for individuals. More positively, parallel empathy that elicits feelings of injustice on behalf of the outgroup can inspire social change. (Stephan & Finlay, 1999.)

Batson and colleagues (1997) suggest five reasons, both pragmatic and theoretical, for why and how empathy may directly affect prejudice. First, people’s response to movies, books, and plays illustrate that it is reasonably easy and common to induce empathy (one example they note is the movie Free Willie inspiring a reported 40,000 calls to join a whale-saving campaign during its first week in theatres). Second, it can be low-risk to implement (and low-cost); empathy can be induced in the comfort and safety of
people’s homes without going to the effort and difficulty of creating an effective contact scenario. Third, by using extended contact in this way, it can be controlled to more readily ensure a positive experience. Fourth, empathy can have a direct effect on attitudes by addressing the feelings and evaluative aspects of attitudes rather than relying on information and cognition. Finally, empathy has been shown to increase altruistic motivation. The researchers acknowledge that several factors may negatively affect this process, namely generalizability, questions of victim responsibility, and as previously mentioned, the potential for empathic responses to stigmatized persons to be anxiety-provoking. (Batson et al., 1997.) More recently, Batson and Ahmad (2009) reiterated the conviction that empathy can play an important role in prejudice reduction, but recommend that more research on specific types of empathy be conducted in order to best realize and employ the promise that empathy may hold in intergroup relations.

2.4.3 Empathy and moral universe

Empathy markedly influences people’s understanding and treatment of others. Increasing empathy can have wide-ranging effects, particularly because it has been found that fostering empathy in one area can also increase it in other areas. An interesting example of this was explicated by Sklar (2008), who notes that even inducing empathy for fictional characters can stimulate real-life empathy. Much like prejudice, empathy is empathy is empathy. An increase in empathy is unlikely to be limited to one area, but rather spills over into multiple situations. This makes it logical that, as previously noted, empathy is more highly correlated with Schwartz’s (1992) value of universalism (concern for all humans and nature) than with benevolence (concern for ingroup members), even though it has been predicted to be conceptually closer to benevolence (Helkama, 2004; Myyry & Helkama, 2001). In fact, the characteristic sinusoid curve associated with Schwartz’s (1992) values is found with empathy, wherein empathy has the highest positive correlation with universalism and the strongest negative correlation with power, while the correlations in between rise and drop methodically around the circle (Myyry & Helkama, 2001).
This directly relates to one’s moral universe, which is conceptually and empirically related to universalism (Schwartz, 2007), particularly since empathy is a moral emotion that has been shown to motivate moral behaviour (Silfver-Kuhalampi, 2008). Schwartz (2007) notes that, in an inclusive moral universe, universalism values relate to all members of society, whereas when moral inclusiveness is low, universalism is conflated with benevolence, both of which then relate solely to one’s own ingroup. This links back to Bandura (2002), who calls for society to actively pursue compassion and empathy, so as to avoid moral disengagement – in other words, in order to promote greater moral inclusion. De Waal (2009) registers the same appeal, with a direct reference to NH animals. He posits a conceptually similar vision of a moral universe as shown by Allport’s (1979/1954) figure in section 2.3.2 (Figure 1), with some modifications, most notably the inclusion of other life forms at the broadest level, as illustrated by the reprint in Figure 2 (de Waal, 2006).8

It is into the subject of one’s moral universe that I will now delve, both from Schwartz’s point of view, and from a broader social psychological perspective.

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6 De Waal (2006) likewise displays the same pessimism as Allport (1979/1954) regarding the difficulty and unlikelihood of people widening their moral universe to the outermost circle. I am more optimistic.
2.5 Moral Universe

The concept of moral universe has been addressed in numerous ways by different researchers, both directly and often implicitly. What is fundamental to them all is the idea that one’s moral universe delineates to whom we apply moral rules to; in other words, who we are morally obligated to. This varies dramatically between cultures, groups, and individuals, based on an assortment of different reasons.

2.5.1 Schwartz’s moral universe

Schwartz’s (in press) contributions to the topic have been isolated because his revised value survey is being used in this study to operationalize participants’ moral universes. Therefore, the particular way in which he understands the concept, and universalism more specifically, is directly relevant. Universalism is a complex construct on the self-transcendence side of the value spectrum. Helkama (2012) affirms that universalism (along with benevolence and conformity) has been found to be a primary moral value. Schwartz (1992) defines universalism as “understanding, appreciation, tolerance, and protection for the welfare of all people and for nature” (p. 12, emphasis his). However, there are indications that universalism does not necessarily apply to “all people and for nature” for everyone who holds it as a value.

It is a person’s moral inclusiveness, specifically, which determines the extent to which universalism genuinely applies to all. Schwartz (2007) identifies moral inclusiveness as an individual’s perception of “the breadth of the community to which people apply moral values and rules of fairness” (p. 711). Schwartz (2007) acknowledges that there is considerable variation in moral inclusiveness between people, within and among different cultures, partly dependent on how highly each culture socializes its citizens in moral inclusiveness. Broadly, wealthier countries (including Finland) tend to apply universalism to outgroups, whereas poorer countries cannot necessarily afford that luxury (Helkama, 2009). Schwartz distinguishes between those who truly hold universalism values and those who hold universalism values that are indistinguishable from benevolence values, in order to determine moral inclusiveness. His premise is that “the meaning of any construct finds expression in the pattern of its semantic or functional associations with other constructs” (p. 714). By that reasoning, to put it simply, he assumes that as long as a person’s universalism values are more highly
correlated with each other and less highly correlated with benevolence values, they are
discrete, and the moral inclusiveness of universalism is expected to be high – or at least,
not simply applying to one’s circle of close others. (Schwartz, 2007.)

However, as seen in Figures 1 and 2, there is a vast realm of potential moral universes
beyond one’s circle of close others, and to consolidate all of these possibilities into one
group and suggest they are all similarly morally inclusive seems unduly crude. Schwartz et al. (in press) has recently refined the value model, splitting universalism
into three groups, concern (equality and protection for others), nature (conservation of
the environment), and tolerance (accepting those who are different). This will allow a
person’s moral universe to be more readily teased apart, particularly whether it includes
the natural world within it or not (see Figure 5 in section 4.2 for the new model).

2.5.2 The animal-human hierarchy

The moral universe has also been touched upon by other social psychologists. Brandt
and Reyna (2011) posit a social cognitive chain of being (SCCB), which is an extension
of previous work done by Haidt (see e.g., Haidt & Algoe, 2004). The SCCB in essence
suggests that, although we do not necessarily articulate it in this way (particularly within
science), we still use a modified form of Aristotle’s scala naturae (chain of being),
which represented all things, living and otherwise, as part of a hierarchical progression
of existence. Aristotle’s chain focused upon human and NH animals, plants, and
minerals, but it was soon taken up as a moral hierarchy, which included demons, angels,
devil(s), and god(s). The specifics of the hierarchy are relative culturally, temporally,
and idiosyncratically, but it being a progression from the most evil at the bottom to the
most good at the top enduringly persists (see Figure 3). (Brandt & Reyna, 2011.)

Brandt and Reyna (2011) argue that, although perhaps not explicitly acknowledged, it is
still used nonetheless as a cognitive tool for ordering our moral universe. “Social targets
that are considered less moral (on the bottom half of the SCCB) would be perceived as

\[9\] In Schwartz (2007) the indicated disparities in moral inclusion using country differences (such as
attitudes toward immigrants) is based only on European data, which renders some of his broader claims
unconvincing. This is particularly so since the more problematic of the purportedly high universalism
countries were eliminated (Schwartz, 2007). (For example, South Korea; see Lim, 2010, for some of
South Korea’s problems with immigrants, among other issues.)
When considering at the extreme cases, even akin to demons and devils. Conversely, social targets that are considered especially moral (on the top half of the SCCB) would be perceived as more saintlike and, in some extreme cases, even akin to God… Thus, we are proposing that the perception of humanity, animality, and divinity have a bidirectional and mutually reinforcing relationship with the moral hierarchy of the SCCB” (Brandt & Reyna, 2011, p. 430). They go on to say that, clearly, the perception of people as more or less human influences how they are treated. They also note that these positions are not fixed, and are subject to changes in status and development over time. It is also at least somewhat culturally dependent; that is, the sense of a moral hierarchy is consistent across most cultures, but who populates the levels varies, both by culture and by person. To use the example of immigrants, depending on the scope of one’s moral universe, they may be included in any category from saints to demons, although they would typically fall somewhere between humans (in general) and nonhuman animals (Brandt & Reyna, 2011.)

The animal-human divide and how people relate to it can be explained by the pairing of this broad concept of SCCB with Tetlock, Kristel, Elson, Green, and Lerner’s (2000) theory of the sacred-value protection model. They have posited that, beyond solely the intuitive scientist (assessing causality) and intuitive economist (appraising utility) functionalist frameworks discussed by social psychologists, there is quite likely a third dimension, that of intuitive moralist-theologian (protecting sacred values). They find that intuitive economists are unwilling to compare trade-offs when the subject is taboo or considered morally corrosive (e.g., attaching a monetary value to one’s children), in the same way that intuitive scientists will not use base rates that conflict with moral ideologies (e.g., those that portray women as inferior in a gender-egalitarian culture). This also applies to “heretical
counterfactuals,” which are what-if statements that provide an alternate possibility for something that is viewed as sacred by a particular group (e.g., reflecting on how Jesus’ life would have been different had Joseph left Mary when she got pregnant). The responses to any of these trespasses is moral outrage against the offenders and against those who do not punish the offenders, and/or moral cleansing of oneself, for having been peripherally party to such a transgression. This is both a theoretical precept, and based upon five experiments. (Tetlock et al., 2000.)

In that vein, animal-human continuity would also be seen as a heretical counterfactual to the Judeo-Christian premise that humans (or at least men) were created in the image of God, and NH animals are lesser beings that were created for human use. Moral outrage is often directed at those who do not conform to social norms emphasizing the animal-human divide or hierarchy, such as researchers being derided for espousing notions of animal-human continuity (see e.g., de Waal, 2006, 2009) to animal rights activists or vegetarians being belittled and scorned (see e.g., Einwohner, 2002). Moral cleansing can involve, at its most basic, an activity that volubly reaffirms one’s commitment to the “right” side, so in this case, it could be something as straightforward as immediately going out and eating a huge steak, or buying a new leather jacket. Both scientific (e.g., evidence of animal-human similarity) and utilitarian (e.g., eliminating human starvation if we all switched to a plant-based diet) conceptions can be dismissed in order to protect the sacred values of human exceptionalism and our dominion over the natural world. Moscovici (2010) makes a similar point: “The real prejudice focuses on the human/not human, culture/nature and domesticated/wild dichotomy. When we free ourselves from a moral authority that applies only to humans, we feel that we are justified in freely using naked, violent force against others” (p.10).

These factors constrain a person’s moral universe and make it difficult to broaden it to include NH animals. However, Bastian, Costello, Loughnan, and Hodson (in press) recently examined whether that very broadening, or extension of moral concern for animals could have “‘spillover’ effects for the expansion of moral concern more generally” (p. 2). They found that linking NH animals to humans did in fact lead to an extension of moral concern more generally. It increased people’s concern for NH animals’ welfare, a concern that also extended to ostracized human groups.
Our moral universe is determined largely by our society, and the basic principles and tenets of that society. This includes, rather significantly in Western cultures, the tenets of science. Thus, the role of NH animals in science, as well as in culture, is crucial and needs to be examined at least in brief, to clarify some of the issues involved in conducting research involving them. First, the birth and progression of the animal-human divide will be examined, followed by the intersection of attitudes toward NH animals and humans, both historically and empirically. Next, NH animals in science and finally, the effect that culture has on our social representations, will be discussed.

2.6 Nonhuman Animals in Culture, Science, and History

Of course, considering NH animals in “culture, science, and history” is massive and largely well beyond the scope of this study. However, there are several areas within the natural and social sciences that clarify how and where this study fits into the broader framework of research relating to humans and other animals, which will be addressed both theoretically and empirically. Equally necessary is an exploration of the historical and cultural milieu that produced these representations of NH animals in science and more generally in society, to trace the roots of the animal-human divide, and more clearly grasp the implications of culture, both past and present. This brief investigation of the broader societal implications of the animal-human divide is an attempt to anchor this study more concretely, to make our implicit understandings of NH animals explicit, and to explicate the underlying theory in this research.

Socially creating meaning is a cultural act, but often an implicit one. Culture is the water the fish swims in: it is hard to see what it is comprised of until one is outside of it, and suddenly experience its lack. Emphasizing a marked divide between humans and NH animals is something that permeates Western, individualistic understandings of reality which can be difficult to see beyond; it is an entrenched, socially accepted “truth.” It is more or less a biblical idea that still holds sway today, in everyday speech and thought, and we generally do not stop to analyze what this perspective is based upon, and whether or not it is accurate or useful. (Singer, 1990.) As Moscovici (1984) notes, we can only see what our “underlying conventions” (p.8) allow us to see, while those same conventions generally remain invisible to us. This is why it is necessary to shine a spotlight upon them, so that we can openly examine their accuracy and utility.
Moscovici (1984) asserts that all social representations, including those from a scientific perspective, are forced upon us, and contain within them the past knowledge of successive generations. Moreover, he suggests that “The more its origin is forgotten, and its conventional nature ignored, the more fossilized it becomes” (p. 12) and “I would even go so far as to say that, the less we think about them, and the less we are aware of them, then the greater their influence becomes.” (p. 13).

The animal-human divide is a long-term, deeply held perspective based on beliefs imported from Judeo-Christian theology and philosophies beginning in Ancient Greece. Although it was surely the most rational and useful point of view at the time of its inception, it may not serve us as well now. We know much more about humans and other animals now, which challenges the scientific accuracy and social utility of such perspectives. This is one aspect that is missing from Costello and Hodson’s (2010) study, the underlying roots of the animal-human divide, where it has come from and how it relates to dehumanizing other humans. More theoretical insight into why and how this has occurred – as well as into why it is neither an accurate nor a useful belief at this point – would be helpful to substantiate the theory and better understand where the associated social representations came from. As Sakki and Pirttilä-Backman (2009) have articulated: “The categories and the everyday theories embedded in them are usually very difficult to change. Resistance can be explained by the historical roots and backgrounds of the categories and by the difficulty in changing the central core of the representation” (p. 151-152). Thus, understanding the origins and context for the social representation of the animal-human divide is necessary in order to contest or change it.

2.6.1 Origins and propagation of the animal-human divide

The animal-human divide has roots that go back into antiquity. It has been supported by the Bible and theologians for the past two millennia. Our conceptions of NH animals have roots in Judaism and ancient Greece, which came together in Christianity during the Roman Empire, through which they permeated Western thought. (Singer, 1990.) The Torah immediately marks the divide between humans and other animals in Genesis (passage 1:26-28). Humans were created in the image of God; other animals were not.
Even further, humans were given the role of “dominion” over other creatures, and told to subdue the earth. Westermarck (1939) clarifies the concept: “Man is the centre of creation, a being set apart from all other sentient creatures as God’s special favourite, for whose sake everything else was brought into existence” (pp. 386-387).

In Ancient Greece, there were penalties for harming certain animals, and Pythagoras is one of the first recorded vegetarians in Western history, exhorting his followers to be respectful toward nonhuman animals (Westermarck, 1939). However, Plato and Aristotle were of the opposing perspective, and their philosophies are the ones that have since dominated Western discourse. Aristotle viewed all life as a hierarchy (see section 2.5.2) and was a proponent of slavery, believing that “lesser men” are property in the same way as beasts, who were made “for the sake of men” (Mason, 2005, p. 34).

Judaism and the (enduring) philosophy of Ancient Greece each delineate an animal-human divide, which comes into its fullest form in Christianity. However, this union includes the backdrop of the Roman Empire, whose moral inclusion was very limited, as evinced by the “games” where criminals, military captives, NH animals, and Christians (for a time), were put to death. The Christian doctrine of the sanctity of human life had two effects – it widened moral inclusion to comprise all humans, making life a lot kinder for criminals and captives, while at the same time broadening the division even further between humans and other animals, making life distinctly worse for the latter. The Roman games in Christian times were no longer permitted to include humans, but they remained as violent. This Christian shift also served to override the few Romans (e.g., Ovid, Seneca, Porphyry, and most notably Plutarch) who were more compassionate and inclusive in their thinking about NH animals. (Singer, 1990.)

10 This becomes less clear when you look at the next two verses, and continue to the Garden of Eden where it appears reasonably certain that before the fall that all animals (humans and otherwise) lived in peace (Genesis 2-3). There is also debate about the true meaning of radah, the Hebrew word traditionally translated into “dominion,” but perhaps more accurately meaning “stewardship” (Singer, 1990). This lack of clarity, however, makes little difference because up until quite recently, almost no one discussed it.

11 Biased language crops up several times in this historical analysis. This is the last note I will make of it, but I am aware of (and do not endorse) the sexist bias or the pejorative bias against NH animals.

12 Aristotle’s quote originally from Politics, c. 384-322 BCE, p. 16.
The New Testament did not improve the situation, in fact there are several examples of contemptuous actions against nonhuman animals, including Jesus killing a herd of pigs (Luke 8:30-33), and Paul dismissing concerns for animals as foolish (1st Corinthians 9:9-10a). This was used by Saint Augustine and other theologians to illustrate why human behaviour toward NH animals is unrelated to morals governing behaviour toward other humans. Saint Thomas Aquinas went even further, declaring NH animals to be entirely for humans’ use, and explicitly excluding them from the moral sphere.¹³ Westermarck (1939) notes that not only NH animals, but also humans’ own animal nature was regarded with contempt. This has persisted since Christianity’s inception in all but certain sectarian groups (e.g., Quakers or Seventh Day Adventists); generally, it is seen as a “theological error to suppose that man owes any duty to an animal” (Westermarck, 1939, p. 389).

The great divide had one last most influential proponent: Descartes. As Mason (2005) emphasizes, Descartes’ dualism placed “an absolute gap” (p. 37) between humans and nature. Dualism declared that there were only two basic things in the universe: matter and soul. Given that Christian doctrine stated that only humans had souls, this left nothing for other species’ aside from the conclusion that they were mindless, mechanistic automata. This ushered in a grim era for NH animals, because all feelings – including the ability to feel pain – were denied, and NH animals’ behaviours that seemed to suggest pain (e.g., squealing, crying) where dismissed as mere noises that would come from any machine being opened, like springs in a clock. Earlier inklings toward compassion were dismissed as people began to perform vivisections on live NH animals. The gulf was at its widest – between mindless matter and divinely ensouled humans. These vivisections, however, began to show how very physically similar these “machines” were to humans. (Singer, 1990.)

The enlightenment marked a change, though small and gradual, in human perceptions about other animals. Several shifts began to occur. The vivisections disgusted some, and proved that NH animals were actually quite similar to humans, at least biologically. Some philosophers emphasized greater civility and benevolence, the circle of which

¹³ Throughout Summa Theologica, 1274.
extended even (to an extent) to NH animals, with an exhortation to humans to more “gently” use them (e.g., Hume and Voltaire, see Patterson, 2002). The animal-human divide was still expansive regarding issues of intelligence, morality, and emotions, but there was movement toward recognizing similarities in biology, which most significantly included a burgeoning appreciation that NH animals could feel pain. In this vein, one of the most famous bridges across the divide was advocated – briefly, and in a footnote – by Jeremy Bentham, admonishing that: “…the question is not, Can they reason? nor, Can they talk? but, Can they suffer?” (Bentham, 1789, emphasis his).

Darwin came soon after, and he had the greatest effect on closing the divide, although not as much as his findings warranted (Wynne, 2007). Darwin collected copious amounts of data that indicated that homo sapiens, like all other animals, evolved from common ancestors. He was however, hesitant for quite some time about revealing the extent to which he believed this, because he did not want it to “add to the prejudices against my views” (Darwin, 1871, p. 1). Nevertheless, he eventually published his full research, and straightforwardly detailed the psychological similarities between humans and other animals, which began an upheaval of humanity’s perceptions of the world, and humans’ place in it (Wynne, 2007). There was a great deal of resistance to his work and its implications in the beginning, which in some groups is still true today.

However, once the scientific community embraced the theory of evolution and its myriad implications, previous justifications – at least in the field of science – for humans’ innate superiority and the animal-human divide lost their foundations. Wynne

14 The full paragraph is significant, as it shows the parallels Bentham saw between NH animals and human slaves. The comparison between certain animals and human children also show that the animal-human divide is not great in Bentham’s view. “The day has been, I grieve to say in many places it is not yet past, in which the greater part of the species, under the denomination of slaves, have been treated by the law exactly upon the same footing as, in England for example, the inferior races of animals are still. The day may come, when the rest of the animal creation may acquire those rights which never could have been withheld from them but by the hand of tyranny. The French have already discovered that the blackness of the skin is no reason why a human being should be abandoned without redress to the caprice of a tormentor. It may come one day to be recognized, that the number of the legs, the villosity of the skin, or the termination of the os sacrum, are reasons equally insufficient for abandoning a sensitive being to the same fate. What else is it that should trace the insuperable line? Is it the faculty of reason, or, perhaps, the faculty of discourse? But a full-grown horse or dog is beyond comparison a more rational, as well as a more conversable animal, than an infant of a day, or a week, or even a month, old. But suppose the case were otherwise, what would it avail? the question is not, Can they reason? nor, Can they talk? but, Can they suffer? (Bentham, 1789, note 122, emphasis his.)
(2007) notes that before Darwin, the relationship between humans and other animals was rather simple: they were beasts and we were special. After Darwin, “this idea of a hard and fast line between humans and other species became untenable” (Wynne, 2007, p. 126). Humans were merely another species of animal who had happened to evolve differently. In theory, this should have eliminated the divide entirely: here was proof that humans and other animals were fundamentally similar, just at different places along the evolutionary continuum. However, the belief in human exceptionalism continued to be particularly resistant to change, even in the face of overwhelming evidence against it.

De Waal (2006) points out that Huxley, Darwin’s greatest supporter, may have had a lot to do with this resistance. Although fervently advocating for and believing in evolution, he did so only up unto a very specific point, which was morality. He was the pioneer of veneer theory, which posits that morality is merely a thin overlay of goodness humans have chosen to possess, overtop of a nasty, brutish nature gained from evolution. How this might have occurred or why evolution’s explanatory power is deemed insufficient for morality is not explained. Thus, “Huxley’s curious dualism, which pits morality against nature and humanity against other animals” (de Waal, 2006, loc. 284) does not rest on evolution, or on empirical fact, but nonetheless persists to this day.

Freud further legitimized this idea of violently overthrowing our biologically inherited id and forcing it to behave properly via the ego and superego. Everything was a struggle according to Freud, primarily morality’s battle against our base nature.15 (De Waal, 2006.) The field of psychology caused further damage with the advent of behaviourism. During behaviourism’s heyday, any talk of inner life became unmentionable, especially for NH animals. It was back to discussing automata, something that science has not yet entirely recovered from. People eventually rebelled against human behaviour being entirely separated from inner processes, so the whole theory of behaviourism came to rest upon NH animals’ shoulders, and the “attribution of human-like experiences to animals was declared a cardinal sin.” (De Waal, 2006, loc. 1002). Skinner, Thorndike, and finally Watson most severely dispensed with the notion of NH animals having any

15 Ironically, at the same time, Freud disparaged the “megalomania” of humankind that drove them to place a gulf between humans and other animals (Patterson, 2002).
psychological processes similar to humans, which is largely where mainstream psychology has remained up until recent decades (Wynne, 2007).

2.6.2 Links between attitudes toward humans and NH animals

Some changes have been made since then, and in many ways the divide is shrinking, as noted by research mentioned throughout section 2. Nevertheless, much of our thinking still rests upon these centuries of beliefs that have no empirical basis. The animal-human divide has had a long history, grounded in religions and philosophies for which it undoubtedly made sense at the time. However, the theory that humans are qualitatively different from other animals is outdated and has been proven inaccurate. As Singer (1990) asserts: “The attitudes toward animals of previous generations are no longer convincing because they draw on presuppositions – religious, moral, metaphysical – that are now obsolete” (p. 185).

Recent social transformations suggest that the parallels between prejudices toward humans and the bias toward NH animals have certain commonalities. As previously noted, those people advocating for animal welfare throughout history have quite often been the same people advocating for women’s suffrage, civil rights, and child protection. Many early (and current) feminist writers, for example, have compared the dominion over NH human animals with men’s domination of women (Nibert, 1994; see e.g., Adams, 1990). Gandhi was a vegetarian and his advocacy for nonviolence was not only about social protest but also applied to NH animals. He influenced Martin Luther King, Jr., who also showed implicit concern for NH animals, and his widow and son, and other famous civil rights activists such as Alice Walker have been unequivocal in their concern for animal welfare. (Singer, 1990.) More recently, numerous global movements explicitly pair human issues of poverty and exploitation with our relationship to nature and other animals, in particular many environmental groups (Mason, 2005). There are also numerous Holocaust-connected activists who advocate for animal welfare, most notably Isaac Bashevis Singer (Patterson, 2002)

Singer (1990) emphasizes the intersectionality of it, in that, “the overlap between leaders of movements against the oppression of blacks and women, and leaders of movements against cruelty to animals, is extensive; so extensive as to provide an
unexpected form of confirmation of the parallel between racism, sexism, and speciesism"¹⁶ (p. 221). Although opposing cases can undeniably be found, some are more controversial than they may at first appear. For example, Hitler is very often presented as a case in point that having kind feelings toward NH animals does not relate to treating humans well. However, there is proof that he was never a vegetarian (Payne, 1995) as well as dispute regarding his treatment of NH animals, which beyond his dogs, seems to have been quite callous (Patterson, 2002). The pervasiveness and attachment to the Hitler example, which is debatable at best, can be seen as an indication of the tenacity of the representation of the animal-human divide and people’s dedication to maintaining it. Generally however, it seems that empathy is empathy (as discussed in section 2.4), and where it exists, it is usually broadly applied. Very often, the mistreatment of NH animals is paired with mistreatment of human groups, and respectful treatment of NH animals with more egalitarian human social structures.

This correlation has also been established empirically. Although those who support NH animal rights are often criticised for not attending to “more important human issues” (Nibert, 1994, p. 115), there is empirical evidence to suggest that concern for the welfare for NH animals and many human issues go hand in hand. Nibert’s (1994) survey found correlations between support for animal welfare and seven human issues; being for animal rights was related to advocating gun registration, ensuring access to safe abortions, homosexuals in the military, as well as opposition to violence, rape victim blaming, and white Americans pushing African Americans out of their neighbourhoods. It is notable that this was a general sample, where people were divided into groups depending on whether they agreed with the question, “Some people say that animals have rights that people should respect. Would you agree or disagree?” (Nibert, 1994, p. 117). These results are even more striking since this is not an activist group, or necessarily people with strong beliefs about animal welfare; 74.5% of the sample agreed with that statement, likely indicating a wide spectrum of opinions on NH animals.

¹⁶ Singer (1990) coined the term speciesism, and defines it as “a prejudice or attitude of bias in favor of the interests of members of one’s own species and against those of members of other species” (p. 6).
Although little research has been done on the links between concern for NH animals and for human groups, there is a considerable volume of research on the other end of the spectrum, which shows that callousness toward animals is related to antisocial behaviours toward humans. At its most extreme, the torture of NH animals by adults, and particularly children, is a significant predictor of violent (including sadistic) crime toward other humans (see e.g., Dadds, Whiting, & Hawes, 2006; Kellert & Felthouse, 1998; Stone, 2007). In fact, it is a key diagnostic criterion for conduct disorder, a necessary precondition for a diagnosis of antisocial personality disorder or psychopathy, and a key predictor of violence (Hare, Tart, & Harpur, 1991).

There is both a theoretical and empirical continuity between violence against one sentient creature and violence against another that holds true more generally, beyond those with personality disorders. Bullying (in the “normal” population) and repeated abuse of NH animals has been found to be correlated (Henry & Sanders, 2007) Violence begets violence, through desensitization and learning. Anything from violent video games (Carnagey, Anderson, & Bushman, 2007) to films that portray sexual violence against women (Mullin & Linz, 1995) to general, habitual media violence (Krahe et al., 2011) has an affective and physiological effect on people’s sensitivity to real-world violence. This same desensitization effect is found with witnessed or accomplished violence against NH animals (Fielding et al., 2011). Violence against animals precipitates or at least desensitizes people to violence against humans; the findings are quite robust. This gives explicit support to the notion that how people view and treat NH animals has a direct effect on how they view and treat other humans.

2.6.3 Nonhuman animals in science: Anthropomorphism vs. anthropodenial

Studying NH animals within social psychology is somewhat challenging, because there exists a “furry-ceiling” (Raupp, 2002, p. 353) in psychology and other social and natural sciences, making it difficult to research and publish on the subject. In general, sciences often interpret any positive examination of NH animals as anthropomorphism, which is seen a serious problem to be eradicated (Kennedy, 1992; see also Kwan et. al. 2008 and Morris, Fidler, & Costall, 2000 for empirical responses to this position). Unfortunately, that label is often applied whenever NH animals are discussed as anything beyond mindless automatons (de Waal, 2006; 2009).
The term anthropomorphism is used in different ways, but it generally involves “the attribution of human qualities to other animals, usually with the implication it is done without sound justification” (Shettleworth, 2010, p. 477). Eminent primatologist Franz de Waal (2006) has contrasted this to anthropodenial, “the a priori rejection of shared characteristics between humans and animals” (p. 65), and argues that science is deeply entrenched in anthropodenial. He contends that any statement beyond physical fact about NH animals is regularly dismissed as mere sentimentality, regardless of the physical, behavioural, or evolutionary similarities being considered. There is a curious tension in psychology, medicine, and many other sciences, whereby NH animals are studied because of their similarities to humans, while at the same time, acknowledging those similarities is implicitly or explicitly prohibited (de Waal, 2009).

De Waal (2006) asserts that anthropodenial is as “dangerous” as anthropomorphising, and contends that anthropomorphism is not problematic and is in fact sensible, as long as scientists treat anthropomorphic theories as hypotheses. After all, we apply human insight to all other fields of science, and test our intuitions against observable facts. Using anthropomorphism in this way can be seen as a form of Occam’s razor, or the law of parsimony, which states that we should not come to a needlessly complex conclusion when a simpler one would suffice. Instead of cognitive parsimony, which is promoted by behaviourists (the simplest cognitive explanation should explain behaviour), de Waal advocates for evolutionary parsimony. This involves shared phylogeny, and posits, “If closely related species act the same, the underlying mental processes are probably the same, too. The alternative would be to assume the evolution of divergent processes that produce similar behavior, which seems a wildly uneconomic assumption for organisms with only a few million years of separate evolution.” (De Waal, 2006, loc. 939).

The reality of animal-human continuity was established by Darwin, and evidence for it has only grown. It is not a matter of a new “value judgement invented by ‘liberal intellectuals’” (Allport, 1979/1954, p. 11) that are forced upon folkways that are disapproved of. As with any other bias, “Prejudgements become prejudices only if they are not reversible when exposed to new knowledge” (p. 9, italics his). If emotional resistance is being applied to studying NH animals openly and objectively, it can be nothing else but a prejudice. (Allport, 1979/1954.)
In psychology, most discourse on anthropomorphism has been theoretical rather than empirical; NH animals in general have been the subject of very few empirical studies outside of biological psychology (see e.g., Raupp, 2002). This is even truer in social psychology. Kwan and Fiske (2008) note that before mid-2007, not one journal article using the term anthropomorphism had been published in a social psychology journal, though they indicate there was some early psychology research that suggested that it is a facet of mental illness or a developmental stage that children (ought to) grow out of.

Since then, most social psychological research concerning humans’ positive regard for NH animals has also characterized it as pathological, such as sad replacements by lonely people lacking human relationships (Epley, Waytz, Akalis, & Cacioppo, 2008) or frightened people trying to retain control over their world (Waytz et al., 2010).

However, there is a growing push in certain sciences (primarily the natural sciences, such as primatology and evolutionary biology; see de Waal, 2009) toward re-evaluating the culture of anthropodenial. There are also hints of it beginning in social and other psychologies, as mentioned in section 2.5.2 (see also Beatson & Halloran, 2007). Kwan et al. (2008) have even endorsed anthropomorphism as a form of social perception, and empirically determined that attributing personality to NH animals involves no greater projection of the self than attributing personality to other humans. If not yet popular, it is at least becoming acceptable to more openly study NH animals in the social sciences.

### 2.6.4 The effects of culture

It is vital to note that this study is limited to Western, individualistic cultures, as was Costello and Hodson’s (2010) study. Each culture has its own social representations and perceptions about different cultural groups and NH animals. As explained by Pivetti (2005), “‘nature’ and ‘animals’ are culturally and historically specific and cannot be considered objective categories within which to organize the world” (p. 36). This is important to specify, because every prejudice contains a historical dimension, often overlooked in prejudice research (Moscovici & Perez, 1997). Gaines and Reed (1995) contend that, if we agree that prejudice is neither an issue of genetics nor errors in categorization, then biases are not inevitable, but rather they are “the historical

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17 There have been several notable exceptions, addressed throughout section 2.
emergence of specific behaviors and their allied belief systems that equated physical and cultural differences with ‘goodness’ and ‘badness’ within the human species” (p. 101). As each culture defines its own standards for “goodness” and “badness,” prejudices too must be profoundly relative, based upon culture.

Even talking broadly about Western, individualistic cultures is highly problematic. Although it can be seen as one group, it is a broad, superordinate group made up of various countries and subgroups that can and do vary widely on different points. Members of the same ingroup share social representations, but Western cultures are made up of numerous different ingroups. However, some hegemonic representations about NH animals may be broad enough to apply to the superordinate group of Western, individualistic cultures, sharing similar historical underpinnings. Hegemonic social representations are “consensually shared by all members of a society. Thus, they are uniform and coercive and constitute the collective reality of a given social phenomenon” (Sakki & Pirttilä-Backman, 2009, p. 154-155). Because Western cultures share the broad roots that created and maintained the animal-human divide, as illustrated in section 2.6.1, it is reasonable to suppose that there are at least some representations about NH animals and the divide that are generally shared.

Western culture is dissimilar to other social traditions, most notably Aboriginal and other hunter-gatherer cultures. The representations of NH animals and of nature more generally are very different in these groups, where the natural world is respected as a continuum in which humans are but one part (Patterson, 2002). Different religious groups such as Hindus and Buddhists likewise believe that we are all part of the cycle of rebirth, and can be reincarnated as any living entity (see e.g., Mason, 2005). That said, for Hindus and Buddhists, all beings can be put on the hierarchy from demons to gods, and one’s karma influences what one is reincarnated as, so Haidt and Algoe (2004) suggest that humans may simply be prone to such hierarchical thinking even when trying to avoid it. Jains however, are much stricter in their equality, and in their rules not to harm any living being (see e.g., Westermarck, 1939), so hierarchical thinking is not necessarily inevitable. Many different cultures have more egalitarian relationships with NH animals than Western culture, not necessarily because of their religious doctrines per se, but rather because of a sense of common origin and compassion
(Westermarck, 1939). These cultural differences are important to note in order to set the boundaries on what I am examining, and to illustrate that our Western perspectives on humans and other animals are not inevitable or all pervasive. It also explains the relevance of our history in shaping these social representations, because each SR is, “directly linked and determined by historical, sociological, and ideological conditions. As such it is strongly marked by the collective memory of the group and the system of norms to which is refers.” (Abric, 1993, p. 75)

A caveat: It is relevant to point out that this ignores the fact that most Western, individualistic cultures are at least somewhat pluralistic, and are home to almost all Aboriginal peoples, as well as numerous diverse religious and other groups that have differing social representations. Undoubtedly, not all of the hegemonic representations held by the majority are shared by these groups. Representations can also be emancipated, which are liberated from the hegemony and are unique to every subgroup. They can either coexist peacefully or become polemic representations when they come into conflict with divergent social representations held by other groups. (Moscovici, 1988.) Thus, a multitude of varying social representations, many of which are directly opposite to one another, exist in Western society.

It is also essential to note that, although Finland is a part of this Western, individualistic culture (e.g., Hofstede, 2001), it is unique in several ways that may have unexpected effects in this study. Finland has a relationship both with immigrants and with nature that is unique compared with other Western countries. Unlike other European countries, Finland did not have any substantial immigration until the 1990’s, and still has only a tiny minority population of immigrants (Haavisto, 2011). This means that experience with immigrants and representations about them are still rather new, and for the most part (aside from a small number of indigenous Sámi people and Romas who immigrated to Finland centuries ago) they have no weight of history behind them (Haavisto, 2011). Historical conflict with Sweden and Russia is a different matter; however, issues of race-relations are much newer in Finland than elsewhere in the Western world.

Finns also have an unusually close relationship with nature, different from most other Western countries. Mythology about nature and the “forest Finn” is central to Finnish
Identity (Haavisto, 2011; Peltonen, 2000). Representations of nature are vital to a sense of Finnishness, significantly more so than other key markers of Finnish identity, such as ice hockey and the Winter War (Finell, Olakivi, Liebkind, & Lipsanen, in press). Thus, there may be a greater sense of continuity felt between Finns and the natural world (including NH animals?) than normally exists in Western cultures. As I am not Finnish, and only have a second-hand understanding of the deep social representations shared by this society, it is somewhat difficult for me to predict how like or unlike they may be from other Western countries. It is nevertheless important to note that they may differ significantly from what one would expect from a Western, individualistic culture.

Moscovici (1984) has stated that, “Representations, obviously, are not created by individuals in isolation. Once created, however, they lead a life of their own, circulate, merge, attract and repel each other, and give birth to new representations, while old ones die out. As a consequence, in order to understand and to explain a representation, it is necessary to start with that, or those, from which it was born.” (p. 12). I have attempted to understand and explain the representation of the animal-human divide and how it affects dehumanization and prejudice, by starting with those representations from which it was born. It is now time to return to the original question: Does the inclusion of NH animals in a person’s moral universe relate to the inclusion of other, diverse human groups? This leads us, finally, to Costello and Hodson’s (2010) study.

2.7 Costello and Hodson’s Investigation

Costello and Hodson (2010) conducted two studies on prejudice and dehumanization of immigrants. They are based on the premise that the belief in a marked animal-human divide is the root cause of dehumanization, which exacerbates outgroup prejudice; the counterpoint being that seeing continuity between NH animals and humans diminishes both dehumanization and prejudice.

2.7.1 Study one: Animal-human continuity’s relationship with prejudice

In their first study, Costello and Hodson (2010) examined whether greater perceived similarity between humans and NH animals correlated with less prejudice, and less dehumanization, of immigrants. Specifically, their use of dehumanization involved viewing outgroups as possessing less uniquely human personality traits and emotions
than ingroups. Measures included indices of uniquely human and non-uniquly human personality traits (based on Haslam et al., 2005), non-uniquly human and uniquely human emotions (conceptually similar to Leyens et al., 2001), animal-human similarity (Templer, Connelly, Bassman, & Hart, 2006), and immigrant prejudice (McConahay, Hardee, & Batts, 1981). Also included were measures of social dominance orientation (SDO) and universal orientation (UO). As noted, SDO is the degree that a person favours hierarchical divisions between social groups (Pratto et al., 1994). Conversely, UO is an intentional state of non-prejudice where a person chooses to attend to similarities as opposed to differences (Phillips, & Ziller, 1997), conceptually similar to universalism and an inclusive moral universe.

Positive correlations were both hypothesized and found between UO, animal-human similarity, and immigrant humanization traits and emotions (i.e., attributing uniquely human traits and emotions to both immigrants and citizens). There was also a negative correlation between each of these factors and both SDO and prejudice, as well as a positive correlation between SDO and prejudice. Humanization mediated the relationship between prejudice and perceptions of animal-human similarity.

2.7.2 Study two: Inducing animal-human continuity to affect prejudice

Costello and Hodson’s (2010) second study strove to examine these correlations in further depth, and identify whether an experimental inducement of animal-human similarity could cause people to increase their humanization, and decrease their prejudice, toward immigrants. The second study comprised similar measures, but also included a recategorization index (measuring a common group identity between immigrants and citizens; based on Esses, Hodson, & Dovidio, 2003) as well as an empathy measure (Batson et al., 1997). Participants in the experimental study were divided into four groups, each of which was presented with a different editorial to read at the outset: animals are like humans, humans are like animals, humans are superior to animals, and animals are inferior to humans.

The first two editorials emphasized the similarity between humans and other animals, whereas the second two exaggerated the animal-human divide. The distinction between animals are like humans versus humans are like animals was made to test their own
theory (minimizing the divide to foster less prejudice) against terror management theory (TMT; Goldenberg et al., 2001). TMT states that reminding humans that they are animals increases the salience of human mortality and consequently can cause anxiety and actually increase prejudice against outgroup members (Beatson & Halloran, 2007). Thus, only the animals are like humans category was hypothesized to increase immigrant humanization, while the other three were theorized to decrease immigrant humanization. Their hypotheses were supported once again. The animals are like humans editorial made participants significantly less prejudiced, but it was not a direct effect. The result was mediated by humanization, recategorization, and empathy.

2.7.3 My study: A replication and extension

My approach is a replication of Costello and Hodson’s (2010) second study, with several variations. Their study is the first of its kind and although a similar study has been conducted recently by the authors (Bastian et al., in press) it has not been replicated by outside researchers, or in other contexts or countries.

Like Costello and Hodson (2010), I examine whether the animals are like humans editorial reduces prejudice, via the mediating influences of dehumanization (traits and emotions), empathy, and recategorization. Dovidio et al. (2004) explain that: “Mediators are the psychological mechanisms through which outside forces produce change… they are the internal processes that translate external influences and interventions into reductions of prejudice, stereotyping, and discrimination” (p. 244). In this case, humanization, empathy, and recategorization are the internal processes through which the (external) editorial is expected to produce a reduction of prejudice. I am using the

18 Bastian, Costello, Loughnan, and Hodson (in press) later expanded on this study and explicated that the large difference between these two groups has to do with framing, studies on which have shown that a feeling of similarity is enhanced when the referent is the self; but does not occur when the referent is another. With regards to this particular pair grouping, they note that when the referent is humans, “the subject of comparison (animals) is viewed as having few unique features compared to the referent of comparison (humans). Conversely, when animals are the referent of the human–animal comparison, humans are likely to be viewed as relatively dissimilar to animals. This is because humans are viewed as having many unique features when compared to animals” (p. 2). They found that this framing of animals are like humans raises the issue of moral inclusivity and increases mind perception about NH animals. Further, they note that, “when people become aware of the moral relevance of other species this process should inadvertently trigger greater concern for our own species” (p. 5).
same or similar instruments to measure each of these five main variables. I am also measuring animal-human continuity, and universalism and power-related orientations.

Although there are some instrument substitutions that will be discussed in section 4.3, the prime difference in this study is that I am also looking at the content of participants’ representations of Finns, immigrants, animals, and humans, both through the trait and emotion scales, and with an added word association task. Furthermore, participants will be divided into one experimental group and a control group, because it is necessary to discover if intervention this works when compared to a regular control group.\(^{19}\)

I also believe this theory needs to be examined in a country with a different immigrant situation than Canada, which is where Costello and Hodson (2010) conducted their study. Canada is quite diverse, having had an open, non-discriminatory, and expansive immigration policy since the 1960’s. A key part of Canada’s national identity is multiculturalism, which is based on the acceptance of diversity and positive intergroup relationships, and feelings toward different ethnic and immigrant groups in Canada are quite positive. (Esses & Gardner, 1996.) It is also notable that most people in Canada are either first, second, or third generation Canadians, so immigrants are already a *de facto* part of almost all Canadians’ ingroups. Therefore, it may be easier to induce Canadians to humanize immigrants than it would be in many other countries.

As noted in section 2.6.4, Finland is a much more homogenous nation, being a country of emigration rather than immigration up until recently (Haavisto, 2011). Only 3% of Finland's 5.3 million inhabitants are immigrants, composed mainly of Russians, Swedes, Estonians, and Somalis. Between 2000 and 2010 there has been an average of 3345 applications for asylum each year. Only an average of 1.6% of applicants are granted asylum each year, although an additional 23.4% of asylum seekers (on average) are given residence permits per year. (Statistics Finland, 2012.) Although Finland lags well behind most other Western countries in terms of number of immigrants, there is nonetheless continuous debate about immigration. Foreigners have not been easily accepted into Finnish society, and there is insufficient top-down social support for open-

\(^{19}\) Their most recent study, conducted by Bastian et al. (in press) used a control group and still garnered significant results (study 3), which is encouraging.
minded attitudes toward immigrants, with Finnish media in particular contributing toward xenophobia (Liebkind & McAlister, 1999; see Haavisto, 2011 for more on the role of media). Perhaps also because Finns perceive themselves to be a specific ethnic group, the divisions between Finns and immigrants is much starker than any line one could draw between “Canadians” and “immigrants” (Liebkind, 2009).

Recent increases in tension in Finland (and most other European countries) regarding foreigners, as illustrated by the unexpected rise of the starkly anti-immigrant Perussuomalaiset or “True” Finn party (Worth, 2011) makes it a very different situation than what is found in Canada. If this experimental condition can increase humanization not only in Canada, but also in a country with strained immigrant relations, it would be a significant finding. Theoretically, it should do so, because as Costello and Hodson (2010) note, even those highest in SDO and lowest in UO (i.e., the most prejudiced) showed reductions in prejudice after the animals are like humans manipulation.

In fact, one of the most promising aspects of this particular prejudice reduction method is that it is indirect, and thus “circumvent[s] negative or defensive reactions that highly prejudiced people exhibit in response to more direct human outgroup prejudice interventions” (Costello & Hodson, 2010, p. 18). The implicit effect of this intervention gives it a certain kind of power, as discussed by Elcheroth, Doise, and Reicher (2011): “Sometimes acts can be even more influential when they are silent: discarding speech that could be explicitly challenged, they retain the unspoken and, hence, incontestable” (p. 14). Because the intervention does not directly target individuals’ social representations about immigrants – and in fact, does not reference prejudice, or alternately, tolerance – it can bypass the protective mechanisms of those individuals who are highly prejudiced and who would be motivated to disregard explicit suggestions to stop dehumanizing. Costello and Hodson (2010) theorize that because it speaks to an underlying categorization change that is never made explicit, it is equally effective on highly prejudiced individuals at minimizing their dehumanization.

3 Research Questions

The experimental objective of this study is to ascertain whether inducing animal-human similarity affects prejudice toward immigrants. Costello and Hodson (2010) found that
inducing animal-human similarity decreased prejudice toward immigrants, the effects of which were mediated by humanization (traits and emotions), empathy, and recategorization. This will be examined, along with the broader relationship between prejudice and moral universe. Additionally, the present study explores the social representations held by participants about Finns, immigrants, animals, and humans. The research questions and hypotheses are divided into those relating to the replication of Costello and Hodson’s (2010) study, and those about social representations.

3.1 Replication Research Questions

The main overarching research question is, **1: Does emphasizing animal-human similarity have an effect on prejudice towards immigrants?** I also want to determine, **2: What relationships do humanization traits, humanization emotions, empathy, and recategorization have with animal-human continuity and prejudice?** Consequently, the principal hypotheses are:

H1. Inducing animal-human continuity will have a negative effect on immigrant prejudice.

H2. Inducing animal-human continuity will have a positive effect on:
   a. Humanization traits,
   b. Humanization emotions,
   c. Empathy, and
   d. Recategorization.

H3. A negative effect on prejudice will result from an increase in:
   a. Humanization traits,
   b. Humanization emotions,
   c. Empathy, and
   d. Recategorization,

H4. The relationship between animal-human similarity and prejudice will be mediated by:
   a. Humanization traits,
   b. Humanization emotions,
   c. Empathy, and
   d. Recategorization.
For clarity’s sake, hypotheses 1-4 are presented in Figure 4.

**Figure 4. Hypothesized Prejudice Reduction Model**

![Hypothesized prejudice reduction model](image)

**Figure 4.** Hypothesized prejudice reduction model, in which emphasizing animal-human similarity should negatively affect prejudice (H1), and positively affect traits, emotions, recategorization, and empathy (H2). An increase in traits, emotions, recategorization, and empathy should decrease prejudice (H3). Traits, emotions, recategorization, and empathy should mediate the relationship between animal-human similarity and prejudice (H4). Based upon the findings of Costello and Hodson (2010).

The relationships between these five main variables (prejudice, humanization emotions, humanization traits, empathy, and recategorization) and values will also be addressed, to determine their relationship to one’s moral universe. The associated research question is, **3: How are prejudice, humanization traits, humanization emotions, empathy, and recategorization related to moral universe?** Accordingly, I hypothesize that:

**H5.** An inclusive moral universe will be:
   a. Negatively related to prejudice,
   b. Positively related to humanization traits,
   c. Positively related to humanization emotions,
   d. Positively related to empathy, and
   e. Positively related to recategorization.
3.2 Social Representation Research Questions

In this study, social representations will be examined in several ways, both quantitatively and qualitatively. Social representations are complex theories regarding common sense, and cannot be reduced to values, attitudes, or attributed traits or emotions. A social representation includes many components, including information, attitudes, figurative elements, values, and/or emotions. This makes studying SRs empirically rather complex, because different methodologies are needed to render the diverse aspects of an SR. (Sakki, 2010.) Thus, the humanization traits and humanization emotions addressed previously will also each be examined for their content, and word associations will be analyzed, meaning that three different angles will be taken in an effort to get at the social representations.

3.2.1 Trait and emotion research questions

In a way, I am examining two competing theories. H2 predicts that uniquely human traits and emotions will be attributed to both Finns and immigrants when animal-human continuity is induced, but only to Finns when it is not. As mentioned in section 2.2.2, this is based upon studies that have found that uniquely human traits and emotions are more likely to be attributed to the ingroup (e.g., Demoulin et al., 2004; Haslam et al., 2005, 2008; Paladino et al., 2002), namely Finns, and that non-uniquely emotions may be more likely to be attributed to the outgroup (Leyens et al., 2000), namely immigrants. Inducing animal-human continuity should make participants view Finns and immigrants in much the same humanized way; otherwise, immigrants will be dehumanized.

However, the specific cultural stereotypes (social representations) for each group do not fall into these same categories. Therefore, I also wish to examine the content of the humanization traits and emotions to see if, collapsed across groups (those induced to see animal-human continuity and those not), there are different social representations that are endorsed for Finns and immigrants that match established cultural stereotypes. In a way, I am putting limits on the previous theory, and taking a step back, in order to determine if there are conditions in which the theory regarding the attribution of uniquely human and non-uniquely human traits and emotions is overruled. That said, these two hypotheses might also coexist. Perhaps certain traits and emotions will be strongly attributed to either Finns or immigrants, but others will vary by experimental
condition. Alternately, maybe all traits and emotions will be attributed to one group or
the other, but those traits and emotions that are uniquely human and that are attributed
to immigrants will be more highly emphasized in the animal-human similarity group.
To my knowledge, these two differing ways of looking at traits and emotions have not
been combined before, so this is an open exploration.

Based on past research on the Finnish identity, it seems that being silent, shy, slow,
closed-off, direct, and with low self-esteem (Sajavaara, & Lehtonen, 1997), as well as
hard-drinking, violent, having sisu (guts), calmness, and being in touch with nature
(Peltonen, 2000) are related to a sense of Finnishness. Some of these traits are rather
contradictory, and for immigrants it is even more difficult to say, since they are not a
homogenous group. Although some studies have found that people have a generic
picture of immigrants as “incompetent and untrustworthy” (Lee & Fiske, 2006, p. 751),
that is, low on both competence and warmth, as per the Stereotype Content Model
(Fiske, et al., 2002), once they are divided into groups a more nuanced image is formed,
depending on the group being considered. Those of African descent are often still
considered low in competence and low in warmth, whereas those from other European
nations are seen as higher on competence, and their attributed warmth depends upon
their country of origin (Fiske et al., 2002; Lee & Fiske, 2006). This also varies
depending on the nationality of the evaluator.

Thus, possible hypotheses about traits and emotions are potentially contradictory in
nature, depending on whether one considers the uniquely and non-uniquely human trait
and emotion literature, or established consensual stereotypes, as well as which
stereotypes are chosen. Hence, the research question is, 4: Are certain humanization
traits and emotions more highly associated either with Finns or with immigrants?

Since hypotheses relating to uniquely and non-uniquely human traits are addressed in
H2, these will be alternate (though not mutually exclusive) hypotheses, about the social
representations of each group:

H6. Finns will be associated with different traits and emotions than immigrants,
    including but not limited to those relating to being: silent, shy, slow, closed-off,
direct, with low self-esteem, hard-drinking, violent, having guts, calmness, and being in touch with nature.

H7. Immigrants will be associated with different traits and emotions than Finns, including but not limited to: incompetence and untrustworthiness, as well as the inverse of any characteristic strongly related to Finnish identity.

3.2.2 Word association research questions

For the word association task (WAT), I also hope that the experimental group will exhibit less prejudice and dehumanization in their spontaneous responses, but I will not make any predictions, in order to give the data a chance to “speak for themselves.” In fact, that is why I am choosing to include the word association task, because I would like participants to be able to produce their own, spontaneous representations, free from the confines of questionnaires, which will also hopefully show a reduced social desirability bias. (Mäkiniemi, Pirttilä-Backman, & Pieri, 2011.)

I have two research questions pertaining to the WAT data:

5: What social representations do participants have of Finns, immigrants, animals, and humans?

6: What effect, if any, does inducing animal-human continuity have on the terms (and the valence of those terms) that participants choose to describe immigrants and NH animals?

4 Methodology

As noted, I have conducted a modified replication of Costello and Hodson’s (2010) second study. I experimentally manipulated the animals are like humans factor using an experimental group and a control group, conducted via online questionnaires completed by Finnish students at Laurea Polytechnic and the University of Helsinki. Half of the participants read the animals are like humans editorial, the other read the control geology editorial (see Appendices 1 and 2), after which they filled in several questionnaires and completed a word association task. All of the measures were in Finnish. All questionnaires were translated and back-translated by experts whose mother tongue is Finnish. Information on the participants will now be examined,
followed by instruments, and a delineation of the analytical strategies, split into those used for the quantitative data and those used for the qualitative data.

4.1 Participants

Two-hundred and one Finnish students participated in the study. I wanted at least 50 individuals per group, for a total of 100 participants, and chose first year students from Laurea Polytechnic in an attempt to be more representative of diverse study programs, with differing requirements and social levels, which would be closer to representing average Finns. In particular, I wished to avoid the typical social psychology students who are normally significantly different from the general population, particularly in areas such as prejudice, universalism, and moral inclusion, and who are mostly female (e.g., McFarland, 2010; Verkasalo, Daun, & Niit, 1994).

Recruitment emails were initially sent out to 400 Laurea Polytechnic students on February 28th, 2012. Students were selected at random from all of Laurea’s institutes from almost all of its Finnish language programmes. Eleven email addresses failed, for a total of 389 potential participants. Only 37 responded, even after two follow up emails, for a response rate of 9.5%. Response rates have been found to be poorer using email recruitment, but this was even lower than anticipated (Cook, Heath, & Thompson, 2000). More student email addresses were requested and received, and 400 more emails were sent on March 13th. Fifteen email addresses failed, for a total of 385 potential participants. Only 27 responded, for a response rate of 7.0%. To make up the difference I also decided to recruit students from the University of Helsinki, and emails were sent to 31 recommended mailing lists (see Appendix 6). It is impossible to know how many students are on the lists or consequently what the response rates were, but I received 131 responses. Six students from other schools who were either on one of the mailing lists or who had previously studied at Laurea also responded.

The 201 participants ranged in age from 19 to 65, $M = 27.14$. An unexpectedly low percentage of men participated, with 166 (82.6%) women and only 35 (17.4%) men. The vast majority spoke Finnish as their native tongue, 189 (94.0%), while eight (4.0%) spoke Swedish as their native tongue, and four (2.0%) noted another language (two Russian, and one each Estonian and Slovak). Sixty-four (31.8%) participants were from
Laurea Polytechnic, 131 (65.2%) from the University of Helsinki, and six (3.0%) listed other universities (two from Turku University, one each from Aalto University, Åbo Akademi, and Jyväskylä University, and one was left blank). Contrary to my intentions, very few were in their first year of studies at a post-secondary institution, with only 25 (12.4%) listing this as their first year, 18 (9.0%) their second year, 33 (16.4%) their third, 36 (17.9%) their fourth, and the majority, 89 (44.3%) were in their fifth or higher year of university, making them on average, very highly educated. Finally, they were from a diverse range of programs. The programs were divided into eight categories, which differed by school: Arts and humanities (36.9%), social sciences (15.9%), education (11.3%), health care (10.8%), economics and business (9.2%), various polytechnic degrees (7.7%), science and technology (6.2%) and unspecified (2.1%). For a list of specific programs, see Appendix 6.

Participants were not compensated, but were given the opportunity to put their email addresses into a draw to win movie tickets. Six movie tickets were conferred. Winning participants were chosen using a random number generator (Mads Haahr, 2012).

It is important to note that this sample is not representative of the Finnish population, or even of Finnish university-level students. The sample is skewed in several ways, including by gender, by program, and by years of study. Self-selection bias was obviously a factor in this study (Cook, Heath, & Thompson, 2000) a problem which will be addressed in the discussion (section 6.2).

4.2 Instruments

Basic demographics were first collected (age, gender, school, year and programme of study, mother tongue), after which students read whichever of the two editorials they were randomly selected to get. Several questionnaires, a word association task, and some follow-up questions comprised the rest of the survey. The following questionnaires were used:

- A combination of two Finnish prejudice scales used in place of the Modern Racism Scale (MRS; McConahay, Hardee, & Batts, 1981) with modified questions from that scale, as well as from Liebkind and McAlister (1999), and Pettigrew and Meertens (1995);
• Recategorization questions (Costello & Hodson, 2010; based on Esses, Hodson, & Dovidio, 2003);
• A shortened version of the Ten-Item Personality Inventory (Gosling et al., 2003) measuring uniquely and non-uniquely human personality traits;
• An inventory based upon Demoulin et al. (2004) and Paladino et al. (2002) measuring uniquely and non-uniquely human emotions;
• Batson and colleagues’ (1997) empathy scale;
• The Animal-Human Continuity scale (Templer, et al., 2006);
• Schwartz et al.’s (in press) revised value survey (PVQ-R).

These scales were each necessary for the (quasi) replication of Costello and Hodson’s (2010) study. The MRS was substituted because it has proven inappropriate in the Finnish context, whereas the questionnaires have been more applicable (see e.g., Finell et al., in press; Liebkind & McAlister, 1999). For the same reason, I chose to use Schwartz et al.’s (in press) redesigned value survey to measure moral universe, instead of universal orientation (UO) and social dominance orientation (SDO), due to the latter’s inappropriateness in the Finnish context (see e.g., Hirvelä, 2011). I used only one of Costello and Hodson’s (2010) two traits scales for the sake of keeping the survey at a reasonable length, and chose this one because it had better convergent and discriminant validity as well as test–retest reliability (Gosling et al., 2003). I also used a few different terms for the emotion scale than Costello and Hodson did, to better reflect those emotions most consistently used across studies (Demoulin et al., 2004; Leyens et al., 2001; Paladino et al., 2002).

Prejudice, recategorization, and humanization-traits are each measured on a scale from 1 (strongly disagree) to 7 (strongly agree), where a higher score indicates greater prejudice, recategorization, or humanization traits. Humanization emotions are measured on a scale from 1 (strongly disagree) to 5 (strongly agree) and empathy is measured on a scale from 1 (not at all) to 7 (very much), again, higher scores indicate greater humanization emotions and empathy. For the values survey, response options varied on a 6-point scale from not at all like me to very much like me. Each of the questionnaires can be seen in Appendices 3 and 4.
Prejudice scale. The substitution of the MRS, the scale measuring the dependent variable, was not undertaken lightly. However, it was highly recommended to change the scale for several reasons, the chief one being that it is no longer particularly modern; as well, there are questions of its applicability outside the United States, and in particular, researchers in Finland have found it to be an unreliable measure in the Finnish context. Two other scales have been used more regularly in Finland, one (which I will term P-scale 1) containing appropriate questions from the MRS (McConahay et al., 1981) and questions from Pettigrew and Meertens (1995); the other (termed P-scale 2) using one of the same questions from Pettigrew and Meertens (1995) as well as questions from Liebkind and McAlister (1999). Questions 1, 3, 4, and 6 were from the former; questions 1, 7, and 8 from the latter (see Appendices 3 and 4). Because each questionnaire was so short, and had some crossover, they were combined to make a composite scale. Additionally, the recategorization questions and the one reverse-scored (non-prejudiced) question from the MRS were folded into the scale, to avoid response sets or excessive social desirability bias and to provide a more balanced measure (Clark & Watson, 1995). This new scale was piloted before use, see Appendix 5.

Moral universe scale. Schwartz et al.’s (in press) redesigned value survey was used as a proxy for UO and SDO, using universalism and power subscales, respectively, which give a rough estimate of how inclusive a person’s moral universe is. Helkama (2009) notes that universalism values predict “acceptance of immigrants and prosocial behaviour more strongly in countries with a larger moral inclusiveness” (p. 141), and since Finland scores reasonably high on moral inclusion (3.25 out of 4), it should be applicable (Schwartz, 2007). Additionally, Feather and Mckee (2008) found that power has a direct relationship with prejudice, related to SDO, and that prejudice has an inverse relationship with universalism, so it should function as proxies for these scales. The revised value scale may also be particularly relevant, due to the finer breakdown of universalism and power into subscales. Universalism is now comprised of concern, nature, and tolerance, while on the opposite side, power is divided into dominance and resources; see Figure 5. Theoretically, each of the universalism scales should have some relationship with the main variables, although how specifically is unknown, because it is a brand-new measure. Power dominance has the strongest conceptual relationship with social dominance orientation, however, because it is a new measure and because neither
power nor dominance is generally a culturally endorsed value for Finns (e.g., Hofstede, 2001) it seems necessary to leave the possibility open for either subscale to be affected.

**Figure 5. Schwartz et. al.’s (in press) Revised Motivational Continuum**

![Motivational Continuum Diagram]

*Figure 5. Reprinted from Schwartz et al. (in press), with the caption “Figure 1. Proposed circular motivational continuum of 19 values with sources that underlie their order.”*

**Pilot studies.** I conducted several pilot studies covering different facets of this research. They include both English and Finnish pilots done with the assistance of my colleagues, as well as a measure-check pilot using random participants in order to test the geology editorial, my method for random selection, and the composite prejudice scale. See Appendix 5 for details on each of the studies.

**Word associations.** As mentioned, I also included a word association task (WAT) after the questionnaires (but before the PVQ-R). I wanted to give participants the opportunity to articulate their own spontaneous social representations, free from the confines of questionnaires. I hoped to gain a clearer idea of whom the participants were thinking about when they thought of immigrants and what other terms came to mind, as well as the valence they gave to such representations. This also necessitated the comparison category of Finn, to see what kind of differences individuals delineated between the two. I also wished to see what terms were most common when participants thought of
NH animals, as it is relevant to the experimental manipulation, and I hoped it would help illustrate the theoretical underpinnings. The comparison category of human was then also necessary. Thus, the terms I used for the WAT were Immigrant, Animal, Human, and Finn.

**Follow-up questions and debrief.** Finally, several follow up questions were asked after participants completed all of the above tasks. For each of the groups, a multiple-choice editorial check question was asked to make sure that participants had read and understood the editorial.\(^{20}\) Participants were given the opportunity to ask questions or leave comments and had the choice to give their email address for the movie ticket draw, and to indicate whether they wanted to receive a follow up debrief. Because of the awkward nature of the e-lomake program, I could not include a proper debrief on the questionnaire, because participants could go back and change their responses right up until the survey was finished and exited. Nevertheless, I felt it was ethically necessary to give participants the opportunity to get a fuller debriefing on what they experienced and on the aims of the study, so I sent a follow up email to the participants who wished one.

**4.3 Analytical Strategies**

All quantitative data was analyzed with PASW Statistics 18. Effect sizes (including Cohen’s \(d\)) were calculated using an online program, Effect Size Calculators (Becker, 1999). Qualitative data was analyzed by hand using Microsoft Excel 2010, though statistical tests on the word association data was also performed with PASW. The main quantitative methods consisted of bivariate analyses, one sample, independent sample, and paired sample \(t\)-tests, as well as simple linear and step-wise multiple regressions.

As noted, 201 participants completed the survey. One participant was removed because of a saving error within e-lomake, whereby most of her data was lost. A second was removed because she commented that she answered randomly. Finally, four were eliminated because their mother tongue was neither Finnish nor Swedish, so they were either immigrants or of immigrant descent. Consequently, 195 cases were analyzed.

\(^{20}\) Animal question: *How close is human DNA to chimpanzee DNA?* Geology question: *What are the three layers of the earth?*
There was no missing data for any questions, because the online survey was set up so that they were required to answer each question before they could move on. The only exception was the WAT data, which was not mandatory, but was nonetheless almost always completed. There were 585 fields (3 words each per 195 participants), and for Finn 573 were filled in, for Immigrant 572, for Animal 566, and for Human 563.

4.3.1 Quantitative data

Scale reliability. Initially, composite scores were made for each of the scales, including for the two separate prejudice scales that had been combined. The reliability of each scale was checked; their Cronbach’s alphas can be seen in Table 1.

Table 1. Alphas for all relevant scales and subscales

<table>
<thead>
<tr>
<th>Scale</th>
<th>α</th>
<th>Scale</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prejudice</td>
<td>.73</td>
<td>Universalism</td>
<td>.86</td>
</tr>
<tr>
<td>P-scale 1</td>
<td>.77</td>
<td>Tolerance</td>
<td>.69</td>
</tr>
<tr>
<td>P-scale 2</td>
<td>.68</td>
<td>Nature</td>
<td>.88</td>
</tr>
<tr>
<td>Humanization traits</td>
<td>.86</td>
<td>Concern</td>
<td>.79</td>
</tr>
<tr>
<td>Humanization emotions</td>
<td>.97</td>
<td>Power</td>
<td>.84</td>
</tr>
<tr>
<td>Empathy</td>
<td>.89</td>
<td>Dominance</td>
<td>.80</td>
</tr>
<tr>
<td>Recategorization</td>
<td>.75</td>
<td>Resources</td>
<td>.79</td>
</tr>
<tr>
<td>Animal-human continuity</td>
<td>.66</td>
<td></td>
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</tr>
</tbody>
</table>

The internal consistency of humanization emotions, humanization traits,\(^{21}\) and empathy was excellent; recategorization and prejudice were both acceptable.\(^{22}\) Likewise, the universalism and power scales and subscales were all reliable, aside from tolerance, which was a bit too low. Animal-human continuity was less reliable, which was not unexpected. I find this scale to be problematic and searched (without success) for a replacement before conducting this study. Multiple issues with it were raised during my pilot studies, and I have concerns with the wording of many of the questions. The translators who converted it into Finnish also mentioned that it was awkward to translate into Finnish, an issue that was not raised with other scales. Multiple participants also raised concerns about the scale in the comments section. Therefore, the results from this scale were treated with some caution.

\(^{21}\) Hereafter, humanization emotions and traits will simply be referred to as emotions and traits.

\(^{22}\) As in the pilot (see Appendix 5), P-scale 2 was not as reliable as it should be, but since the composite scale was not that much less reliable than P-scale 1, the composite scale was used for all analyses.
**Nonparametric data.** Data was then explored using descriptive statistics and bivariate analyses. To measure correlations between the dependent variable (prejudice) and the categorical demographic variables (gender, school, years of study, program of study, mother tongue), prejudice was transformed into a categorical variable. Scores between 1-1.9 were given the rank 1, scores between 2-2.9 the rank 2, and so on (see Appendix 6). Program of study also had to be transformed from open-ended responses into a categorical variable. After translation, they were separated into faculties wherever possible. For example, study programs in the faculty of social sciences were all grouped together, as well as the faculty of arts, and the faculty of science. Then all education study programs were grouped together, and all programs relating to health care. Economics, business, and law were combined because there was multiple crossover between these programs (e.g., economics and business administration, business law). Finally, due to the small number of them, all polytechnic degrees that did not apply to any other category were combined into one category. Those participants who did not specify their program (e.g., master’s program) were put in an unspecified category. All listed programs and their categories can be seen in Appendix 6, as can the specific scoring of each of the categorical variables. Correlations between prejudice, gender, school, years of study, program of study, and mother tongue were then measured with a bivariate analysis using Spearman’s rho.

**Parametric data.** Continuous variables (age, emotions, traits, recategorization, empathy, values) were examined with a bivariate analysis using Pearson’s correlations. Analysing continuous variables with parametric tests also requires that several basic assumptions be met, namely normal distribution, homogeneity of variance, and independence of observations. Of all of the relevant variables (prejudice, traits, emotions, empathy, recategorization, animal-human continuity, universalism subscales, power subscales) only empathy, animal-human continuity, and each of the universalism subscales fell within the parameters of normal distribution. Emotions’ kurtosis was borderline, due to the high number of participants who had a score of 5. Traits was both positively skewed and pointy, recategorization’s kurtosis was also borderline, and both power resources and power dominance were positively skewed.
Most problematically, prejudice was both positively skewed and had a sharp peak. Since none was extremely non-normal, and due to the large sample size, it was determined that results would not be severely affected by the violation of this assumption, as per the Monte Carlo simulations done by Glass, Peckham, and Sanders (1972). This was partly determined because the assumption of homogeneity of variance was met for all relevant variables (aside from humanization emotions, which just barely failed, receiving 0.48 on Levene’s test of equal variances), as was independence of observations (as noted by the Durbin-Watson test done with the multiple regression, discussed later). However, it does mean that interpretations need to be made with a bit of caution, particularly in terms of its generalizability.

As noted, correlations were examined, as were means and standard deviations, to get an understanding of the data, both for the total group, as well as by experimental condition. As noted, I used an experimental framework with two conditions, the *animals are like humans* (experimental) condition and *geology* (control) condition. Specifically, I examined how the *animals are like humans* editorial (as compared to the control *geology* editorial) affected prejudice toward immigrants, as well as humanization (traits and emotions), empathy, and recategorization (as per Costello & Hodson’s study, 2010). Independent sample *t*-tests were conducted between groups on every variable to see which were significantly different. Since P-scale 2 had a much lower alpha than P-scale 1, independent samples *t*-tests were also conducted using each subscale, but no differences were found between those *t*-tests and the composite scale *t*-test, so the composite scale was assumed to be adequately reliable, and used for all analyses.

The manipulation checks were also tested, comparing animal-human continuity scores by experimental group with an independent sample *t*-test. Answers to the editorial questions were also examined, and independent sample *t*-tests were rerun without the few participants who got the question wrong, to check for differences (there were none).

**Hypothesis testing.** To test H1, H2, H3, and H4, whether traits, emotions, empathy, and recategorization mediate between the independent variable (editorial) and the dependent

---

23 Humanization traits and humanization emotions are each divided into uniquely (UH) and non-uniquely human (NUH). All hypotheses concern UH scores for immigrants.
variable (prejudice), several linear regression analyses were run, as per Baron and Kenny (1986). See Figure 5 for the model.

**Figure 5. Baron and Kenny’s (1986) Mediational Model**

To test for mediation, several steps need to be followed. Step 1 is to run a regression on the editorial and prejudice (c in figure; H1). Step 2 is to run separate regression analyses on the editorial and each of the potential mediators (a in figure; H2). Step 3 is to run a regression on each of the potential mediators and prejudice (b in figure; H3). Finally, it is necessary to establish whether the effect is a partial or complete mediation (affecting H4). (Kenny, 2012.) Although this is the standard model for mediation testing, there has been some debate in the past several decades over whether every one of these steps is necessary (Kenny, 2012; Zhao, 2010). Kenny (2012) notes that the majority of analysts now agree that step 1 is not necessary to show mediation. Consequently, even if step 1 is not significant, steps 2 and (if significant) step 3 can be carried out. The relationship between the main variables and control variables, as well as the model fit was determined with a step-wise multiple regression analysis.

During the step-wise multiple regression analysis, diagnostics were performed to test if the assumptions of linear regression were met. Emotions, traits, empathy, and recategorization each had a roughly linear relationship with prejudice, although traits was a bit more curved than it ought to have been. The residuals (distribution of the error term) were inspected using a histogram and a scatterplot to determine normal distribution and homoscedasticity, respectively. The residuals were quite normally distributed, although they were somewhat heteroscedastic. As mentioned, the Durbin-Watson value was examined to check for autocorrelation, and observations were determined to be independent. A scatterplot of the residuals and leverage indicated that there were no outliers in the risky category. Multicollinearity was assessed by
examining VIF scores, which indicated that none of the variables was highly correlated with one another. Thus, the assumptions of linear regression were generally met.

To test H5, Pearsons’ correlations between prejudice, emotions, traits, empathy, recategorization, and values were tested using bivariate analysis. This was done after preparing the PVQ-R data, which must be centred, to control for differential use of the scale. A personal mean for each participant was calculated, using all 57 questions. The items of the subscale were summed together, and then divided by the mean multiplied by the number of items (always three, in the revised version). (See e.g., Myyry, 2003.)

To test H6 and H7, paired sample \( t \)-tests were conducted to see which traits and emotions apply to which group. Pairing the previously mentioned theoretical traits and emotions with the scales means that Finns are expected to be a characterized as dependable/self-disciplined, reserved/quiet, calm/emotionally stable, and (paradoxically) critical/quarrelsome. Further, immigrants should be attributed as being disorganized/careless, extroverted/enthusiastic, and open to new experiences/complex (extroverted and open because Finns are thought to be distinctly not extroverted or open, so immigrants should come out higher in comparison). As with all \( t \)-tests that were run, effect sizes and Cohen’s \( d \) were also calculated.

4.3.2 Qualitative data

Participants were asked to supply three associations for each term, and give each word a valence, either positive (+), negative (-), or neutral (0). A total of 2274 words and phrases were submitted (as noted, Finn = 573, Immigrant = 572, Animal = 566, and Human = 563). The terms were translated using an online translator, after which they were checked and revised by a native Finnish speaker. They were then discussed together, after which some small reformulations and clarifications were made. The data for each term was processed for the sake of clarity, grouping all semantically similar words that differed only by way of grammar (e.g., singular/plural, adjectives/adverbs). Words that were different but semantically comparable were likewise put into groups (e.g., noisy and loud). (Sarrica & Contarello, 2004.) Finally, due to the sheer volume of data, words that were not semantically equivalent but expressed the same spirit of meaning were grouped together (e.g., dominant with conquering). Categories were
created as long as there were at least three of the same or conceptually similar words; any less and they were included in the miscellaneous category. Borderline or ambiguous terms were also included in the miscellaneous category. These categories and the contents therein were then checked by another researcher for whom Finnish is their native tongue, in both Finnish and English, to determine if my interpretation of the English word did not miss nuances present in the Finnish, as well as to negotiate the interpretations until agreement was reached.

Although qualitative data is not generally used with experiments, it has recently been done, for example, by Maykel Verkuyten (2005) with considerable success. In order to triangulate the WAT data with the questionnaire data, it was necessary to quantify it, in order to see if there were genuine differences by condition. This was done by assigning every individual an overall valence for each of the four terms (Finn, Immigrant, Animal, and Human) by adding up the valences participants had given to their words. Thus, the possible scores ranged from -3 (three negative words) to 3 (three positive words). Terms given a neutral valence or not given a valence were scored 0. (Rozin, Kurzer, & Cohen, 2002.) Independent sample t-tests were performed on the mean of each term, compared by experimental condition. Participants were then collapsed across groups and a one sample t-test was performed to see if there was a statistically significant difference between the valence means in each group.

Finally, to get a better sense of the empathy and alternately, the reproach directed at each of the four groups, all terms given a negative valence were recategorized into terms that were reproachful, empathetic, or ambiguous, and differences between the groups were examined.24

5 Results

5.1 Replication Results

Demographics. Pearson’s correlations between the main five variables (prejudice, humanization emotions, humanization traits, recategorization, and empathy) appear in

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24 The word association data spans 21 pages, which is why it was not included as an appendix. However, it is available upon request.
Table 2. The five main variables are all significantly correlated (in the predicted direction), with the exception of recategorization with emotions.

### Table 2. Correlations between prejudice, emotions, traits, empathy, and recategorization

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Prejudice</td>
<td>−</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Emotions (UHI)</td>
<td>-.28***</td>
<td>−</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Traits (UHI)</td>
<td>-.34***</td>
<td>.21**</td>
<td>−</td>
<td></td>
</tr>
<tr>
<td>4. Empathy</td>
<td>-.44***</td>
<td>.14*</td>
<td>.31***</td>
<td>−</td>
</tr>
<tr>
<td>5. Recategorization</td>
<td>-.34***</td>
<td>.09</td>
<td>.37***</td>
<td>.38***</td>
</tr>
</tbody>
</table>

**Note.** UHI = uniquely human, for immigrants.

*p < .05, **p < .01, ***p < .001 (1-tailed).

Correlations were also run with the demographic variables, to check if any needed to be controlled for. The only parametric demographic variable, age, was not significantly correlated with any of the main variables. Spearman’s rho correlations are in Table 3.

### Table 3. Correlations between prejudice (categorical), gender, school, years of study, program of study, and mother tongue

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Prejudice</td>
<td>−</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Gender</td>
<td>.17*</td>
<td>−</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. School</td>
<td>-.34***</td>
<td>-.04</td>
<td>−</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Years of study</td>
<td>-.03</td>
<td>.11</td>
<td>-.05</td>
<td>−</td>
<td></td>
</tr>
<tr>
<td>5. Program of study</td>
<td>-.32***</td>
<td>-.04</td>
<td>.49***</td>
<td>-.14</td>
<td>−</td>
</tr>
<tr>
<td>6. Mother tongue</td>
<td>.01</td>
<td>.04</td>
<td>-.03</td>
<td>.06</td>
<td>.00</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .001 (2-tailed).

Gender, school, and program of study were all significantly correlated with prejudice. For gender, men (n = 34) scored higher than women (n = 161), M = 3.06 versus M = 2.63. An independent samples t-test was conducted to determine if men were significantly more prejudiced than women, which proved to be the case, t(193) = -2.73, p = .007, ES = .19, d = -.39. For school, Laurea Polytechnic students (n = 62) scored higher on prejudice than University of Helsinki students (n = 127), M = 3.12 versus M = 2.50. An independent samples t-test was conducted to determine if the Laurea students were significantly more prejudiced than the University of Helsinki students, which
proven true, $t(187) = 4.98, p < .001, ES = .34, d = .73$. The effect size for school was quite high, almost twice the effect of gender. For program of study, students in health care proved to be the most highly prejudiced, while the least prejudiced were students of social sciences, as anticipated. Program of study is examined in detail in Appendix 7.

Means, standard deviations, and $t$-scores for prejudice, emotions, traits, empathy, and recategorization are listed in Table 4.

Table 4. Prejudice, emotions, traits, empathy, and recategorization means, standard deviations, and $t$-scores

<table>
<thead>
<tr>
<th>Measure</th>
<th>All ($N = 195$)</th>
<th>Animal Editorial ($n = 99$)</th>
<th>Geology Editorial ($n = 96$)</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prejudice</td>
<td>2.71 (.84)</td>
<td>2.66 (.83)</td>
<td>2.76 (.86)</td>
<td>-.84</td>
</tr>
<tr>
<td>Emotions (UHI)</td>
<td>3.88 (.77)</td>
<td>4.04 (.75)</td>
<td>3.72 (.77)</td>
<td>2.91*</td>
</tr>
<tr>
<td>Traits (UHI)</td>
<td>4.30 (.69)</td>
<td>4.29 (.69)</td>
<td>4.31 (.70)</td>
<td>-.17</td>
</tr>
<tr>
<td>Empathy</td>
<td>3.78 (1.08)</td>
<td>3.84 (1.17)</td>
<td>3.73 (.97)</td>
<td>.69</td>
</tr>
<tr>
<td>Recategorization</td>
<td>4.55 (1.49)</td>
<td>4.44 (1.42)</td>
<td>4.66 (1.57)</td>
<td>-1.01</td>
</tr>
</tbody>
</table>

Note. UHI = uniquely human, for immigrants. Df for all $t$-tests was 193 (equal variances), except empathy, df = 188 (0.48 on Levene’s test of equal variances).

$p < .01$

A preliminary examination of prejudice, emotions, traits, empathy, and recategorization by condition was conducted using an independent samples $t$-test. There were no significant differences between the animal and geology conditions for prejudice, traits, empathy, or recategorization. Emotions had the only significant difference across conditions, with a medium effect size, $p = .004, ES = .21, d = .42$.

Hypothesis 1. Although the independent sample $t$-test indicated that the animal editorial did not affect prejudice, a simple linear regression was conducted to follow the rules of mediation analysis. The regression analysis was non-significant. Consequently, H1 was not supported. As noted in section 4.3, the assumptions of linear regression for all relevant variables were tested and generally met.

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25 See Appendix 7 for an additional analysis on recategorization.

26 Since there is no consensus about whether effect sizes should be reported for non-significant results (see e.g., Leach & Henson, 2007), I have chosen not to report them, for the sake of simplicity.
**Hypothesis 2.** The second hypothesis was that the animal editorial would have a positive effect on emotions, traits, empathy, and recategorization. Again, a simple linear regression was conducted for each variable individually (so that H4 could be tested, as t-tests are not usable for mediation analysis). The regression analyses for traits, empathy, and recategorization were non-significant. Emotions was the only variable that was significant, $B = .32, \text{SE}(B) = .11, \beta = .21, t = 2.90, p = .004$. $R^2$ was 4.2% and adjusted $R^2$ 3.7%; the editorial did not have a large effect on emotions’ variance. Consequently, H2 (a), (c), and (d) were not supported, but H2 (b) was confirmed. The animal editorial also had an unexpected effect on uniquely human emotions for Finns, and non-uniquely human emotions for both groups. See Appendix 7 for details.

**Hypothesis 3.** The third hypothesis concerned whether traits, emotions, recategorization, and empathy had an effect on prejudice. A simple linear regression conducted on each variable determined that they were all significant, $p < .001$. Therefore, to examine their cumulative effect on prejudice, a step-wise multiple regression was conducted. Since gender, school, and program were all significantly related to prejudice, they were controlled for in the model, see Table 5.

**Table 5. Step-wise multiple regression model predicting prejudice**

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>B</th>
<th>SE(B)</th>
<th>$\beta$</th>
<th>t</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Gender</td>
<td>.28</td>
<td>.13</td>
<td>.12*</td>
<td>2.08</td>
<td>.11</td>
</tr>
<tr>
<td></td>
<td>School</td>
<td>.00</td>
<td>.04</td>
<td>.01</td>
<td>.09</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study Program</td>
<td>-.10</td>
<td>.03</td>
<td>-.22***</td>
<td>-3.59</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>Emotions (UHI)</td>
<td>-.21</td>
<td>.07</td>
<td>-.19**</td>
<td>-3.05</td>
<td>.24</td>
</tr>
<tr>
<td></td>
<td>Traits (UHI)</td>
<td>-.16</td>
<td>.08</td>
<td>-.13</td>
<td>-1.93</td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td>Recategorization</td>
<td>-.08</td>
<td>.04</td>
<td>-.148*</td>
<td>-2.14</td>
<td>.29</td>
</tr>
<tr>
<td></td>
<td>Empathy</td>
<td>-.23</td>
<td>.05</td>
<td>-.30***</td>
<td>-4.576</td>
<td>.36</td>
</tr>
</tbody>
</table>

*Note. UHI = uniquely human, for immigrants.*

* $p < .05$, ** $p < .01$, *** $p < .001$

Step 1 of the hierarchical regression included the control variables, namely gender, school, and study program. For the control variables alone; the model was significant,
though it only accounted for 9.5% of the variance (adjusted $R^2$), $F(3, 191) = 7.82, p < .001$. Adding humanization emotions and traits in the second step brought the adjusted $R^2$ up to 22.1% of the variance, $F(2, 189) = 16.39, p < .001$. The third step incorporated recategorization, which increased the adjusted $R^2$ to 26.2% of the variance, $F(1, 188) = 11.56, p = .001$. Including empathy in the fourth and final step increased the adjusted $R^2$'s variance to 33.3%, $F(1, 187) = 20.94, p < .001$. Altogether, the model predicted a third of the variance in prejudice, with the largest effect being seen for humanization (traits and emotions) and the smallest for recategorization. However, recategorization accounted for a 5% change in variance, which is nonetheless meaningful. H3 (a), (b), (c), and (d) were confirmed.

**Hypothesis 4.** The fourth hypothesis involved mediation. Only emotions were significantly affected by the animal editorial, and they also significantly affected prejudice, as seen in Table 5 (the simple linear regression conducted on emotions alone resulted in $B = -.30, SE(B) = .08, \beta = -.28, t = -3.98, p < .001, R^2 = 7.6\%$, and adjusted $R^2 = 7.1\%$). Thus, although the original strictures of Baron and Kenny’s (1986) mediational method were not followed because there was no direct effect of the editorial on prejudice, according to newer conceptions of mediation (e.g., Kenny, 2012; Zhao, 2010), emotions did mediate between animal-human similarity and prejudice, because humanization emotions was affected by the editorial, and it, in turn, affected prejudice. Therefore, although H4 (a), (c), and (d) were not supported, (b) was confirmed.

**Hypothesis 5.** The fifth hypothesis considered the relationships between the main variables and the individual’s moral universe, which was determined using the three universalism and two power values from the PVQ-R. These values and their correlations with the main variables can be seen in Table 6.

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27 I have included the adjusted $R^2$ as a more conservative estimate of the effect size to mitigate the increased sampling error due to so many variables, as per Leach and Henson (2007).
Table 6: Correlations between universalism and power subscales, and prejudice, emotions, traits, empathy, and recategorization

<table>
<thead>
<tr>
<th></th>
<th>Universalism</th>
<th></th>
<th>Power</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Concern</td>
<td>Nature</td>
<td>Tolerance</td>
<td>Dominance</td>
</tr>
<tr>
<td>Prejudice</td>
<td>-.63***</td>
<td>-.34***</td>
<td>-.47***</td>
<td>.14*</td>
</tr>
<tr>
<td>Emotions (UHI)</td>
<td>.13*</td>
<td>.09</td>
<td>.03</td>
<td>.13*</td>
</tr>
<tr>
<td>Traits (UHI)</td>
<td>.25***</td>
<td>.14*</td>
<td>.27***</td>
<td>-.14*</td>
</tr>
<tr>
<td>Empathy</td>
<td>.38***</td>
<td>.32***</td>
<td>.28***</td>
<td>-.039</td>
</tr>
<tr>
<td>Recategorization</td>
<td>.33***</td>
<td>.25***</td>
<td>.39***</td>
<td>-.038</td>
</tr>
</tbody>
</table>

Note. UHI = uniquely human, for immigrants.  
*p < .05, **p < .01, ***p < .001 (1-tailed).

H5 (a), (b), (c), (d), and (e) were all confirmed, because at least one each of the universalism subscales and one each of the power subscales correlated with all five of the variables. All three of the universalism scales have a significant negative relationship with prejudice, and a significant positive relationship with traits, empathy, and recategorization. Universalism concern is weakly correlated with emotions, but overall, humanization emotions do not have a strong relationship with universalism. Prejudice has the strongest relationship to the universalism subscales, being highly negatively correlated with both universalism concern and tolerance. Power has weaker but nonetheless significant relationships with the five variables. For prejudice and traits, both power subscales are correlated (the strongest being power resources and prejudice). Emotions correlate just to power dominance, and empathy and recategorization just to power resources. The correlations of all 19 values with the main variables can be seen in Appendix 7. No values differed significantly by condition. Overall, the results of the PVQ-R were very neat; exhibiting the characteristic sinusoid curve, and indicating that the revised scale functions in the same way as the original. The correlations between all values can also be seen in Appendix 7.

**Manipulation check.** The animal-human continuity scale failed as a manipulation check, as scores were not significantly different between the two editorial conditions. The second manipulation check (the multiple-choice question) was examined, to make sure that participants did read and understand the editorial. For the geology condition, only one person got the answer wrong, whereas for the animal condition, seven people did not answer the question correctly. An additional independent sample t-test was run.
after filtering out the participants who failed the manipulation check, but prejudice remained non-significant across conditions. Overall, most people read and understood the editorial. Although the animal-human continuity scale was unsuccessful as a manipulation check, it did negatively correlate to prejudice, \(-.13, p = .03\) (one-tailed).

5.2 Social Representation Results

5.2.1 Trait and emotion results

The representations that participants have about the traits and emotions of Finns and immigrants can be seen in Tables 7 and 8, respectively.

Table 7. Means, standard deviations, and significance (paired sample \(t\)-test) of traits, by Finns and immigrants

<table>
<thead>
<tr>
<th>Trait (UH)</th>
<th>Finn</th>
<th>Immigrant</th>
<th>(t)</th>
<th>(ES)</th>
<th>(d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conscientiousness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependable/self-disciplined</td>
<td>5.31 (1.09)</td>
<td>4.50 (1.25)</td>
<td>8.99***</td>
<td>.33</td>
<td>.69</td>
</tr>
<tr>
<td>Disorganized/careless</td>
<td>3.54 (1.27)</td>
<td>4.31 (1.28)</td>
<td>-8.22***</td>
<td>-.29</td>
<td>-.60</td>
</tr>
<tr>
<td>Openness (UH)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open to new exp./complex</td>
<td>4.26 (1.25)</td>
<td>4.90 (1.13)</td>
<td>-7.27***</td>
<td>-.26</td>
<td>-.54</td>
</tr>
<tr>
<td>Conventional/uncreative</td>
<td>4.33 (1.16)</td>
<td>3.89 (1.01)</td>
<td>6.62**</td>
<td>.20</td>
<td>.40</td>
</tr>
<tr>
<td>Neuroticism (NUH)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxious/easily upset</td>
<td>4.70 (1.23)</td>
<td>4.49 (1.14)</td>
<td>2.52*</td>
<td>.09</td>
<td>.18</td>
</tr>
<tr>
<td>Calm/emotionally stable</td>
<td>4.70 (1.17)</td>
<td>4.12 (1.18)</td>
<td>6.44***</td>
<td>.24</td>
<td>.49</td>
</tr>
<tr>
<td>Agreeableness (NUH)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical/quarrelsome</td>
<td>4.67 (1.18)</td>
<td>4.17 (1.26)</td>
<td>5.66***</td>
<td>.20</td>
<td>.41</td>
</tr>
<tr>
<td>Sympathetic/warm</td>
<td>4.76 (1.14)</td>
<td>4.96 (1.12)</td>
<td>-2.66**</td>
<td>-.09</td>
<td>-.18</td>
</tr>
<tr>
<td>Extroversion (NUH)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extroverted, enthusiastic</td>
<td>3.92 (1.32)</td>
<td>5.05 (1.12)</td>
<td>-10.78***</td>
<td>-.42</td>
<td>-.92</td>
</tr>
<tr>
<td>Reserved, quiet</td>
<td>5.28 (1.03)</td>
<td>4.04 (1.25)</td>
<td>11.50***</td>
<td>.48</td>
<td>1.08</td>
</tr>
</tbody>
</table>

Note. UH = uniquely human; NUH = non-uniquely human.

*p < .05, **p < .01, ***p < .001

Hypotheses 6 and 7. Paired sample \(t\)-tests were conducted with each of the attributed traits and emotions collapsed across groups, comparing the means for Finns and

28 It is notable however that animal-human continuity was significantly positively correlated with universalism-tolerance \(r = .13, p = .032\), -concern, \(r = .15, p = .016\) and -nature, \(r = .20, p = .003\).
immigrants. For traits, all ten $t$-tests were significant, meaning that each trait was typically attributed to either Finns or immigrants. Thus, H6 was confirmed; Finns were considered to be dependable/self-disciplined, reserved/quiet, calm/emotionally stable, and critical/quarrelsome, as well as conventional/uncreative and anxious/easily upset. H7 was also supported, as immigrants were considered disorganized/careless, open to new experiences/complex, and extroverted/enthusiastic, as well as sympathetic and warm. The effect sizes were largest for extroversion traits, indicating that they are strongly stereotypical, particularly reservation/quietness for Finns. Effect sizes for conscientiousness and openness were medium, and those for neuroticism and agreeableness were more variable.

Table 8. Means, standard deviations, and significance (paired sample $t$-test) of emotions, by Finns and immigrants

<table>
<thead>
<tr>
<th></th>
<th>Finn (SD)</th>
<th>Immigrant (SD)</th>
<th>$t$</th>
<th>ES</th>
<th>$d$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UH Positive</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serenity</td>
<td>3.80 (.98)</td>
<td>3.51 (1.12)</td>
<td>4.52**</td>
<td>.14</td>
<td>.28</td>
</tr>
<tr>
<td>Compassion</td>
<td>4.03 (.93)</td>
<td>3.99 (.95)</td>
<td>.63</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Hope</td>
<td>4.01 (.95)</td>
<td>4.21 (.75)</td>
<td>-3.71**</td>
<td>-.12</td>
<td>-.23</td>
</tr>
<tr>
<td><strong>UH Negative</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guilt</td>
<td>3.61 (1.19)</td>
<td>3.72 (1.05)</td>
<td>-1.72</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Shame</td>
<td>3.96 (1.00)</td>
<td>4.05 (.94)</td>
<td>-1.45</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Remorse</td>
<td>3.91 (.95)</td>
<td>3.82 (.99)</td>
<td>1.81</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>NUH Positive</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excitement</td>
<td>3.81 (1.08)</td>
<td>4.28 (.70)</td>
<td>-7.66**</td>
<td>-.25</td>
<td>-.52</td>
</tr>
<tr>
<td>Attraction</td>
<td>3.84 (.96)</td>
<td>3.85 (.95)</td>
<td>-.25</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pleasure</td>
<td>4.14 (.85)</td>
<td>4.07 (.91)</td>
<td>1.83</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>NUH Negative</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear</td>
<td>4.01 (.98)</td>
<td>4.32 (.68)</td>
<td>-6.00**</td>
<td>-.18</td>
<td>-.37</td>
</tr>
<tr>
<td>Anger</td>
<td>4.03 (.87)</td>
<td>3.86 (1.02)</td>
<td>3.09*</td>
<td>.09</td>
<td>.18</td>
</tr>
<tr>
<td>Pain</td>
<td>3.85 (1.11)</td>
<td>4.14 (.90)</td>
<td>-5.83**</td>
<td>-.14</td>
<td>-.29</td>
</tr>
</tbody>
</table>

*Note. UH = uniquely human; NUH = non-uniquely human.  
*p < .01, **p < .001*

For emotions, only half of the $t$-tests were significant. Finns were characterized by serenity and anger; immigrants were characterized by hope, excitement, fear, and pain. Neither group was considered to be particularly marked by compassion, guilt, shame,
remorse, attraction, or pleasure. The effect sizes for emotions were generally weaker, the strongest being the attribution of excitement to immigrants.

5.2.2 Word association results

The word association task contained the words Finn, Immigrant, Animal, and Human. Tables 10, 11, 12, and 13 list the categories for each term, as well as the itemization of positive, negative, neutral, and missing valences given to the terms, and their breakdown across experimental condition.

The top ten most frequently cited descriptors for Finn were: silent and reserved, sullen and withdrawn, honest and straightforward, industrious (hard-working and skilled), symbols of Finland (e.g., sauna, flag, Santa, hockey, Moomins), reliable and conscientious, words describing the people and country (e.g., kansa, patriotic, welfare state), sisu (guts and perseverance), calm and stable, and finally, cold, northern, and dark. Silent and reserved was the most frequently cited descriptor listed out of all of the terms. The words associated with Finn correspond to the traits and emotions attributed to them in the questionnaire data, as seen in Table 9.

Table 9. Traits and emotions by word association categories, for Finn

<table>
<thead>
<tr>
<th>Attributed traits and emotions</th>
<th>Related WAT categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserved/quiet</td>
<td>Silent and reserved</td>
</tr>
<tr>
<td></td>
<td>Some similarity to sullen and withdrawn</td>
</tr>
<tr>
<td>Dependable/self-disciplined</td>
<td>Reliable and conscientious</td>
</tr>
<tr>
<td></td>
<td>Industrious (hard-working and skilled)</td>
</tr>
<tr>
<td></td>
<td>Some similarity to sisu (guts and perseverance)</td>
</tr>
<tr>
<td>Calm/stable</td>
<td>Calm and stable</td>
</tr>
<tr>
<td>Serenity</td>
<td></td>
</tr>
<tr>
<td>Critical/quarrelsome</td>
<td>Harsh</td>
</tr>
<tr>
<td></td>
<td>Selfish and rude</td>
</tr>
<tr>
<td>Conventional/uncreative</td>
<td>Conservative and conforming</td>
</tr>
<tr>
<td></td>
<td>Some similarity to stupid and dull</td>
</tr>
<tr>
<td></td>
<td>Some similarity to narrow-minded and racist</td>
</tr>
<tr>
<td>Anxious/easily upset</td>
<td>Some similarity to sullen and withdrawn</td>
</tr>
<tr>
<td></td>
<td>Mentioned in miscellaneous difficulties</td>
</tr>
<tr>
<td>Anger</td>
<td>Mentioned in selfish and rude</td>
</tr>
</tbody>
</table>
Table 10. Word associations for Finn, total and by condition

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All</td>
</tr>
<tr>
<td>1. Silent and reserved</td>
<td>96</td>
</tr>
<tr>
<td>2. Sullen and withdrawn</td>
<td>40</td>
</tr>
<tr>
<td>3. Honest and straightforward</td>
<td>35</td>
</tr>
<tr>
<td>4. Industrious (hard-working and skilled)</td>
<td>35</td>
</tr>
<tr>
<td>5. Symbols of Finland (e.g., sauna, flag)</td>
<td>32</td>
</tr>
<tr>
<td>6. Reliable and conscientious</td>
<td>30</td>
</tr>
<tr>
<td>7. People and country (e.g., kansa, patriotic)</td>
<td>26</td>
</tr>
<tr>
<td>8. Sisu (guts and perseverance)</td>
<td>22</td>
</tr>
<tr>
<td>9. Calm and stable</td>
<td>21</td>
</tr>
<tr>
<td>10. Cold, northern, and dark</td>
<td>21</td>
</tr>
<tr>
<td>11. Selfish and rude</td>
<td>18</td>
</tr>
<tr>
<td>12. Common (e.g., peasants, basic)</td>
<td>15</td>
</tr>
<tr>
<td>13. Physical attributes (e.g., blond, fat)</td>
<td>14</td>
</tr>
<tr>
<td>14. Closeness with nature, nature words</td>
<td>14</td>
</tr>
<tr>
<td>15. Narrow-minded and racist</td>
<td>13</td>
</tr>
<tr>
<td>16. Conservative, unified, and conforming</td>
<td>13</td>
</tr>
<tr>
<td>17. Compassionate and friendly</td>
<td>13</td>
</tr>
<tr>
<td>18. Drunkenness, liquor</td>
<td>11</td>
</tr>
<tr>
<td>19. Equality and fairness</td>
<td>11</td>
</tr>
<tr>
<td>20. Educated</td>
<td>10</td>
</tr>
<tr>
<td>21. Dull, stupid, and slow</td>
<td>9</td>
</tr>
<tr>
<td>22. International and tolerant</td>
<td>9</td>
</tr>
<tr>
<td>23. Polite and modest</td>
<td>9</td>
</tr>
<tr>
<td>24. Various people (e.g., woman, president)</td>
<td>7</td>
</tr>
<tr>
<td>25. Misc. difficulties (e.g., lost roots, single)</td>
<td>7</td>
</tr>
<tr>
<td>26. Finns each different and individual</td>
<td>6</td>
</tr>
</tbody>
</table>
Table 11. Word associations for Immigrant, total and by condition

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All</td>
</tr>
<tr>
<td>1. Heterogeneous and different</td>
<td>58</td>
</tr>
<tr>
<td>2. Multicultural and international</td>
<td>31</td>
</tr>
<tr>
<td>3. Loud</td>
<td>29</td>
</tr>
<tr>
<td>4. Dark skinned</td>
<td>28</td>
</tr>
<tr>
<td>5. Rude and temperamental</td>
<td>23</td>
</tr>
<tr>
<td>6. Social and extroverted</td>
<td>23</td>
</tr>
<tr>
<td>7. Bold, brave, and strong</td>
<td>22</td>
</tr>
<tr>
<td>8. Happy, positive, and hopeful</td>
<td>22</td>
</tr>
<tr>
<td>9. Misc. stresses (e.g., uncertainty, lost)</td>
<td>22</td>
</tr>
<tr>
<td>10. Lazy and unemployed</td>
<td>21</td>
</tr>
<tr>
<td>11. Discrimination and racism</td>
<td>20</td>
</tr>
</tbody>
</table>

Note. + positive valence, - negative valence, 0 neutral valence, x no valence given, A animal editorial group, G geology editorial group.
<table>
<thead>
<tr>
<th>Trait Description</th>
<th>Counts</th>
<th>A (% of A)</th>
<th>G (% of G)</th>
<th>Total (% of Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12. Misc. positive traits (e.g., friendly, nice)</td>
<td>20 17 0 0 3</td>
<td>15 5 13 0 0 2</td>
<td>4 0 0 0 1</td>
<td></td>
</tr>
<tr>
<td>13. Adaptable and open</td>
<td>19 13 0 2 4</td>
<td>10 9 7 0 1 2</td>
<td>6 0 1 2 0</td>
<td></td>
</tr>
<tr>
<td>14. Hard-working and enterprising</td>
<td>18 15 0 1 2</td>
<td>13 5 10 0 1 2</td>
<td>5 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>15. Not adaptable, reclusive</td>
<td>18 0 12 3 3</td>
<td>7 11 0 4 2 1</td>
<td>0 8 1 2 0</td>
<td></td>
</tr>
<tr>
<td>16. Language (e.g., deficits, learning)</td>
<td>16 2 3 8 3</td>
<td>9 7 1 1 5 2</td>
<td>1 2 3 1 0</td>
<td></td>
</tr>
<tr>
<td>17. Family and community-centred</td>
<td>15 10 0 5 0</td>
<td>10 5 7 0 3 0</td>
<td>3 0 2 0 0</td>
<td></td>
</tr>
<tr>
<td>18. People (normal and equal)</td>
<td>14 6 0 6 2</td>
<td>7 7 6 0 1 0</td>
<td>0 0 5 2 0</td>
<td></td>
</tr>
<tr>
<td>19. Foreigner (moved from afar)</td>
<td>13 2 0 10 1</td>
<td>4 9 1 0 3 0</td>
<td>1 0 7 1 0</td>
<td></td>
</tr>
<tr>
<td>20. Types of immigrants (country, ethnicity)</td>
<td>12 3 3 3 3</td>
<td>3 9 0 1 2 0</td>
<td>3 2 1 3 0</td>
<td></td>
</tr>
<tr>
<td>21. Traumatized, victims</td>
<td>11 2 4 2 3</td>
<td>6 5 0 4 2 0</td>
<td>2 0 0 3 0</td>
<td></td>
</tr>
<tr>
<td>22. New, change</td>
<td>10 3 0 6 1</td>
<td>3 7 0 0 3 0</td>
<td>3 0 3 1 0</td>
<td></td>
</tr>
<tr>
<td>23. Workers</td>
<td>10 4 2 3 1</td>
<td>3 7 1 1 1 0</td>
<td>3 1 2 1 0</td>
<td></td>
</tr>
<tr>
<td>24. Relating to women (e.g., veil, misogyny)</td>
<td>9 0 3 6 0</td>
<td>4 5 0 1 3 0</td>
<td>0 2 3 0 0</td>
<td></td>
</tr>
<tr>
<td>25. Religion (mainly Islam)</td>
<td>9 0 2 5 2</td>
<td>4 5 0 2 1 1</td>
<td>0 0 4 1 0</td>
<td></td>
</tr>
<tr>
<td>26. Interesting and welcome</td>
<td>8 6 0 0 2</td>
<td>6 2 4 0 0 2</td>
<td>2 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>27. Crime-related (e.g., rape, stealing)</td>
<td>7 0 6 0 1</td>
<td>4 3 0 0 4 0</td>
<td>0 2 0 1 0</td>
<td></td>
</tr>
<tr>
<td>28. Refugees</td>
<td>7 0 0 4 3</td>
<td>1 6 0 0 0 1</td>
<td>0 0 4 2 0</td>
<td></td>
</tr>
<tr>
<td>29. Poor and homeless</td>
<td>7 0 3 2 2</td>
<td>4 3 0 2 1 1</td>
<td>0 1 1 1 0</td>
<td></td>
</tr>
<tr>
<td>30. Strange</td>
<td>7 0 0 6 1</td>
<td>5 2 0 0 4 1</td>
<td>0 0 2 0 0</td>
<td></td>
</tr>
<tr>
<td>31. Clothing (e.g., colourful clothes, skirt)</td>
<td>6 0 0 3 3</td>
<td>2 4 0 0 1 1</td>
<td>0 0 2 2 0</td>
<td></td>
</tr>
<tr>
<td>32. Fear(ful)</td>
<td>6 0 4 0 2</td>
<td>3 3 0 2 0 1</td>
<td>0 2 0 1 0</td>
<td></td>
</tr>
<tr>
<td>33. Places (e.g., east Helsinki, train station)</td>
<td>5 1 0 2 2</td>
<td>2 3 0 0 1 1</td>
<td>1 0 1 1 0</td>
<td></td>
</tr>
<tr>
<td>34. Good food</td>
<td>4 3 0 0 1</td>
<td>3 1 3 0 0 0</td>
<td>0 0 0 1 0</td>
<td></td>
</tr>
<tr>
<td>35. Smell-related (e.g., fragrant, food smell)</td>
<td>3 0 1 1 1</td>
<td>2 1 0 0 1 1</td>
<td>0 1 0 0 0</td>
<td></td>
</tr>
<tr>
<td>36. Misc. (idiosyncratic or uninterpretable)</td>
<td>19 4 0 9 6</td>
<td>6 13 3 0 3 0</td>
<td>1 0 6 6 0</td>
<td></td>
</tr>
<tr>
<td><strong>Total #</strong></td>
<td>572 179 116 172 105</td>
<td>291 281 104 58 86 43</td>
<td>75 58 86 62</td>
<td></td>
</tr>
<tr>
<td><strong>Total %</strong></td>
<td>100% 31.3% 20.3% 30.1% 18.4%</td>
<td>50.9% 49.1% 35.7% 19.9% 29.6% 14.8%</td>
<td>26.7% 20.6% 30.6% 22.1%</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* + positive valence, - negative valence, 0 neutral valence, x no valence given, A animal editorial group, G geology editorial group.
Table 12. Word associations for Animal, total and by condition

<table>
<thead>
<tr>
<th>Category</th>
<th>All</th>
<th>+</th>
<th>-</th>
<th>0</th>
<th>x</th>
<th>A+</th>
<th>A-</th>
<th>A0</th>
<th>Ax</th>
<th>G+</th>
<th>G-</th>
<th>G0</th>
<th>Gx</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cute and beautiful</td>
<td>47</td>
<td>39</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>24</td>
<td>23</td>
<td>19</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>2. Fur and hair</td>
<td>37</td>
<td>12</td>
<td>2</td>
<td>15</td>
<td>8</td>
<td>18</td>
<td>19</td>
<td>4</td>
<td>0</td>
<td>10</td>
<td>4</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>3. Friend, companion, family member</td>
<td>35</td>
<td>30</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>21</td>
<td>14</td>
<td>18</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>4. Pet</td>
<td>30</td>
<td>19</td>
<td>1</td>
<td>4</td>
<td>6</td>
<td>11</td>
<td>19</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>5. Warm and soft (pleasant for humans)</td>
<td>28</td>
<td>21</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>18</td>
<td>10</td>
<td>13</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>6. Faithful and reliable</td>
<td>27</td>
<td>22</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>17</td>
<td>10</td>
<td>12</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>7. Nature</td>
<td>24</td>
<td>16</td>
<td>0</td>
<td>5</td>
<td>3</td>
<td>12</td>
<td>12</td>
<td>9</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>8. Wild, free, and natural</td>
<td>24</td>
<td>11</td>
<td>0</td>
<td>6</td>
<td>7</td>
<td>10</td>
<td>14</td>
<td>4</td>
<td>0</td>
<td>5</td>
<td>1</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>9. Beloved and wonderful</td>
<td>23</td>
<td>16</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>16</td>
<td>7</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>10. Happy and sociable</td>
<td>21</td>
<td>18</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>8</td>
<td>13</td>
<td>8</td>
<td>0</td>
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Table 13. Word associations for Human, total and by condition

<p>| Category                                         | All | +  | -  | 0  | x  | A  | G  | A+ | A- | A0 | Ax | G+ | G- | G0 | Gx |
|--------------------------------------------------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1. Intelligent and wise                          | 81  | 64 | 0  | 4  | 13 | 41 | 40 | 35 | 0  | 2  | 4  | 29 | 0  | 2  | 9  |
| 2. Selfish and greedy                            | 65  | 3  | 50 | 3  | 9  | 40 | 25 | 3  | 31 | 2  | 4  | 0  | 19 | 1  | 5  |
| 3. Cruel and destructive                         | 43  | 0  | 33 | 1  | 9  | 23 | 20 | 0  | 18 | 1  | 4  | 0  | 15 | 0  | 5  |
| 4. Science, art, technology, culture             | 31  | 20 | 0  | 5  | 6  | 16 | 15 | 9  | 0  | 3  | 4  | 11 | 0  | 2  | 2  |
| 5. Thoughtless and fallible                      | 30  | 1  | 17 | 2  | 10 | 15 | 15 | 1  | 10 | 1  | 3  | 0  | 7  | 1  | 7  |
| 6. Emotional and caring                          | 29  | 22 | 0  | 4  | 3  | 14 | 15 | 1  | 12 | 0  | 1  | 1  | 10 | 0  | 3  |
| 7. Categorical terms (e.g., homo sapiens, I)     | 27  | 8  | 0  | 1  | 3  | 10 | 17 | 4  | 0  | 5  | 1  | 4  | 0  | 8  | 5  |
| 8. Social and communal                           | 23  | 11 | 0  | 7  | 5  | 8  | 15 | 5  | 0  | 0  | 3  | 6  | 0  | 7  | 2  |
| 9. Complex and adaptable                         | 22  | 6  | 1  | 6  | 9  | 10 | 12 | 3  | 0  | 3  | 4  | 3  | 1  | 3  | 5  |
| 10. An animal                                    | 20  | 6  | 0  | 9  | 5  | 10 | 10 | 3  | 0  | 6  | 1  | 3  | 0  | 3  | 4  |
| 11. Dominant and conquering                      | 16  | 2  | 7  | 5  | 2  | 8  | 8  | 1  | 4  | 2  | 1  | 1  | 3  | 3  | 1  |
| 12. Body words (e.g., hairless, two legs)        | 16  | 10 | 0  | 6  | 0  | 12 | 4  | 8  | 0  | 4  | 0  | 2  | 0  | 2  | 0  |
| 13. Hard working and goal-oriented               | 16  | 2  | 0  | 12 | 2  | 6  | 10 | 0  | 0  | 5  | 1  | 2  | 0  | 7  | 1  |</p>
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<td>51.0%</td>
<td>49.0%</td>
<td>41.1%</td>
</tr>
<tr>
<td>29. Misc. (idiosyncratic or uninterpretable)</td>
<td>100%</td>
<td>38.4%</td>
<td>22.0%</td>
<td>19.0%</td>
<td>20.6%</td>
<td>51.0%</td>
<td>49.0%</td>
<td>41.1%</td>
</tr>
</tbody>
</table>

Note. + positive valence, - negative valence, 0 neutral valence, x no valence given, A animal editorial group, G geology editorial group.
Reserved/quiet, as well as calm/stable (and serenity) matched up exactly with word association categories, and both dependable/self-disciplined as well as conventional/uncreative aligned with several categories. Critical/quarrelsome, anxious/easily upset, and anger were less commonly cited, but nonetheless did occur. Anxious/easily upset was the most difficult to match up, possibly because it is opposite to calm/stable, so there are some polemic social representations being invoked in this case. Finns were also characterized as *compassionate and friendly* in the word association data, but not significantly so in the questionnaire data.

The social representations from the traits and emotions as well as from the word association data matches up well with the consensual stereotypes about Finns. As noted, the most typical representations of Finns involve being quiet, honest, taciturn, slow-witted, straightforward, calm, and diligent (Sajavaara & Lehotonen, 1997; Varjonen, Arnold, & Jasinskaja-Lahti, 2009). They are also characterized as being heavy drinkers and embodying the quality of *sisu* (Haavisto, 2011). Key symbols include sauna, nature, ice hockey, and the Winter War (Finell et al., in press). Of these stereotypic representations, the only one that was never mentioned was the Winter War.

For Immigrant, the top ten most frequently cited descriptors were: *heterogeneous and different, multicultural and international, loud, dark skinned, rude and temperamental, social and extroverted, brave and strong, happy and positive, miscellaneous stressors (e.g., uncertainty, lost, bureaucracy, unlucky), and lazy and unemployed*. The number one descriptor for immigrants, *heterogeneous*, was echoed in numerous comments given at the end of the survey. Dozens of people mentioned that they found the questionnaires difficult to answer because “immigrants are not a homogenous group.” Many were quite upset that they had been classed together; the reasons for their dismay spanned from egalitarian (explaining that immigrants are each individuals and should not be essentialized) to quite prejudiced (stating that it was “absurd” to compare a productive Norwegian businessman with a Somali refugee). The trait and emotion data that matched up with the word associations can be seen in Table 14.
Table 14. Traits and emotions by word association categories, for Immigrant

<table>
<thead>
<tr>
<th>Attributed traits and emotions</th>
<th>Related WAT categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open to new experiences/complex</td>
<td>Adaptable and open</td>
</tr>
<tr>
<td></td>
<td>Some similarity to bold, brave, and strong</td>
</tr>
<tr>
<td>Disorganized/careless</td>
<td>Lazy and unemployed</td>
</tr>
<tr>
<td>Extroverted/enthusiastic</td>
<td>Social and extroverted</td>
</tr>
<tr>
<td></td>
<td>Some similarity to loud</td>
</tr>
<tr>
<td>Sympathetic/warm</td>
<td>Some similarity to happy and positive</td>
</tr>
<tr>
<td></td>
<td>Some similarity to social and extroverted</td>
</tr>
<tr>
<td></td>
<td>Mentioned in miscellaneous positive traits</td>
</tr>
<tr>
<td>Hope</td>
<td>Happy, positive, and hopeful</td>
</tr>
<tr>
<td>Excitement</td>
<td>Some similarity to interesting and welcome</td>
</tr>
<tr>
<td>Fear</td>
<td>Fear</td>
</tr>
<tr>
<td>Pain</td>
<td>Mentioned in miscellaneous stresses</td>
</tr>
<tr>
<td></td>
<td>Some similarity to traumatized, victims</td>
</tr>
</tbody>
</table>

Immigrant categories did not match up quite as neatly, although open to new experiences/complex, as well as hope and fear has comparable categories in the WAT data. Disorganized/careless, sympathetic/warm, and pain were all mentioned in various categories, but were not as frequent or consistent. Some of the traits attributed to immigrants may be in comparison to Finns; for example, sympathetic/warm is the opposite of sullen and withdrawn, which was frequently cited for Finns. So perhaps the social representation of immigrants is not strongly about sympathy/warmth, but rather, in comparison with Finns they are considered sympathetic/warm. Finally, excitement was a difficult category to compare to the WAT data, because it was never explicitly listed. However, it appeared implicitly, in the tenor of words describing immigrants, and in comparison to Finns, that their lives were more exciting than Finns’ lives are.

Since immigrants are such a heterogeneous group, the words used to describe them were much more variable than was the case for the other terms. There was no central representation of Immigrant; in fact, most of the representations were polemic, in that they directly conflicted with each other. For example, brave and strong versus fear, lazy and unemployed versus hardworking and enterprising, and adaptable and open versus not adaptable and reclusive. Of course, this occurred for the other terms as well, but there were generally frequently cited hegemonic representations, and then much less
frequently cited polemic representations (e.g., for Finn, *industrious* was mentioned 35 times, whereas *lazy and inefficient* was mentioned four times). So there are obviously many different social representations of immigrants, depending on what immigrant group is being thought about, as well as how the individual feels about immigrants in general, which made it a much more variable category than any of the others.

The top ten most frequently cited descriptors of Animal were: *cute and beautiful, fur and hair, friend and family member, pet, warm and soft (pleasant for humans), faithful and reliable, nature, wild and free, beloved and wonderful, and happy and sociable.*

There were many more categorical descriptors for this group (e.g., *dog, cat, mammal*), as well as physical traits listed (e.g., *hairy, warm, paws*). Further, almost all of the main categories were about how NH animals relate to humans, or more specifically, how they are enjoyed by humans, as opposed to what they are like on their own terms. This is quite different from the other three categories. The representations in general were simple and there was more agreement between them, with fewer idiosyncratic words.

It is notable that, of the few negative words applied to the Animal group, almost all were the same or similar to negative words applied to the Immigrant group. Further, almost none of these words were applied to the Finn or Human groups. Aside from *inferior beast*, each of the predominantly negative categories associated with the Animal group had a direct correlate in the Immigrant group. *Mistreated, unpleasant,* and *dangerous and cruel* for the Animal group are conceptually similar to *discrimination and racism, rude and temperamental,* and *crime-related,* respectively, in the Immigrant group. The categories even contain many identical words, both sympathetic (e.g., *exploitation, helpless, fearful*) and recriminating (e.g., *aggressive, loud, difficult*), as well as numerous conceptually similar words (e.g., *discriminated/mistreated, victim’s position/abused, foreign smell/smelly, unpredictable/capricious*). The Human group had one similar category, namely *cruel and destructive,* but otherwise the bulk of these negative words were only shared by the Animal and Immigrant groups.

Finally, for Human the top ten most frequently cited descriptors were: *intelligent and wise, selfish and greedy, cruel and destructive, science and culture, thoughtless and fallible, emotional and caring, categorical terms* (e.g., *homo sapiens, man, woman, I,*
we), social and communal, complex and adaptable, and an animal (e.g., primate).

Overall, participants were quite critical of humans. Humans were most highly characterized by intelligence and progress on the one hand, and selfishness and cruelty on the other. There was also more consistency and agreement in the human category than there was in either of the other two categories encompassing humans. Much like the Animal group, words about humans were characterized more simply, more categorically, and with less nuances and idiosyncratic associations.

The valence given to the words is also notable. There was a marked difference between the number of positive and negative terms given to each of the words. Overall, Animal was given, by far, the highest number of positive terms (55.3%) and the lowest number of negative terms (7.8%) of any group. Finn and Human were given a relatively high number of positives (37.0% and 38.4%, respectively) and an intermediate number of negatives (23.7% and 22.0%). Immigrant was middling; not as many positively (31.3%) nor as many negatively (20.3%) scored words were attributed to them. There were also marked differences across conditions. The participants in the animal condition came up with more positively and less negatively attributed words for every term except Human; they were more negative than the geology group in that case.

To triangulate the WAT data with the questionnaire data, each individual was assigned an overall valence for each of the four terms, from -3 to 3, as noted in section 4.3.2. Independent sample t-tests were performed on the means of each word, by experimental condition. The Immigrant group was significantly different across conditions, $t(189) = 2.09$, $p = .038$, $ES = .15$, $d = .30$. None of the other terms was significant across conditions, although Immigrant is the most important one. The effect size was not large, but any effect is notable, especially since most of the expected effects were not found with the questionnaire data. It therefore appears that the editorial had some effect on perceptions of immigrants that was not captured by the questionnaire data.

Because the valences given to each of the four terms seemed so different from one another, participants were then collapsed across groups to see if there was a statistically significant difference between the valence means for each term. The results of the one sample t-test can be seen in Table 15.
Table 15. Mean valences and $t$-scores for word association terms (Finn, Immigrant, Animal, and Human)

<table>
<thead>
<tr>
<th></th>
<th>$t$</th>
<th>df</th>
<th>Mean Difference</th>
<th>ES</th>
<th>$d$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finn</td>
<td>4.22*</td>
<td>190</td>
<td>.40</td>
<td>.29</td>
<td>.61</td>
</tr>
<tr>
<td>Immigrant</td>
<td>3.75*</td>
<td>190</td>
<td>.33</td>
<td>.26</td>
<td>.54</td>
</tr>
<tr>
<td>Animal</td>
<td>13.91*</td>
<td>189</td>
<td>1.42</td>
<td>.71</td>
<td>2.02</td>
</tr>
<tr>
<td>Human</td>
<td>4.35*</td>
<td>189</td>
<td>.49</td>
<td>.30</td>
<td>.63</td>
</tr>
</tbody>
</table>

*p < .001 (2-tailed)

The valence mean of each term was significantly different from all of the other terms. In particular, the Animal group was markedly different from the other three groups, with a very large effect size (as illustrated earlier, by the very high percentage of positive and extremely low percentage of negative words). However, each of group was valuated differently, and Finn, Immigrant, and Human all had mid to large effect sizes as well.

One point that must be addressed is that the category of terms given a negative valence is problematic when viewed as a monolith. Because I was interested in the positive, empathizing, and humanizing words given to different groups, some differentiation in words assigned a negative valence was necessary. To use two terms from the Animal group as an example, the word annoying and the word abused were both given a negative valence. Annoying has the appropriate connotation one would expect from a term with a negative valence, in that it is a negative term, used to reproach or derogate. The term abused, however, has the opposite meaning, in that it expresses empathy with the referent, which shows a positive rather than a negative feeling toward the group. To clarify this category, all terms given a negative valence were recategorized into terms that were reproachful, empathetic, or ambiguous. The split between empathetic, reproachful, and ambiguous terms, by word and by condition, can be seen in Table 16.

Table 16. Negative word associations, broken into empathetic, reproachful, and ambiguous, total and by condition

<table>
<thead>
<tr>
<th>Term</th>
<th>Total</th>
<th>Empathetic</th>
<th>Reproachful</th>
<th>Ambiguous</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td>% of all</td>
<td>#</td>
<td>%</td>
</tr>
<tr>
<td>Finn</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>136</td>
<td>23.7%</td>
<td>14</td>
<td>10.3%</td>
</tr>
<tr>
<td>Editorial A</td>
<td>65</td>
<td>22.3%</td>
<td>8</td>
<td>12.3%</td>
</tr>
<tr>
<td>Editorial G</td>
<td>71</td>
<td>25.2%</td>
<td>6</td>
<td>8.5%</td>
</tr>
</tbody>
</table>
The different ways in which the ingroups and outgroups are viewed can be better grasped with this breakdown. The ingroups, Finn and Human, get more reproach and less sympathy (or almost all reproach and no sympathy, in the case of Human). The outgroups, both Immigrant and Animal, are still the target of much reproach, but they also have much more sympathy directed toward them. The representations of the arguably more dominant and powerful two groups are much more critical than of the two weaker groups, who seem to be pitied (as well as being criticized), as per Moscovici and Pérez’ (2007) research on minorities being perceived as victims.

Overall, the words and valuation given to each of the groups, Finn, Immigrant, Animal, and Human were markedly different from one another, with few but significant similarities. The social representations invoked, and their associated valences, helped to clarify the relationships between the groups, most notably some of the parallels between the Immigrant and Animal group. It also provided confirmation that the experimental condition had some effect.

### 6 Discussion

The discussion will be divided into several parts, for the sake of clarity. First, there will be a general discussion, including addressing each research question in turn. Second, the many methodological issues that arose in this study will be addressed. Third, the strengths and contributions of this study will be delimited. Fourth, suggestions for
future research will be put forth. Finally, some final thoughts regarding this complicated and broad study will be shared.

6.1 General Discussion

One of the main objectives of this study (and the first research question) was to examine whether emphasizing animal-human similarity could have an effect on prejudice towards immigrants. The answer to this question is not straightforward. Regarding the questionnaire data, the answer is largely no; emphasizing animal-human similarity did not have an effect on prejudice toward immigrants, at least not a direct effect. However, analyses of the WAT data painted a different picture, suggesting both quantitatively and qualitatively that the animal editorial did have an effect on the positive and negative social representations of immigrants offered by participants. As well, there was a relationship between animal-human similarity and prejudice mediated by humanization emotions (as per Kenny, 2012; Zhao, 2010). Thus, tentatively, it seems reasonable to say that the intervention had an effect, but not quite the expected effect.

The second research question, determining whether emphasizing animal-human similarity has an effect on humanization (traits and emotions), empathy, and recategorization, and/or whether these variables affect prejudice, is clearer. Animal-human similarity only had an effect on emotions, so it was the only variable that had a mediating effect between the experimental condition and prejudice. Beyond the experimental condition, the correlations and regression analyses provide robust confirmation that these variables each help to explain the variance of prejudice. This is perhaps less true of the humanization traits, which became non-significant in the regression model after including all of the other variables. However, traits are more complex, because they also deal with stereotype content.

That the intervention affected all emotions (uniquely and non-uniquely human) for both Finns and immigrants, as well as the Immigrant WAT data, suggests that the editorial may have had some sort of implicit emotional effect. Previous studies have found that non-uniquely human emotions are sometimes more highly associated with the outgroup (Leyens et al., 2000), so that finding was not exceptional. However, that the editorial also affected the uniquely and non-uniquely human emotion scores for Finns may
indicate that the intervention for some reason raised the intensity of emotions and their attribution in general. This was also likely affected by the noted methodological problem with that scale, of it having a sharp peak at the high end. Perhaps the fact that it was the only 5-point scale in a group of 7-point scales is what engendered the ceiling effect. Nevertheless, there was a distinct difference between the animal and geology groups, illustrating a link between emphasizing animal-human similarity and generally attributing more emotions to humans.

Research question three, addressing whether the main variables relate to a person’s moral universe, was answered vigorously in the affirmative. It is notable that each of the universalism subscales was significantly correlated with prejudice, traits, empathy, and recategorization. Emotions were a bit weaker, but nonetheless significant. It is also theoretically relevant that the universalism nature subscale had a significant, reasonably high correlation with prejudice, empathy, and recategorization (and a weak relationship with traits). This supports the underlying theory that what one thinks about the natural world (including, presumably, NH animals) relates to how one sees other human groups. This was further emphasized by the fact that the animal-human continuity scale, problematic though it is, not only correlated with universalism nature, but also with tolerance and concern, albeit more weakly. It would be useful to compare the universalism subscales with a better animal-human continuity scale.

It was unexpected that the main variables were more highly (negatively) correlated with power resources, since power dominance has a closer theoretical relationship with social dominance orientation. However, since power is a deficit value (meaning that it is more salient and valued when people are without it; Schwartz, 2011), it makes some sense that it is related to resources. If a person feels like there is not enough to go around, and they are lacking or in danger of losing material benefits, then they may see immigrants as coming and taking their resources (reflected in the WAT data with terms for the Immigrant group such as social security and greed). The stronger relationships with power resources may also be due to the very reason I did not measure SDO – given the strongly egalitarian social norms in Finnish society, Finns do not generally endorse positions that approve of dominance (see e.g., Hirvelä, 2011; Hofstede, 2001). Thus,
power resources may get at the underlying power issue better in this context, by bypassing the social script to disavow hierarchical relationships.

Research question four addressed whether certain humanization traits and emotions were more readily associated with Finns or with immigrants, which was found to be the case. The fact that each of the listed traits was significantly associated with one group or the other may be largely responsible for why the effect of uniquely human traits disappeared in the regression analysis. It may also explain why the results for humanization emotions were very different from humanization traits. Emotions are perhaps considered so innately human (as emphasized by the frequency with which people listed emotional for the Human group on the WAT; it was the sixth most frequently endorsed category), whereas specific traits are much more variable, and more tied to their particular content and the context. In this case, between the competing hypotheses of uniquely human attribution versus stereotypic social representations, it appears that the representations won out in people’s minds.

This was not the case for emotions; even those that were attributed to one group or the other had generally weaker effect sizes than traits did. The significant emotions were also often those that matched up with a particular trait, for example, serenity with calm/emotionally stable. It is notable that each of the statistically significant traits and emotions also came up in the WAT data, whereas those emotions that were not significant for either group did not. The only exception was compassion, which was mentioned several times in describing Finns. However, conceptually similar terms came up when describing immigrants as well (e.g., empathic, helpful), which may account for this feeling not being more highly attributed to either group in the questionnaire data. The questionnaires also undoubtedly had a priming effect, putting those terms in the forefront of people’s minds, which would have made them more likely to include them on the WAT. This does not change the fact that these had to be representations that resonated for each group for them to be endorsed.

Research question five was broadly aimed at discovering the SRs that participants have of Finn, Immigrant, Animal, and Human. What is evident from the WAT data is that the representations that people have of each group are markedly different from one another.
There was very little crossover of words used between groups, which is notable given how many objective similarities actually exist between these groups. This of course makes sense, as having each of them listed together implicitly primes participants to view them vis-à-vis each other, and to differentiate between them more strongly than they may do under other circumstances, such as if each participant were only given one word, and those responses were compared to each other. I tried to mediate this comparison issue as much as possible by putting large spaces between the terms on the online questionnaire (as opposed to having them one next to the other), but this did not erase the problem. Therefore, it is difficult to say how much of their dissimilarity is due to them genuinely being seen as completely separate categories, or whether that is more so in comparison to one another. The one large exception to this disparateness was the parallels between the negative words attributed to the Animal and Immigrant groups, which adds further corroboration to the underlying theory that how we think of nonhumans is intertwined with how we think of humans.

There was a cohesiveness to each of the groups that speaks to some strongly shared representations. In particular, for Finn, Animal, and Human, there were certain terms that were invoked by a large percentage of participants. For example, just under half of all participants used words such as *silent, withdrawn, reserved,* and *quiet* to describe Finns. This was also paralleled by the fact that the trait reserved/ quiet had the highest effect size of any of the traits or emotions. In the case of immigrants, *silent* and *quiet* were never used, and *withdrawn, reserved,* and *shy* only came up four times all together. Instead, *loud* and *noisy* were highly attributed to immigrants, which was also paralleled in the high effect size for their trait extroverted/enthusiastic. The Immigrant group in general was the most complex, which can be illustrated by their most frequently attributed category being *heterogeneous and different.* Immigrants in Finland come from many different backgrounds and are not easily grouped with one another. This was further demonstrated by the fact that so many participants commented (protested) at the end of the survey that immigrants are not a homogenous category and cannot be treated as such. There were also many more directly opposing words in the Immigrant group than in the other groups, as mentioned. This indicates that there is a larger number of social representations about immigrants, and that they differ meaningfully from one another, and sometimes directly oppose each other. For the other three terms there are
general, hegemonic representations expressed, with some emancipated and polemic representations around the edges. For immigrants it is much more mixed.

Research question six queried whether the experimental condition would affect the WAT data regarding immigrants and NH animals. Statistically, this was proven to be so for the Immigrant group. However, there was also a qualitative dimension, which indicated differences between the experimental groups for those two groups. For example, the tenor of the negative terms was much more sympathetic in the animal-human similarity condition (for Immigrant, 31.0% of the negative terms were sympathetic in the animal group, versus 25.9% for the geology group; for Animal, it was a remarkable 47.6% versus 21.7%). There were also positive categories that were invoked in the animal-human similarity group that were not ever mentioned in the geology group, such as sentient and feeling for Animal. For Immigrant, words in the categories general positive traits and hardworking and enterprising were conveyed three times as frequently in the animal group as in the geology group. Interestingly, this also seemed to extend to the Finn and Human groups. Words in the category hardworking and goal-oriented for Human, and compassionate and friendly for Finn were only ever mentioned by participants in the animal group. Although I can make no sweeping claims from the qualitative analysis of this data, there does seem to be a more positive and empathetic tenor to the terms chosen by the animal group, across the board. There also seems to be a higher level of abstraction and deeper thinking in that group, with many fewer categorical descriptions listed by the animal group, across all four terms. Perhaps the animal-human editorial partly stimulated further thought on the topic of what it means to be human and not, eliciting more complex representations.

6.2 Methodological Issues

There are a number of reasons why the intervention may not have worked as it ought to have, including that the theory may simply be wrong. Although it is possible that the underlying theory about the animal-human divide is flawed, the correlations and regressions, as well as the WAT results suggest that the theory itself is sound. Further, there are multiple methodological issues that doubtless influenced the results.
One problem that undoubtedly afflicted this study was the non-representativeness of the sample. The participants were too highly educated, too many were from the social sciences and humanities, and there were too many women. Only 13 participants out of 195 had a prejudice score above 4 (the midline of the scale). That means that only 13 individuals even slightly agreed with a single prejudiced statement, which seems rather unlikely to reflect the general population. Because it was such a markedly unprejudiced group of participants, floor effects could be seen on the prejudice scores. There was, therefore, very little room for the scores to decrease in the experimental group.

Representativeness is even more of an issue with web-based questionnaires, and a low response rate often indicates a biased sample who self-selects based on the variables involved (Cook, Heath, & Thompson, 2000). The fact that I do not have a Finnish name may have been additionally problematic, and part of the reason that my response rate was so low – people may have been reticent to fill out a survey on immigrants for someone who was obviously an immigrant. This may have created an even stronger self-selection bias than what would normally exist in such a situation (with people who are more agreeable and benevolent generally being the ones to choose to fill in surveys in the first place, see e.g., Lönnqvist et al., 2007). In this case, perhaps only people who were highly non-prejudiced (and a few who were unabashedly prejudiced and did not care who knew it) chose to fill in the questionnaire, in which case, as mentioned, it created a floor effect where participants already had such low prejudice that the intervention could not cause them to drop any lower. This could have also been influenced by demand characteristics, that even those who were perhaps relatively more prejudiced (but not overtly so) answered in a less prejudicial manner so as not to offend the immigrant researcher, or to avoid making the Finnish people look like a prejudiced group. Although social and other psychologies usually rely on non-representative student samples, the exaggerated self-selection bias in this case has caused the external validity of these results to be even poorer than what is normally accepted in the field. Reliability is also compromised when using web-based questionnaires, because the participant’s environment is not controlled. Thus, participants may get distracted or have someone watching them, all of which may affect their responses, but be unknown to the researcher. Although it is convenient (and was unavoidable in this case because I
cannot speak adequate Finnish, and had to have all my materials and correspondence translated), web-based methods are not best suited for this type of study.

Another issue in this study is that not all of the parametric assumptions were met. Most problematic was the non-normal distribution of prejudice, traits, emotions, and recategorization. Emotions also failed tests of homogeneity of variance (though barely). Another issue was that, of the regressed variables, only empathy had a neatly linear relationship with prejudice. Both emotions and recategorization were slightly warped, and traits curved more than I would have liked. The residuals were also somewhat heteroscedastic. Although the assumptions required by parametric tests are never met perfectly, and most of these were relatively minor violations, they are still relevant, particularly the non-normal distribution, which was the most serious issue.

At a more conceptual level, it is also likely that the prejudice scale was too direct, reflecting unduly blatant prejudice. The politically correct answers were obvious; in fact, one participant stated: “Interesting study where I found myself trying to cheat once for a while, in other words, when I think about it, I was trying to answer in a politically correct way. However, I try to be honest.” In 1999, in reference to the blatant nature of the prejudice scales typically used in Finland, (including P-scale 2, which I used) Liebkind and McAlister noted that: “Blatant prejudice is common in Finland and norms against it may not be sufficiently internalised for the distinct phenomenon of subtle prejudice to become widespread. However, attitude measures and manipulations in future studies in Finland might attempt to distinguish between these two forms of prejudice” (p. 777). Perhaps in the intervening 13 years, the norms against prejudice have become internalized, at least in highly educated female social scientists. Although the composite prejudice scale was reasonably reliable, the lower reliability of the blatant subscale was potentially problematic.

Pertinently, although prejudice scores were very low across the board, empathy scores were not high; in fact, they were just below the midpoint. So although participants did not endorse prejudice toward immigrants, neither did they feel compassionate, warm, or sympathetic toward them. This was different from Costello and Hodson’s (2010) sample, who were just under the midpoint for prejudice but almost a point above the
midpoint for empathy. Likewise, there were some highly prejudiced words listed in the WAT data for Immigrant, many of the most negative of which (such as rape, abusers, criminal, stealing) did not come from those participants who scored above 4 on the prejudice scale. That means that several of the people who indicated no prejudice toward immigrants on the questionnaire nonetheless expressed representations of immigrants of a highly prejudiced nature. It is therefore difficult to discern how prejudiced this sample actually is, though there is reason to believe that their prejudice ratings on the questionnaire were not entirely honest. This suggests an issue with content validity, in that prejudice scores may not simply reflect participants’ prejudice toward immigrants, but also (or instead) reflect their perceptions of how prejudiced they think they should be. Hirvelä (2011) recently had a similar finding with a Finnish sample; considerable prejudice was observable in answers to qualitative questions, which did not match up with the quantitative multiculturalism results. Using a subtle or implicit prejudice measure in present-day Finland may likely be a better choice.

Additionally, although both were acceptable, neither the prejudice scale nor the recategorization scale were as reliable as I would have preferred, perhaps partly due to their being combined in the questionnaire. Although they were analyzed separately, mixing the recategorization questions in with the prejudice questions may have affected participants in an unforeseen manner. Questions asking if categorical delineations are useful and whether people are simply people in the midst of blatantly prejudicial questions may have increased the salience of social desirability and cued participants to respond in a less prejudiced manner to the questions on the prejudice scale.

I also believe that the intervention may not have worked properly because the independent variable was simply too weak. When I received the animal editorial from Costello and Hodson (2010), I was surprised by it. It did not seem strong enough to have the impact that they found. The information contained in it is not novel or particularly engaging (see Appendices 1 and 2). However, North Americans do strongly emphasize the hierarchical divide between humans and other animals, so perhaps this editorial was appropriate in Canada, but may have been less so here. It seems possible that in Finland, with the cultural value of closeness to nature and the highly educated
population (emphasized in my sample), that the information contained in the editorial was far too basic and commonly known to have a strong effect.

That the animal-human continuity manipulation check failed further indicates that the editorial was ineffectual (although it also underlines the problems with that scale). Almost all participants correctly answered the multiple choice question about the editorial (indicating that they did, in fact, read and understand it). The editorial simply had no effect on the manipulation check; people in the experimental condition did not see any greater animal-continuity than those in the control group. Therefore, the problem may have been an issue of construct validity; the independent variable (animal editorial) did not adequately represent the construct of animal-human similarity, or at least not strongly enough to affect participants in the way it was theorized to. That said, the poor reliability of the animal-human continuity scale was also an issue. Another scale should be devised to better capture animal-human continuity.

As briefly noted, that I am not a Finn and know only basic Finnish was a problem that cropped up in many ways during the study. I initially chose to do my research in Finnish instead of English because it seemed likely that there would be significant differences between Finns who could speak (and were willing to answer a survey) in English and those who could or would not. Although this is undoubtedly true, my non-Finnish name on the recruitment emails may have filtered out many of those people anyway. Therefore, I may have gained very little from the choice, and added several consequences, including the fact that it is never ideal to conduct research on translated material, especially qualitative data. Language issues aside, it was also a cultural issue, in that my knowledge of Finnish self-representations and mythology is limited, which made it quite difficult to understand many of the words associated with Finn. It took extensive dialogue with the Finnish researcher aiding me with the WAT data for me to grasp the significance of many of the words, even after reading extensively about Finnish identity. Although this issue has been partially mediated by working closely with a Finnish social psychologist on all of the WAT data, for someone to conduct research without the necessary cultural or language competency raises some concerns.
Finally, another issue that was more cultural than methodological relates to the appropriateness of applying this theory in the Finnish context. In the same way that current social representations of NH animals are based on representations forged centuries ago, conflating outgroup humans (particularly racial minorities) with NH animals is also ancient, and based in colonialism and European white men seeing these “races” for the first time and assuming they were more animal than human (Leyens et al., 2000). These are ancient, long since naturalized social representations in the Western world. However, Finland has no history of colonialism, and up until recent decades, almost no experience with immigrants or racial minorities. So perhaps these dehumanizing representations are simply not as relevant here, or at least not as deeply held. Between that, the egalitarian social structure, and Finns’ sense of closeness with nature, perhaps this theory does not apply in this culture, or only weakly.

To my knowledge, no other studies have been done comparing animal-human continuity or similarity in Finland. However, the mean for animal-human continuity in this sample of Finnish participants was 4.40, which is much higher than in Costello and Hodson’s (2010) sample (3.64 in the similarity conditions and 2.84 in the dissimilarity conditions). Thus, it is possible that Finns already have a relatively strong sense of animal-human continuity and weaker social representations about dehumanizing outgroups, which made the intervention somewhat moot. Even if the theory of the animal-human divide underlying dehumanization (which in turn underlies prejudice) is true, that does not mean that it is true for all prejudice in all cases. Perhaps prejudice in Finland is more related to fear and anxiety and lack of experience with people from other cultures, as contact theory suggests.

Part of the purpose of this study was to determine if it had cross-cultural validity. Cultural differences that could affect the application of this theory were addresses in section 2.6.4, but nonetheless, an assumption was made that, as a Western, individualistic country, the same hegemonic representations would apply in Finland as they did in Canada. However, this does not appear to be the case. The Finns’ representations of nature and their relationship with it, and differing historical relationships with immigrant groups make them unique among Western, individualistic cultures. This has undoubtedly had an unforeseen effect on the results, which may speak...
more to Finnish culture and the theory’s limited cross-cultural validity rather than to flaws with the theory itself.

6.3 Strengths and Contributions

One element of this study that is both a weakness and a strength is its complexity. The large number of variables and different dimensions that this topic was examined from make for a very complicated study, which was doubtless too elaborate to be addressed suitably in a master’s thesis. However, viewing it from so many angles hopefully has allowed for a broader picture to emerge about the relationship between representations of NH animals and the treatment of outgroups. Since the intervention did not work as it was expected to on the dependent variable or on most of the intended mediators, if it had merely been a (failed) replication, it would have looked like the underlying theory was faulty. However, between the word association data and the examination of NH animals historically, culturally, and within science, it seems more reasonable to conclude that it is more likely that the underlying theory is sound, and rather that the methodology was flawed. So that is the principle contribution that this study has made to the field, to show that how we view NH animals is linked with how we view human outgroups, specifically immigrants. Other studies have shown this, but as it is a very new topic, any corroboration is useful.

In the same vein, I think that the explication of the roots of the animal-human divide and how that has translated into how science studies NH animals, has been a contribution to this very small field exploring the animal-human divide underlying dehumanization. In Costello and Hodson’s (2010) study as well as in other studies where the topic is broached (e.g., Brandt & Reyna, 2011), there is very little elaboration on why or how dehumanizing outgroups could be based on how NH animals are perceived. It may seem self-evident to these researchers, or it may simply be a matter of not having the space to adequately deal with the subject. However, I think that it is necessary to clarify the history that underlies this theory, because it is not self-evident to many people, and should not be assumed or taken for granted. I think that the theory is much more understandable when historically explicated.
One final strength and contribution that this study makes is methodological. Very few experimental studies have been conducted using qualitative data, the recent and notable exception being Verkuyten’s (2005) study. In it, he notes that qualitative (in his case, discursive) and experimental methods are generally seen as antithetical, but that they need not be, and in fact they can be combined to great effect. Obviously, word associations are different from discursive analysis, but nonetheless, it is unusual to examine the impact of an experimental intervention qualitatively. It was quite fruitful in this case and I think it has great potential, especially with sensitive topics such as prejudice, where explicit scales may not always get honest answers, and where word associations or other qualitative methods may be able to get beyond politically correct social scripts. Although some quantification of the qualitative data was necessary in order to be convincing, I think that both quantitative and qualitative analyses of qualitative data can add a considerable amount of richness to an experimental study, and perhaps help to bridge the divide between positivism and constructionism.

### 6.4 Future Research

One piece of future research that ought to be (and is currently being) conducted is a systems analysis of the social representations held by highly prejudiced and non-prejudiced individuals, of both immigrants and NH animals. It is theorized that social representations are made up of two systems, a stable, fixed core, and peripheral elements that are more flexible and subject to context (Abric, 1993). Determining the core and peripheral elements of the social representations of Immigrant and Animal for prejudiced people versus unprejudiced people would be highly useful for exploring the links between the animal-human divide and prejudice. I am in the process of such an analysis, for those participants scoring highest on the prejudice measure (above 4) and those scoring the lowest. Due to time and space constraints, it was not possible to include in this manuscript. However, I intend to complete this analysis, as well as conduct analyses of the social representational fields (using SPAD 5.0 software) in a forthcoming paper. However, future research should also determine the social representations of more highly prejudiced people than I had in this sample.

As noted in section 6.2, there were several difficulties with the prejudice scale that may have affected results. Future research should use a subtle prejudice scale, or better yet,
an implicit association test (see e.g., McConnell & Leibold, 2001). Alternately or concurrently, it would be useful to try the intervention with a more highly prejudiced (or more openly prejudiced) group to see whether the animal-human similarity intervention would work in that case. Specifically choosing a sample with espoused anti-immigrant biases (e.g., Perussuomalaiset or “True” Finn party members) would be useful, to determine whether Costello and Hodson’s (2010) discovery that the intervention works equally well on those who are prejudiced as those who are not applies in other contexts, and with highly prejudiced populations. This is especially important because those who are highly prejudiced are resistant to most prejudice reduction methods, so conclusively finding one that is effective for that group would be highly beneficial.

I also think that the cognitive nature of the editorial was problematic, and that future research at least ought to include an emotional component. A purely cognitive intervention seems impractical since prejudice, dehumanization, and empathy are inherently emotional rather than logical. An address to reason is perhaps not the best method to employ for these issues, because they are not based in reason (Allport, 1979/1954). Confronting them on an emotional level may be more fruitful, because we must feel that we are in a continuum with all life, not just logically see that it is so. Perhaps a short film would be a better tool to explore this theory, due to films’ unique capacity to have a visceral effect, “which may elude consciousness but which carry an emotional and affective charge capable of engendering deep responses” (Ivakhiv, 2008, p. 13). A stronger intervention that has an emotional component would potentially be a better assessment of the underlying theory.

Finally, it would be useful to test this intervention with action tendencies (see e.g., Bastian et al., 2011) or better still, test its effects on observed behaviour. I had initially intended to do a behavioural follow up conceptually similar to Rokeach (1971), where participants, two weeks after their participation, would be recruited by a pro-immigrant group to see if they wished to join or volunteer, and compare this across conditions. Unfortunately, there were ethical pitfalls that made such a follow up unmanageable in this case, but it would be a useful pursuit for future research, because it would illustrate
whether the intervention affects behaviour and if its effects persists over time.²⁹ Since attitudes about prejudice and prejudiced behaviours are often not that highly correlated, prejudice research that includes behavioural measures are especially valuable (McConnell & Leibold, 2001).

6.5 Final Thoughts

In this study, I have attempted to answer the following question: if you include nonhuman animals within your moral universe, are you more likely to include other outgroups in your moral universe? Answering this question has involved a historical and cultural analysis, an experiment, results from quantitative measures, and social representations drawn from word associations. I have tried to build the case that our social representations of NH animals affect our perceptions of other humans. Because our perspectives of NH animals are not considered a “hot” topic, in this endeavour I have flouted one of the basic methodological principles of social representations theory, which is that, to examine a social representation, it must be emerging and problematic (Moscovici, 1984). I find this premise to be flawed, as have other researchers, to varying degrees (Hirvelä, 2011; Wagner, Valencia, & Elejabarrieta, 1996). Its most notable problem is that it ignores one of its own key tenets, which is that after a new social representation is anchored and objectified, it is naturalized, and becomes a part of everyday life. That does not mean that it ceases at that very moment to be a social representation. Thus, one would think that studying naturalized social representations would be equally important to studying emerging ones, especially since Moscovici (1984) himself emphasizes that the more naturalized an SR becomes, the greater its influence upon people.

This was part of the reason that I discussed the historical underpinnings of the animal-human divide at length in section 2.6.1, to illustrate the initial, emerging representation and how it was naturalized. Although it can readily be argued that immigrants are a “hot” enough topic in our current cultural climate to study with SRT, this historical perspective applies equally to the initial, emerging representations of various ethnic and

²⁹ Although, this should perhaps be combined with a stronger intervention, as noted previously, to have any chance of persisting over time.
cultural groups, as noted in section 6.2. For example, when white Europeans first encountered Aboriginal peoples in North America, they found them to be problematic and unfamiliar, so they needed to anchor this new and troubling group to something known and understandable. Since Aboriginals were viewed as uncivilized and brutish (Mason, 2005), they were anchored to NH animals instead of to humans. This is unquestionably a social representation, just one that has been naturalized for many centuries. Therefore, the study of such a representation seems relevant, especially since social representations theory “maintains that social psychological phenomena and processes can only be properly understood if they are seen as being embedded in historical, cultural and macro social conditions” (Wagner et al., 1999, pp. 95-96).

I think that there is sufficient evidence, through this study and those that came previously, that beliefs about NH animals directly relate to our beliefs about and treatment of human outgroups. I also think that there is enough corroboration to suggest that including NH animals in our moral universe would not only benefit them, but would also benefit humans. Prejudice causes some of the most devastating problems in the world, which makes it imperative for us to try to cut it off at the source. This makes it vital that we acknowledge that, “the way we see other humans is inextricably intertwined with the way we see nonhumans” (Kwan & Fiske, 2008, p. 125). We then need to create effective interventions to help to change the social representations of nonhumans accordingly.
References


Appendix 1: Editorials (English)

Animals

The boundary between animals and humans is not as great as most people think. Scientific evidence suggests that the distinction between animals and humans is artificial, for in reality other animals are very similar to humans. Because humans evolved from animals, all animals are genetically and behaviourally similar to humans. Indeed, genetic research continues to discover evidence suggesting that animals share a significant proportion of their DNA with humans. For example, the DNA of chimpanzees is 98.4% identical to the DNA of humans.

Due to the high percentage of genes that animals share with humans, the nervous systems of most animals are based on the same physiological principles as the human nervous system. As a result, animals are motivated to avoid pain and to seek pleasure, just like humans. In fact, animals demonstrate the same physiological responses to pain as humans do, including increased heart and breathing rates. Furthermore, like humans, animals possess a centralized brain containing the limbic system, which is responsible for emotional experiences. Evidence from various areas of research including physiology, endocrinology, and psychology support the position that animals are also very similar to humans on an emotional level and thus experience complex emotions in a manner similar to humans.

Research suggests that what appears to be basic biological programming and/or simple learning by other animals is actually the result of sophisticated cognitive abilities. In fact, like humans, other animals possess the capacity to make choices, create their own destinies, and understand abstract concepts including cause and effect relationships. Animals obviously share the same needs and motivations as humans. Like humans, animals are motivated to find security, shelter, and food, to avoid predators/enemies, and to protect their home fronts. Animals also engage in social behaviours analogous to those of humans. For example, like humans, animals are motivated to seek out and maintain social relationships, engage in creative behaviours to attract mates, and to protect and raise their offspring.

Geology

The earth can be described as a ball of rock. It is made up of the core, the mantle, and the crust. The core has metallic properties and is likely composed largely of iron. It has a very high density. The mantle is a thick layer of ‘heavy rock’ between the core and the crust. The mantle material begins at various depths in different parts of the world. The crust is the outer shell, and is a sort of envelope surrounding the mantle. It is made up of a tremendous variety of different rocks, covered in soil and other loose deposits. There are two main types of rock groups that occur in the crust: light rocks (e.g., granite, sandstones, and shales), and dark and heavy (basic) rocks (e.g., basalt).

Rocks in the crust regularly change composition due to a variety of factors. They are both mechanically broken down and they chemically decay, both of which are known as weathering. For example, human inscriptions on rock will rarely survive rain, frost, and wind for more than a few centuries. Rocks move, fold, and erode, which over time results in changes to land and topography. Another way in which rocks can change is by metamorphism, which is a process of recrystallization.

Interesting developments have occurred in the past century within the field of tectonics. The discovery and understanding of plate tectonics and sea-floor spreading has provided an explanation for continental drift. Further developments also continue to occur in our understanding and use of various different types of rocks and minerals, including their use in new technologies.
Appendix 2: Editorials (Finnish)

Eläimet

Eläinten ja ihmisten raja ei ole niin jyrkkä kuin useimmat ihmiset ajattelevat. Tieteellinen todistusaineisto viittaa siihen, että eläinten ja ihmisten erotaminen on keinotekoista, sillä todellisuudessa muut eläimet ovat hyvin samanlaisia kuin ihmiset. Koska ihmiset kehittyvät eläimistä, kaikki eläimet ovat perimäältään ja käyttäytymiseltään samanlaisia kuin ihmiset. Perinnöllisyystutkimus löytääkin jatkuvaan uutta todistusaineistoa joka viittaa siihen, että eläinten ja ihmisten DNA:sta merkittävä suuri osuus on yhteistä. Esimerkiksi simpannien DNA:sta 98.4 % on identtistä ihmisten DNA:n kanssa.

Johtuen eläinten ja ihmisten yhteisten geenien suuresta prosenttiosuudesta useinpien eläinten hermostot perustuvat samoihin fysiologiisiin periaatteisiin kuin ihmisen hermosto. Sen tuloksena eläimet pyrkivät välttämään kipua ja etsimään mielihyvää, aivan kuin ihmiset. Itse asiassa eläimillä on todettu samat fysiologiiset reaktiot kipuun kuin ihmisillä, muun muassa kiihtynyt pulssi ja hengitys. Lisäksi eläimillä, kuten ihmisisilläkin, on keskushermosto ja siinä limibin järjestelmä, joka vastaa tunnekokemuksesta. Eri tutkimusalueilta kuten fysiologiasta, endokrinologiasta ja psykologiasta saatu todistusaineisto tukee kantaa, jonka mukaan eläimet on hyvin samanlaisia kuin ihmiset myös tunteiden tasolla ja kokevat siis mutkikkaita tunteita ihmisten kaltaisesti.

Tutkimus viittaa siihen, että muiden eläinten biologisilta perustoiminnolta ja/tai yksinkertaiselta oppimiselta näyttävät ilmiöt johtuvat itse asiassa monimuotoisista ja erikoisista kyyviä. Itse asiassa muilla eläimillä on, kuten ihmisisilläkin, kyky tehdä valintoja, luoda omat kohtalonsa ja ymmärtää abstrakteja käsitteitä kuten syy-seuraussuhteita.


Geologia


Miehenkintaisia edistysaskeleita on otettu viime vuosisadalla tekoniikan alueella. Mannerlaattojen täytäminen ja niiden liikkeiden ymmärtäminen on tärkeää siltä syystä, että niillä voidaan käyttää erilaisia välineitä ja teknologioita.
Appendix 3: Measures (English)

1. Prejudice and Recategorization (Foreigners in Finland)

Society has many different perspectives about foreigners. Please rate how much you agree or disagree with each of the following beliefs, on a scale from 1 (strongly disagree) to 7 (strongly agree).

1. If foreigners tried harder, they could be as well off as Finns are.
2. I don’t think of people in terms of being immigrants or non-immigrants, only as people who are part of one group (i.e., Finnish residents). [recategorization]
3. Discrimination against foreigners living in Finland is no longer a problem here.
4. Foreigners in Finland have become too demanding in trying to get the same rights as Finns have.
5. It is easy to understand the anger of immigrants in Finland.
6. Foreigners who have come over to Finland in the past have overcome prejudice and been successful; those foreigners who now move to Finland should do the same without any extra benefits.
7. Immigrants can only blame themselves if they are scorned.
8. People have the right to keep immigrants away from their neighbourhood.
9. The distinction between immigrants and non-immigrants is artificial; we are all part of a shared group (humans/people). [recategorization]

2. Emotion Attribution

Listed below are a number of emotions. Please indicate using the scale provided, how much you think the following groups, in general, experience the listed emotions. For example, check 5 if you strongly agree that the group experiences the emotion, or check 1 if you strongly disagree that the group experiences the emotion.

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<td>Strongly disagree</td>
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<td>Slightly disagree</td>
<td>Neither agree nor disagree</td>
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<tr>
<th>Finn</th>
<th>Immigrant</th>
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<tbody>
<tr>
<td>1. Fear</td>
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<tr>
<td>2. Guilt</td>
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<td>3. Serenity</td>
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<td>4. Excitement</td>
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<td>5. Anger</td>
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<td>6. Pain</td>
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<td>7. Compassion</td>
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<td>8. Hope</td>
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<td>9. Attraction</td>
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<td>10. Remorse</td>
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<td>11. Shame</td>
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<td>12. Pleasure</td>
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3. Trait Attribution

Listed below are a number of personality traits. Please indicate using the scale provided, how much you think these traits apply to the following groups.
For example, check 7 if you strongly agree that the trait applies to the group, or check 1 if you strongly disagree that the trait applies to the group.

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<td>Slightly disagree</td>
<td>Neither agree nor disagree</td>
<td>Slightly agree</td>
<td>Some-what agree</td>
<td>Strongly agree</td>
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1. Extroverted, enthusiastic
2. Critical, quarrelsome
3. Dependable, self-disciplined
4. Anxious, easily upset
5. Open to new experiences, complex
6. Reserved, quiet
7. Sympathetic, warm
8. Disorganized, careless
9. Calm, emotionally stable
10. Conventional, uncreative

4. Empathy (Feelings Toward Immigrants)

Please answer honestly on a scale from 1 (not at all) to 7 (very much) how well the following adjectives describe your feelings toward immigrants.

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<tr>
<td></td>
<td>Not at all</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>Very much</td>
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</table>

1. I feel sympathetic toward immigrants.
2. I feel compassionate toward immigrants.
3. I feel soft-hearted toward immigrants.
4. I feel warm toward immigrants.
5. I feel tender toward immigrants.
6. I feel moved by immigrants.

5. Animal-Human Continuity

Please answer each of the following questions on a scale from 1 (strongly disagree) to 7 (strongly agree).

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<tr>
<td></td>
<td>Strongly disagree</td>
<td>Moderately disagree</td>
<td>Slightly disagree</td>
<td>Unsure</td>
<td>Slightly agree</td>
<td>Moderately agree</td>
<td>Strongly agree</td>
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1. Humans have a soul but animals do not.
2. Humans can think but animals cannot.
3. People have a life after death but animals do not.
4. People are animals.
5. Animals are afraid of death.
6. People evolved from lower animals.
7. People are superior to animals.
8. Animals can fall in love.
9. People have a spiritual nature but animals do not.
10. The needs of people should always come before the needs of animals.
11. It's okay to use animals to carry out tasks for humans.
12. It's crazy to think of an animal as a member of your family.

6. PVQ-R (Values)

Here we briefly describe some people. Please read each description and think about how much each person is or is not like you. Choose the answer from the list of how much the person in the description is like you.

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<td></td>
<td>Strongly disagree</td>
<td>Moderately disagree</td>
<td>Slightly disagree</td>
<td>Unsure</td>
<td>Slightly agree</td>
<td>Moderately agree</td>
<td>Strongly agree</td>
</tr>
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</table>

1. I feel sympathetic toward immigrants.
2. I feel compassionate toward immigrants.
3. I feel soft-hearted toward immigrants.
1. Thinking creatively is important to her.
2. It is important to him that his country protect itself against all threats.
3. Having a good time is important to her.
4. It is important to him to avoid upsetting other people.
5. Protecting the weak and vulnerable people in society is important to her.
6. Having people do what he says is important to him.
7. It is important to her never to be boastful or self-important.
8. Caring for nature is very important to him.
9. It is important to her that no one should ever shame her.
10. Always looking for different kinds of things to do is important to him.
11. Taking care of people she is close to is important to her.
12. Having the feeling of power that money can bring is important to him.
13. It is very important to her to avoid disease and protect her health.
14. Being tolerant toward all kinds of people and groups is important to him.
15. Never to violate rules or regulations is important to her.
16. It is important to him to make his own decisions about his life.
17. Having ambitions in life is important to her.
18. It is important to him to maintain traditional values or beliefs.
19. It is important to her that people she knows have full confidence in her.
20. Being wealthy is important to him.
21. It is important to her to take part in actions to defend nature.
22. Never to be annoying to anyone is important to him.
23. It is important to her to have original ideas and form her own opinions.
24. Protecting his public image is important to him.
25. It is very important to her to help the people dear to her.
26. His personal security is extremely important to him.
27. It is very important to her to be a dependable and trustworthy friend.
28. Taking risks that make life exciting is important to him.
29. It is important to her to have the power to make people do what she wants.
30. Doing everything independently is important to him.
31. It is important to her to follow rules even when no one is watching.
32. Being very successful is important to him.
33. Following her family’s customs or the customs of a religion is important to her.
34. It is important to him to listen to and understand people who are different from him.
35. Having a strong state that can defend its citizens is very important to her.
36. Enjoying life’s pleasures is important to him.
37. It is important to her that every person in the world have equal opportunities in life.
38. It is important to him to be humble.
39. It is important to her to learn about things and understand them well.
40. He strongly values the traditional practices of his culture.
41. It is important to her to be the one who tells others what to do.
42. Obeying all the laws is important to him.
43. It is important to her to have all sorts of new experiences.
44. It is important to him to own expensive things that show his wealth.
45. Protecting the natural environment from destruction or pollution is important to her.
46. It is important to him to take advantage of every opportunity to have fun.
47. Concerning herself with every need of her dear ones is important to her.
48. It is important to him to have people admire what he achieves.
49. It is important to her never to be humiliated.
50. Stability and order in the wider society are important to him.
51. It is important to her always to be tactful and avoid irritating people.
52. It is important to him that everyone be treated justly, even people he doesn’t know.
53. That her own neighbourhood should be safe is very important to her.
54. It is important to him never to seek public attention or praise.
55. It is important to her that those she spends time with can rely on her completely.
56. Freedom to choose what he does is important to him.
57. It is important to her to accept people even when she disagrees with them.
Appendix 4: Measures (Finnish)

1. Ennakkooluulo ja Uudelleenluokittelu (Ulkomaalaiset Suomessa)

Yhteiskunnassamme on monia erilaisia käsityksiä ulkomaalaisista. Arvioni asteikkoa 1 (täysin eri mieltä) - 7 (täysin samaa mieltä) käyttäen, missä määrin olet samaa tai eri mieltä seuraavien käsitysten kanssa.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Täysin eri mieltä</td>
<td>Aika lailla eri mieltä</td>
<td>Ei samaa eikä eri mieltä</td>
<td>Hieman samaa mieltä</td>
<td>Aika lailla samaa mieltä</td>
<td>Täysin samaa mieltä</td>
<td></td>
</tr>
</tbody>
</table>

1. Jos maahanmuuttajat vain yrittäisivät pärjätä yhtä hyvin kuin suomalaiset, he voisivat pärjätä yhtä hyvin kuin suomalaiset. [uudelleenluokittelu]
2. En jaottele ihmisiä maahanmuuttajiin ja ei-maahanmuuttajiin, vaan näen heidän kuuluvan samaan ryhmään (Suomen asukkaat).
3. Maahanmuuttajien syrjintä ei ole enää ongelma Suomessa.
4. Ulkomaalaiset Suomessa ovat tulleet liian vaativiksi yrittäessään saada samat oikeudet, jotka suomalaisilla on.
5. On helppo ymmärtää maahanmuuttajien suuttumus Suomessa.
6. Ulkomaalaiset jotka ovat tulleet Suomeen aiempina vuosina ovat voittaneet ennakkoluulot ja menestyneet; nyt Suomeen muuttavien ulkomaalaisten pitäisi tehdä samaa asukkaita.
7. Maahanmuuttajat saavat syyttää vain itseään, jos heitä haukutaan.
8. Ihmisillä on oikeus pitää maahanmuuttajat poissa naapuristaan.
9. Maahanmuuttajien ja ei-maahanmuuttajien erottelu on keinoekkopaitsi; oleme kaikki samaa yhteistä ryhmää (ihmiset). [uudelleenluokittelu]

2. Tunteiden Kokeminen

Alla on joukko tunteita. Kerro annettua asteikkoa käyttäen, missä määrin uskot seuraavien tunteiden olevan seuraavan ryhmän yleensä kokevan. Klikkaa esim. 5 jos olet täysin samaa mieltä siitä, että ryhmä kokee tunnetta ja klikkaa 1, jos olet täysin eri mieltä siitä, että ryhmä kokee tunnetta.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Täysin eri mieltä</td>
<td>Eri mieltä</td>
<td>Ei samaa eikä eri mieltä</td>
<td>Samaa mieltä</td>
<td>Täysin samaa mieltä</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Suomalaiset</th>
<th>Maahanmuuttajat</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pelko</td>
<td>Kompleksi</td>
</tr>
<tr>
<td>2. Syyllisyys</td>
<td>Kluppo</td>
</tr>
<tr>
<td>3. Tyyneys</td>
<td></td>
</tr>
<tr>
<td>4. Jännitys</td>
<td></td>
</tr>
<tr>
<td>5. Viha</td>
<td></td>
</tr>
<tr>
<td>6. Kipu</td>
<td></td>
</tr>
<tr>
<td>7. Myötätunto</td>
<td></td>
</tr>
<tr>
<td>8. Toivo</td>
<td></td>
</tr>
<tr>
<td>9. Vetovoima</td>
<td></td>
</tr>
<tr>
<td>10. Tunnovaivat</td>
<td></td>
</tr>
<tr>
<td>11. Häpeä</td>
<td></td>
</tr>
<tr>
<td>12. Mielihyvä</td>
<td></td>
</tr>
</tbody>
</table>

3. Piirteet

Alla on persoonallisuuspiirteitä. Kerro annettua asteikkoa käyttäen, missä määrin katsot näiden piirteiden sopivan seuraavan ryhmän. Klikkaa esim. 7 jos olet täysin samaa mieltä siitä, että piirre sopii ryhmään ja klikkaa 1, jos olet täysin eri mieltä siitä, että piirre sopii ryhmään.

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Täysin eri mieltä</td>
<td>Aika lailla eri mieltä</td>
<td>Hieman eikä eri mieltä</td>
<td>Ei samaa eikä eri mieltä</td>
<td>Hieman samaa mieltä</td>
<td>Aika lailla samaa mieltä</td>
<td>Täysin samaa mieltä</td>
</tr>
</tbody>
</table>
4. Empatia (Tunteet Maahanmuuttajia Kohtaan)

Kuinka hyvin seuraavat adjektiivit kuvaavat maahanmuuttajiihin kohdistuvia tunteitasi? Vastaa käyttäen asteikkoa 1 (ei ollenkaan) – 7 (hyvin paljon).

<table>
<thead>
<tr>
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<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ei ollenkaan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Hyvin paljon</td>
</tr>
</tbody>
</table>

1. Tunnen myötätuntoa maahanmuuttajia kohtaan.
2. Tunnen sääliä maahanmuuttajia kohtaan.
3. Sydämeni heltyy kun ajattelen maahanmuuttajia.
4. Tunnen lämpimiä tunteita maahanmuuttajia kohtaan.
5. Tunnen hellyyttä maahanmuuttajia kohtaan.

5. Eläimen ja Ihmisen Jatkuvuus

Vastaa seuraaviin kysymyksiin asteikolla 1 (täysin eri mieltä) - 7 (täysin samaa mieltä).

6. PVQ-R (Arvot)

Seuraavassa kuvataan lyhyesti erilaisia ihmisiä. Lue jokainen kohta ja mieti, missä määrin kuvaus sopii tai ei sovi Sinuun itseesi. Valitse sitten, rastittamalla sopiva ruutu, kunink kuvauksen kohdalla valitse päättää joka sopii parhaiten itseesi.

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<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ei länkaan sanmanlain en kuin minä</td>
<td>Ei juuri länkaan sanmanlain en kuin minä</td>
<td>Voin hieman sanmanlain en kuin minä</td>
<td>Jonkin verran sanmanlain en kuin minä</td>
<td>Melko sanmanlain en kuin minä</td>
<td>Erittäin paljon sanmanlain en kuin minä</td>
<td></td>
</tr>
</tbody>
</table>

1. Hänelle on tärkeää ajattelua luovasti.
2. Hänelle on tärkeää, että hänen maansa puolustaa itsään kaikkea uhkia vastaan.
3. Hänelle on tärkeää pitää hauskaa.
4. Hänelle on tärkeää välttää järkyttävästi muita ihmisästä.
5. Yhteiskunnan heikkojen ja haivoittuvien jäsenten suojeleminen on hänelle tärkeää.
6. Hänelle on tärkeää, että ihmiset tekevät mitä hän sanoo.
7. Hänelle on tärkeää, ettei hän koskaan kerskaile eikä ole tärkeilevää.
8. Luonnosta huolehtiminen on hänelle hyvin tärkeää.
9. Hänelle on tärkeää, että kukaan ei koskaan Häipäisi häntä.
11. Hänelle on tärkeää luottaa itselleen läheisistä ihmisiä.
12. Rahan mukana juoma vallan tunne on hänelle tärkeä.
13. Hänelle on hyvin tärkeää luonnosta huolehtia ja suojella terveyttään.
14. Hänelle on tärkeää olla suvaitsevaa kaikille ja kaikille kehityksissä.
15. Hänelle on tärkeää, ettei hän koskaan rikosta ja saattaa tai määräyksenä.
16. Hänelle on tärkeää päätää itse omasta elämästään.
17. Hänelle on tärkeää, että hänen tunteensa, elämässään kunnioitettavia ja ihanääriä.
18. Perinteisten arvojen ja uskonnojen vaaliminen on hänelle tärkeää.
19. Hänelle on tärkeää, että hän luottaa, että hänelle luottaa samalla.
20. Hänelle on tärkeää olla kyllä ja vahva puolustakseen hauta.</nonhuman animals and prejudice>
Appendix 5: Pilot Studies

English Pilot Study

I conducted an initial pilot in English with seven of my colleagues. The purpose of this pilot was to determine the best sequence of my multiple measures, as well as to head off any technical difficulties. The university’s online questionnaire system (e-lomake) posed multiple problems, which required repeated testing and modification. The English pilot was also conducted to gauge the general length of time the survey took, in order to help make a final decision on how many of the measures to use. It was also practically necessary to create mirrored English and Finnish questionnaires and SPSS databases, so that I could run my analyses in English to reduce the possibility for potential errors.

Measure-Check Pilot Study

An additional pilot was conducted in order to verify several components of my survey. I sent out a short survey that simply covered demographics and the prejudice scale, with participants randomly divided into two groups, one reading the geology editorial and the other reading nothing, prior to completing the prejudice scale. It was sent to four University of Helsinki mailing lists (see Appendix 6), and was conducted in English primarily for my own convenience, and because language was not a relevant factor in the measures I was checking. A total of 41 participants (27 women, 14 men, $M_{\text{age}} = 27.37$, $SD = 6.28$) completed the survey. Their identified mother tongues were 19.5% English, 14.6% Finnish, and 65.9% other, listed as Spanish (14.6%), Russian (12.2%), Estonian and German (each 4.9%), and with a single respondent each (2.4%): Chinese, Czech, French, Greek, Portuguese, Romanian, Tagalog, Telugu, Turkish, and Ukrainian.

First, due to the technical limitations of the e-lomake program, it was impossible within the given framework to select participants randomly for each group. Thus, I had to devise a way to separate participants into the two groups using another method. Through consultation I decided that the most reasonable available option was to have participants answer what day of the month they were born, and then split those born on odd days into one group and those on even days into the other. Theoretically, these groups should be random; there should be no difference whatsoever between the prejudice levels of people born on different days of the month. The odd group, with seven (six in a leap year) additional days each year should be slightly larger than the even group, but not enough to disrupt the results. However, this
needed to be tested. Unexpectedly, it turned out that the smaller group was the odd group, with 17 (41.5%) participants, while the even group had 24 (58.5%). This was deemed close enough, and likely an anomaly, so it was kept as the dividing process.

Second, because Costello and Hodson’s study (2010) did not use a control group, they had no control editorial written, so I needed to write one. After considerable deliberation and with a focus upon using a similarly science-based editorial topic that should theoretically have no effect on participants’ prejudice levels, I decided upon and wrote the geology editorial. However, as it was an untested intervention, it was necessary to make sure that it did not have an unanticipated effect. The difference between the two groups’ mean prejudice scores was not significant; for the geology editorial it was $M = 2.67$, $SD = 0.91$, and for no editorial, $M = 2.71$, $SD = 0.76$. Therefore, it appeared safe to conclude that the geology editorial (and the division of participants by even and odd birth dates) did not have an effect on prejudice scores.

Finally, due to concerns with the prejudice scale Costello and Hodson (2012) used in their study, a new composite scale was drafted (as noted in section 4.2). This included the recategorization questions being folded into the prejudice questionnaire, although their results were analyzed separately. Cronbach’s alpha for the composite prejudice scale (minus the recategorization questions) was $\alpha = .73$, which is acceptable. Cronbach’s alphas for the separate Finnish scales were $\alpha = .72$ for P-scale 1 and $\alpha = .59$ for P-scale 2. Thus, although the reliability of the composite scale is adequate, there is potentially a problem with P-scale 2, in that the two questions devised by Liebkind and McAlister (1999) measure a more blatant form of prejudice (acknowledged by the researchers) than the question by Pettigrew and Meertens (1995), or by P-scale 1. Because the overall alpha was acceptable, all questions were kept, with the knowledge that P-scale 2 could be dropped if it proved problematic during the experiment.

Finnish Pilot Study

The Finnish pilot test was the final test I conducted, immediately before recruiting participants. It was completed with the assistance of five of my colleagues. This was done as a last language and formatting check, as well as to discover how long the final version took, in order to provide that information to participants.
Appendix 6: Supplementary Information

University of Helsinki mailing lists

Measure-check pilot (English mailing lists):
kannu-news@helsinki.fi
degree-students@helsinki.fi
esn-helsinki@helsinki.fi
fs-chat@helsinki.fi

Survey (Finnish mailing lists):
elo-lista@helsinki.fi
didacta-post@helsinki.fi
ebe-lista@helsinki.fi
foni-lista@helsinki.fi
hao-lista@helsinki.fi
konnarit@helsinki.fi
limes-lista@helsinki.fi
yhis-opisk@helsinki.fi
kto-lista@helsinki.fi
stigma-lista@helsinki.fi
voo-l@helsinki.fi
media-lista@helsinki.fi
kontakti-ry@helsinki.fi
putkinotko-lista@helsinki.fi
katharsis-lista@helsinki.fi
eidos-ry@helsinki.fi
aistimus-lista@helsinki.fi
synkooppi-list@helsinki.fi
replikki-lista@helsinki.fi
ural-lista@helsinki.fi
mana-ry@helsinki.fi
mythos-list@helsinki.fi
saga-list@helsinki.fi
setenta-ry@helsinki.fi
umlaut-ry@helsinki.fi
as-pekti@helsinki.fi
dilemma-lista@helsinki.fi
karavaani-lista@helsinki.fi
keho-lista@helsinki.fi
kronos-info@helsinki.fi
rupla-ry@helsinki.fi

Programs of study listed by students

Arts and Humanities:
Master of Arts (x7) General History (x2)
Bachelor of Arts (x6) Humanistic (x2)
Communication (x6) Social and Moral Philosophy (x2)
Asian Studies (x5) Arabic and Islamic Research
Finnish Language (x5) Arts Research
Musicology (x5) Bachelor's Degree in Philosophy
History (x4) Doctor of Philosophy
General Linguistics (x3) English Philology
Language Technology (x3) Finnish Literature
Logopedics (x3) French Philology
Art History (x2) Political History
Comparative Literature (x2) Scandinavian Languages
Comparative Religion (x2) Theatre Research
Development Studies (x2) Translation of German

Social Sciences:
Sociology (x9) Education:
Social Services (x7) General and Adult Education (x6)
Social Policy (x4) Kindergarten Teacher Education (x4)
Bachelor of Social Sciences (x3) Education (x4)
Bachelor of Early Childhood Education (x2)
Categorical Variables

Gender: 1 = female, 2 = male
School: 1 = Laurea, 2 = University of Helsinki, 3 = Aalto University, 4 = Other
Years of study: 1 = first, 2 = second, 3 = third, 4 = fourth, 5 = fifth or more
Mother tongue: 1 = Finnish, 2 = Swedish (all others were removed from analysis)
Program of study: 1 = miscellaneous polytechnic, 2 = science and technology, 3 = economics and business, 4 = health care, 5 = education, 6 = arts and humanities, 7 = social sciences, 8 = unspecified
Prejudice (categorical): 1 = 1.0-1.9, 2 = 2.0-2.9, 3 = 3.0-3.9, 4 = 4.0-4.9, 5 = 5.0-5.9, 6 = 6.0-7.0
Appendix 7: Supplementary Analyses

Recategorization Questions

Both of Costello and Hodson’s (2010) recategorization questions used the superordinate group Canadian citizens. However, I was not convinced that type of recategorization would work the same way in the Finnish context. Because Canada is a pluralist society, where dual identities exist easily and harmoniously, recategorization is different than in societies where this is not so (Dovidio et al., 2007). Thus, I used different superordinate groups for each of the questions, namely Finnish residents for one, and humans (in general) for the second (see Appendices 3 and 4 for the precise questions). I expected that the question recategorizing immigrants into the human group would be more highly endorsed than the one recategorizing immigrants into the Finnish residents group. This theory was tested using a one sample t-test, collapsed across conditions. The question recategorizing immigrants into the human group ($M = 5.11$) was rated higher than the question recategorizing them as Finnish residents ($M = 3.98$). A one sample $t$-test (collapsed across conditions) was conducted between each of the means, finding a significant difference between them, $t(194) = 32.90, p < .001, ES = .92, d = 4.72$. This issue was not relevant to my hypotheses, but was important to check for the sake of comparability between Canadian and Finnish samples.

Programs of Study

To get a better understanding of how programs of study functioned with prejudice, they were examined in more detail. As noted, I had not intended to recruit social sciences or humanities students, because they have been found to be higher in universalism and consequently lower in prejudice (Myyry & Helkama, 2001; Feather & Mckee, 2008), which appears to hold true in this sample as well. Differences in prejudice means across condition and by program group can be seen in Table 17.

Table 17. Prejudice means by program of study, total and across condition

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Animal</th>
<th>Geology</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n$</td>
<td>$M (SD)$</td>
<td>$n$</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>31</td>
<td>2.25 (.49)</td>
<td>13</td>
</tr>
<tr>
<td>Arts &amp; Humanities</td>
<td>72</td>
<td>2.54 (.79)</td>
<td>36</td>
</tr>
<tr>
<td>Education</td>
<td>22</td>
<td>2.51 (.49)</td>
<td>16</td>
</tr>
<tr>
<td>Health Care</td>
<td>21</td>
<td>3.25 (.78)</td>
<td>10</td>
</tr>
</tbody>
</table>
Overall, aside from the unspecified group, health care had the highest prejudice levels, closely followed by miscellaneous polytechnic, then economics and business, science and technology, arts and humanities, education, and finally, social sciences came in at a full point beneath health care. Because the program of study moderated the effects of prejudice, a $t$-test was conducted to see if removing social sciences and arts and humanities students would show effects by condition, but it was non-significant, possibly resulting from the unusually high health care scores. A $t$-test just using the demographic that was aimed for and initially expected (polytechnic, economics and business, and science and technology students) was likewise non-significant; the groups being tested were very small.

**Editorial effects on emotions**

Beyond the hypothesis and significant results stating that the animal editorial would have an effect on uniquely human emotions for immigrants, it unexpectedly had an effect on each of the other emotion variables. The animal editorial was significantly higher on uniquely human emotions for Finns $t(193) = 2.75, p = .006, ES = .19, d = .40$, as well as non-uniquely human emotions for Finns $t(193) = 3.29, p = .001, ES = .23, d = .47$, and immigrants $t(193) = 3.17, p = .002, ES = .22, d = .46$. They have similar effect sizes (including uniquely human emotions for immigrants) indicating that the editorial had a similar effect on each of the emotion scales, which was not predicted.

**Testing Values**

Although beyond the scope of this paper, there were several interesting correlations between values and the main variables, which can be seen in Table 18. Additionally, the correlations between all values can be seen in Table 19.
Table 18. Correlations between all values, main variables, and animal-human continuity

<table>
<thead>
<tr>
<th></th>
<th>Prejudice</th>
<th>Emotions (UHI)</th>
<th>Traits (UHI)</th>
<th>Empathy</th>
<th>Recat.</th>
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<td>.02</td>
<td>-.07</td>
<td>.01</td>
<td>.13*</td>
<td>.12*</td>
</tr>
<tr>
<td>SDA</td>
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<td>.02</td>
<td>-.08</td>
<td>.06</td>
<td>.09</td>
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<tr>
<td>ST</td>
<td>.05</td>
<td>-.02</td>
<td>.08</td>
<td>-.01</td>
<td>.20**</td>
<td>.03</td>
</tr>
<tr>
<td>HE</td>
<td>.00</td>
<td>-.05</td>
<td>-.02</td>
<td>.01</td>
<td>.09</td>
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<tr>
<td>AC</td>
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<td>-.14*</td>
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<td>.25***</td>
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<td>.09</td>
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*p < .05, **p < .01, ***p < .001 (1-tailed)
Table 19. Correlations between all values, with means and standard deviations

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|SD| .18| .16| .23| .22| .22| .22| .22| .23| .18| .21| .27| .26| .23| .19| .14| .15| .20| .26| .19|

*p < .05, **p < .01, ***p < .001 (1-tailed)