Attribution and Judgment – examining the relation between attributing capacities and moral judgments about killing animals.
ATTRIBUTION AND JUDGMENT– EXAMINING THE RELATION BETWEEN ATTRIBUTING CAPACITIES AND MORAL JUDGMENTS ABOUT KILLING ANIMALS.

Per Andersson

A new kind of operationalization was used to model a schema-based approach to moral judgment, as well as compare it to predictions based on the Social Intuitionist Model. Judgments were made about the moral wrongness of killing different animals. At Time 1, only moral judgments were made. At Time 2 judgments were made again, with questions and scales relating to attributing morally relevant cognitive capacities also included; further, two randomized conditions varied the presentation order of the scales. Differences between Time 1 and 2 indicated a reversed perspective-taking effect, with animals of lower capacities rated less empathically at Time 2. Affective ratings and attributed capacities were compared as different predictors, indicating that attributed capacities was the most powerful. A group comparison was also made between active animal rights proponents and non-proponents, showing differences on several factors. These and other findings are discussed with relation to the Social Intuitionist Model and a schema-based account of morality.

Moral judgments, notions of what is right and what is wrong, form the core of different cultures, religions, ideals, and legal systems. Moral judgments are different from judgments about etiquette or social norms in that they are independent of convention, a distinction made already by young children (Killen & Smetana, 2006) (Nucci & Weber, 1995). These judgments are not just topics of debate, but also causes of actions. In Afghanistan nearly half of the women in prison are held there for “moral crimes” (Peter, 2012). In the US, gay marriage and abortion are not just moral issues, but continues to be debated as legal issues. Moral judgments affect the creation, practice and punishments of laws, as everyone from ordinary citizens to jury members and even judges make decisions founded on concepts central to moral theories (Keijser, Leeden & Jackson, 2002). Furthermore, relevant to the present study; the treatment and rights of animals is seen not just as a legal question, but a moral one (Gålmark, 1998).

In relation to making moral judgments, different models and theories have been developed and debated, such as Kohlberg Stage Theory (Kohlberg, 1984), the Dual Process Model (Greene, Morelli, Lowenberg, Nystrom & Cohen, 2007) and the Social Intuitionist Model (Haidt, 2001). It remains unclear, however, how the models deal with attributions of cognitive capacities. The purpose of this study is to be the first to systematically study the relation between attributing cognitive capacities and making related moral judgments, while also making comparisons based on models of moral judgment. As attitudes towards treating animals have previously been studied and found to be related to the cognitive capacities the participants attribute to the animal (Phillips & McCulloch, 2005), the present study will focus on the related issue of moral judgments towards killing animals. The present study will examine the relation between processes of attribution, here used to refer to the ascribing of cognitive capacities such as emotion, self-awareness and pain reactivity to animals, and moral judgments about killing animals. To examine this, it will start by discussing three points. First, how and if existing theories of moral judgment can relate to this form of attribution.
processes. Second, how an experiment could operationalize the attribution process and the models. Third, possible predictions and outcomes of such an experiment.

Attribution of cognitive capacities
In 1830, during the times of slavery, it was often held that humans came in different races which gave them different cognitive capacities, such as analytical thinking, and that race decided the moral status of people. In an un-replicable social experiment the captain of the Beagle, Robert FitzRoy, and Charles Darwin brought four “uncivilized” natives from the South American Tierra del Fuego to Britain, and taught them British language and habits (Darwin, 2008). The success of the natives in learning British customs would later be used by Darwin to argue that the genetics and the capacities of these natives were the same as people of Western Europe. This would lead to the core argument that race, in itself, should not be seen as morally relevant in regards to how people are treated.

In modern days a parallel is often drawn between racism in regards to human rights and “speciesicism” in regards to animal rights”, in that species membership, like racial membership, should not be a morally relevant feature in itself. The claims that separate animal rights proponents from opponents usually concern the degree to which animals can feel, experience, and suffer (Gålmark, 1998). In other words, these are claims about the cognitive capacities of animals and humans. Cognitive capacities will here be used to refer to capabilities such as emotion, self-awareness and pain reactivity. Attribution, in this study, is the assigning of such attributes and capacities to others. As the attribution of cognitive capacities has been hypothesized as an important factor related to judgments about animal rights, it could also be an important factor in relation to moral judgments, such as whether killing an animal is considered morally wrong. A recent study looked at attitudes towards treating animals, and how people attribute different cognitive capacities to animals (Phillips & McCulloch, 2005). The study showed a correlation between attribution of aspects of sentience to the animals in question, and attitudes about how to treat the animals. Specifically, there was a relation between the attributed sentience to animals by the aspects of sensation of pain, emotions of happiness, fear and boredom, and the attitudes towards how to treat them, and reverence towards animal life (Phillips & McCulloch 2005). As the study focused on attitudes on treatment rather than moral judgment, the question of how attribution processes relate to moral judgments is still unanswered. If cognitive capacities are central to the moral status of subjects, then the attribution of these capacities could be highly related to moral judgments.

In the area of moral judgments, previous studies have looked at attribution bias (Blom-Kemdal & Montgomery, 2001) or how attribution of intentionality to wrong-doers affects judgments of their actions (Pellizzoni, Girotto, Surian, 2010), but no study has examined how attribution of cognitive capacities affect moral judgments. The present study will thus begin filling in the blanks by focusing on judgments regarding the moral wrongness of killing different animals.

Fitting Attributions into models of Moral Judgment
Several models exist that attempts at explaining how moral judgments are made. In general, the field has often been framed as two competing “schools”: the reasoning school and the intuition school. Using the terms of Kahneman (2003), the division of intuition and reason also relates to the division of system 1 and system 2, respectively. System 1-type processes (“intuition”) are intuitive, quick, automatic and effortless while system 2-type (“reason”) are slower, controlled and effortful. The division has also been described in terms of lower/higher cognition, implicit/explicit, impulsive/reflective or intuitive/rational (Evans, 2008). For years
the norm was to model moral judgment as a rational and deliberate process, and theories emphasized the use of rational deliberation. The more recent development to emphasize intuition has by some been referred to as a paradigm shift (Keller, 2012). Seen through this dichotomy Kohlberg’s Stage Theory (Kohlberg, 1984) belongs to the “reasoning school”, the Social Intuitionist Model (Haidt, 2001) mainly belongs to the “intuition school”, and the Dual-process model (Greene, et al., 2007) is more of a synthesis between intuitionist and rationalistic models. The two different schools have often been pitted against each other (despite having somewhat overlapping theories), but with few exceptions (for example Dual-process model experiments) the two “schools’” different predictions have not been made testable by quantitative measures within the same experiment. Further, the distinction between reasoning and intuition also fails to deal with other aspects of the three models, such as how they deal with processes of attributions.

Kohlberg was the father of Stage Theory (Kohlberg, 1984), putting forward the theory that children progressed through six stages of development, ranging from obedience and punishment avoidance and finally to abstract reasoning and rule-based moral judgment (Kohlberg, 1984) (Killen & Smetana, 2006). The presumption was that moral judgments were made by relatively deliberate and rational cognitive processes, in somewhat the same way as a scientist or theorist would reason about an issue. According to Kohlberg moral judgment specifically involved systematic thinking about rights, justice, fairness and the welfare of other people. Further, Kohlberg held that moral judgment was not primarily driven by emotions (Killen & Smetana, 2006). While Kohlberg’s Stage Theory is still seeing application in research, such as the “Neo-Kohlbergian Approach” (Rest, Narvaez, Thoma & Bebeau, 2000) and the continued use of the Defining Issues Test (for example Myyry, Juujärvi, & Pesso, 2013), increasing amounts of research have been contradicting its original assumptions (Turiel, 1975), and researchers are increasingly turning to SIM in modeling moral judgments (Keller, 2012). In the present study Stage Theory cannot be applied, for several reasons: it mainly deals with longtime individual development, the only validated method of testing participants stages (the Moral Judgment Interview) was not applicable (no physical meetings), and its different stages of reasoning makes general predictions concerning attributions and judgment impossible¹.

The dual-process model of moral judgments (Greene, et al., 2007) proposes that both intuition and reasoning occur, and that these two processes can produce conflicting conclusions. Intuitive emotional responses (system 1) often produce deontological judgments, while reasoning processes (system 2) produce utilitarian judgments (Greene et al., 2007). Utilitarian judgments are consequentialist, meaning that they focus on the consequences of an action, aiming to maximize benefits and minimizing costs across all affected individuals. Deontological judgments are not consequentialist, and instead emphasize rights and duties which should be considered regardless of consequences (Paxton & Greene, 2010). Which mode of reasoning is used in any given situation in part depends on contextual factors, such as available time and cognitive resources (Greene et al., 2007). It is unclear, however, how the utilitarian/deontological distinction could be applied in the present study regarding attribution processes, and the issue of whether killing animals is morally wrong. From a deontological point of view, it could be argued that killing any living thing would be a rights- or harm

¹ “Neo-Kohlbergian” approaches were excluded for similar reasons.
violation, but this would depend on where the individual participant draws the line between organism who are included and excluded of rights and harm considerations. It could also be argued that from a utilitarian point of view that any being that can experience pain, suffering or joy should be taken into account. This model, as did Stage Theory, then fails to make any predictions regarding how attributions relate to moral judgments in the present context.

The Social Intuitionist Model (SIM) built on a number of experiments which showed that condemning moral judgments could be made in response to scenarios which involved no harm, and where participants could not refer to any justification other than the feeling of disgust (Haidt, 2001) (Graham, Nosek, Haidt, Iyer, Koleva & Ditto, 2011). The inability to justify ones moral judgments (“moral dumbfoundedness”) was seen by researchers such as Jonathan Haidt as evidence that the judgments were made before any reasoning process took place. Further studies led to Haidt proclaiming that intuition, and not deliberation, was the real cause of moral judgment, and that reasoning was (most often) a post-hoc creation, used to rationalize or defend judgments already made (Haidt 2001). By its emphasis on the shortcomings of human reason SIM also related to research in other fields of psychology, such as Kahneman and Tversky’s research on cognitive biases and judgment (Kahneman, 2003).

SIM, championed by Jonathan Haidt and his collaborators, emphasizes the role of intuitions, which are best understood as system 1-type processes (quick and automatic reactions) tied to emotional states such as disgust and sympathy (Killen & Smetana, 2006). Intuitions are evaluative (good/bad, like/dislike) and when they are accessible to the conscious mind they appear without any effortful steps of processing (Haidt & Kesebir, 2010). This means that people can lack conscious access to the system 1-type processes that produce the intuitions, as these functions without conscious awareness or control, and that people may ultimately lack knowledge and control of the process which ultimately lead to their judgments. One way to sum up Haidt’s account of morality would then be that the “reasoned” arguments we make, justifying our own beliefs, are most often just confabulations and post-hoc rationalizations, and that our conscious selves often do not know the true reasons for our moral judgments (Bloom, 2010). Confabulations happen at times when people are asked to explain or justify their behavior, and they make up reasons rather than admit lack of self-knowledge (Gazzaniga, 1998). Although SIM does not explicitly deal with the kind of complex attributions that are the subject of the current study, it will here be taken that these would be covered under “post-hoc reasoning” within the model.

**Attributions and SIM**

The term “attribution” may be more or less narrowly defined. Granted that emotional reactions require perceptual recognition of objects and features at a basic level (Storbeck, Robinson & McCourt, 2006), it could be argued that simple object-recognition is a form of attribution. However, in the present context “attribution” refers to the ascribing of cognitive capacities, such as emotion, self-awareness and pain reactivity. Simple object-recognition is a part of the processes leading to intuitions, in SIM, but complex attribution-processes, such as is the case here, are not. This is because such complex attributions are not mentioned as part of the affectively-based intuitions of SIM, and because attributions of this kind imply rule-based rather than case-based processes. As examples, a rule-based process is what leads an

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2 This is the reasoning of the present study, and is open to future debate.
animal-rights activist to make equal moral judgments for all animals of equal capacities, while a case-based process would lead the animal-rights activist to make moral judgments on a case-to-case basis depending on current emotional states, such as liking a rabbit but disliking a rat. Arguably, the intuitions of SIM are not cold rule-based processes, but hot case-to-case processes. Thus, attribution-processes should be treated as “reasoning” within SIM framework, and thus mainly seen as post-hoc rationalizations. This does not mean that attributions of the kind here concerned must necessarily be a system 2 process, it only means that lacking a more fitting category, SIM would treat it as such. Attributions could be part of a deliberative process, but it is argued here that it could also function without necessary system 2-style deliberation, and yet be different from the intuitions of SIM.

Considering attributions as generally being “post-hoc rationalizations” means that in SIM, the attributions should be made after judgments have already been made, and that these are not the cause of the judgments. Then, if attributions are not part of the process leading up to the judgments, but affective attitudes (a form of intuitions) are, then attributions should have a lower predictive power for the judgments than affective attitudes. Further, as attributions are made after judgments, it would be possible that they are not related to the judgments at all. Also, as the attributions would be made based on the judgments, and not vice versa, they should only ever have predictive power over judgments when made directly after judgments.

Despite emphasizing the role of intuitions over reason, there are instances in which SIM allows for “reasoning” to play a part in changing or forming judgments. SIM proposes several “links” in which intuitions can be created or changed and relevant to this study are the “reasoned judgment link” and the “private reflection link”. Reasoned judgments should only occur when the initial intuition is weak, and processing capacity high, which is seen as rare. Also, reasoned judgment may cause a “dual attitude”, meaning that the person may continue to hold the intuitive judgment while the reasoned judgment is the one verbally expressed. However, if no prior intuition exists, then reasoning can affect people before they have formed a settled opinion. Finally, the private reflection link describes a situation in which a person, through reasoning, activates a new intuition that contradicts the initial one. This mostly occurs through role-taking, in that taking another person’s perspective creates new experiences, which activates new intuitions that may compete with the original ones, which were founded on one’s own experiences.

A relevant critique towards SIM is that it overlooks the use of deliberation and reasoning in such areas as politics and legal debate (Bloom, 2010). According to Haidt, if a conflict already exists in a moral issue between two parties, both parties are biased to follow their already held intuitions rather than revise them, and so will be little affected by arguments (Haidt, 2001). However, regarding politics and legal debate, it can be argued that the whole theory and practice of democracy rely on people’s ability to reason objectively and use facts (Andersson, 2008). Psychological research on opinion change confirm that people hold reasoning and facts in high regard. First, people are consistency seekers, seeking a consistency between held facts and related values (Fiske & Tailor, 1991) and generally seek to reduce cognitive dissonance. Second, people generally agree that one should consider facts, regardless of one’s position in a value issue (Potter & Edwards, 1990). Third, regarding opinion change, people seem to regard arguments as necessary and/or sufficient causes of the positions they hold, even if in fact they are reluctant to change opinion when confronted with new facts (Lindström, 1996).
Specifically related to the present study, it has been argued that the SIM fails to explain the historical progress of morality from less to more inclusive rights (Bloom, 2010). Unlike conventional rules such as etiquette and fashion, moral rules about human rights have generally moved in a direction, towards being more inclusive. The direction indicates that change has not been random or capricious. The same case could be made for animal rights, putting forward the argument that moral judgments in these areas are not just about changing “tastes”, but rather related to a more rational process. In the light of this, another possible way to represent moral judgments is here presented.

A schema-based model

Developmental psychology has produced more insights to the field of moral judgments than just the workings of Kohlberg’s Stage Theory. Two central concepts are schemas and internalization, and these will be used here to operationalize a model which can be contrasted to SIM. Schemas, as described by Piaget (for example in Piaget, 1928), refers to generalizations of relations and events that function as cognitive frameworks for organizing and interpreting information. Schemas are first formed by a number of individual cases or events. When specific cases or events are incorporated into a schema they lose their unique identity and become part of a generalization (Piaget, 1928). In a sense, schemas can be seen as a sort of mental shortcut to making judgments concerning a general class or topic. The notion of schemas, first presented by Piaget, is widely used by different researchers, but often under other names such as scripts (schemas of particular scenarios) and related to constructs such as Internal Working Models (Cassidy & Shaver, 2008).

Schemas are not the same as the “post hoc rationalizations” that SIM presents. Schemas can be constructed without applying conscious reasoning, creating a logical and general pattern for certain actions, without necessarily needing to apply system 2 resources. Formed schemas may be applied rapidly, and yet involve fairly complex semantical or logical concepts (Piaget, 1928). In some respects, applying a schema involving complex attributions such as cognitive capacities can be seen as more “rational” than the reactive emotional intuitions of the SIM, yet it would not necessarily involve much more system 2 processing. Even though constructing and applying a schema may be possible without the involvement of system 2 process, schemas can become subject to reasoning, form the basis of reasoning, and can be made more explicit, according to Piaget (1928).

Schemas and internalization have been used to understand how children learn and integrate moral rules from their surroundings. The process of internalization means that children slowly integrate information presented in its environment as part of its own personality (Cassidy & Shaver, 2008). Rules and codes of conduct first presented as an outside influence become internalized through the course of life and form schemas or schema-like constructs modeling the behavior of self and others. Learning standards, rules and goals from the environment is a natural part of early human development, and children actively engage in rule-testing behavior (Dahl, Campos & Witherington, 2011). Such rule testing behavior is crucial for children’s learning about the standards, rules and goals of the environment, and situations where the child transgresses the rules and a parent corrects or disciplines the child become opportunities for learning (Hoffman, 2001). When parents discipline their children they can engage them in perspective-taking with the victim of the transgression. Exercises in perspective-taking leads the child to attributing emotions similar to his or her own to others, and also to becoming more understanding of the situations of others. Exercises in perspective-taking further develops the child’s capacity for empathy and guilt, which are important to moral development (Hoffman, 2001). Accounts of moral development such as Hoffman’s
(2001) point to the development and use of generalized schemas as central to understanding how moral rules are learned. Although Hoffman does not present his account as a competing model of how judgments are made, it would be possible to create and operationalize a simplified model of how schemas are used in making moral judgments, building on existing literature.

Schemas and attribution processes - GSM

Applying a schema means applying rules and conditions to a situation. Seen as such, moral judgments depend on contextual conditions, meaning that a scenario is judged as morally wrong if it corresponds to a scenario of a schema about moral judgment. Generalizations are general representations, implying that they are sets of contextual properties and attributes. Making a moral judgment, in the present case about animals, would thus mean first attributing the animals with properties and capacities concerned with in the schema. The properties and capacities of the individual animal are then compared to generalized schemas with different attribute-judgment outcomes. Following a schema, it would then be a general rule for animals of different identity but with the same attributed properties and capacities to be judged highly similarly.

Hoffman’s account (2001) concerns the development of morality, but it can also be used, together with the writings on schemas by Piaget (1928) to model a theory of how well-developed adults make actual moral judgments. Let us call such an account the Generalized Schema Model (GSM). Building on the developmental account, the GSM would, unlike the SIM, directly relate to processes of attributions, and propose the following: (i) Moral Judgments are based on Generalized Schemas, (ii) Schemas contain conditions which when fulfilled leads to specific judgments, and (iii) Generalized schemas are applied to individual instances.

The conditions of the judgment schemas could, similar to the evolutionary accounts made by Hoffman (2001), include a number of factors such as attributions made, but also other context factors, and information about the state of the own person. If the other factors were controlled for, or held constant, and only attributions differed from different cases, then attributions could be isolated and their effect on moral judgments investigated. In the case of judgments to killing animals, this would mean that when keeping the scenario constant, controlling for affection towards the animals in question, and varying the animals judged in such a way that would present animals attributed different capacities, attribution could have a direct effect.

Attribution-Judgement Schemas

Building on the previous account of schemas for making moral judgments it should be possible to model tasks in ways which makes the different steps of the schema process measurable. The idea is to make the implicit properties of the schema explicit, in order to make the use and application of schemas quantifiable. Regarding the case of making judgments about the moral status of killing animals, a schema for attributions and judgments could be operationalized following the same steps as the previously mentioned schemas. Such a schema would involve several steps:

1. Assessing the importance of different capacities (of animals, in relation to the wrongness in killing it)
2. Relating sets of capacities to judgments (attribution-judgment schemas)
3. Attributing capacities to the animal in question
4. Making a judgment based on which attributes the animal is attributed
Comparing a GSM to the SIM

Contrasting a generalized schema-based model (GSM) with the SIM might prove fruitful, both in making contrasting measurable predictions and to guide the operationalizing of tasks. However, differences between the models compared here are not as simple as a straightforward dichotomy between intuition and reason. The SIM acknowledges both types of processes, although it claims that reasoning is rare (Haidt, 2001), and a schema in a GSM can work in ways similar to an intuition (or even be the cause of an intuition) (Piaget, 1928), meaning it does not necessarily require deliberate reasoning. Further, the complete separation of reason and emotion is perhaps impossible, as facts and values are often affected by each other; many “factual” claims contain implicit value statements (such as claiming that a person is generous, or wasteful) and the very same situation is viewed differently depending on perspective (Montgomery 2001). Also, system 2-type processes use information also from system 1-type processes, such as reactive emotions, blurring the distinction (Rabbitt, 1997).

Even when putting aside the question if a schema-based model of moral judgment always entail effortful reasoning (system 2 processing) in the moment of making the judgment, there are other differences between a GSM and the SIM: first, the degree of generalization. SIM deals with intuitions and emotions which can be related to single objects or identities, while schemas by their nature deal with generalizations. This means that the SIM predicts that individual identity or situational affect is more important than categorical general features. A GSM, by default deal with general properties which can be ascribed to multiple individual cases, predicting less variation between individual cases, unless cases differ on general features.

Second, related to above, the specificity also affects the “rationality” of judgments. That is, a schema-model would predict judgments based on the rationality of categories and classes, while the SIM allows for “irrational” decision-making where no good reasons except for affect can be referenced. This would be exemplified by cases of “moral-dumbfoundedness” (Haidt, 2001).

Third, the models would differ with regards to the causal role of attributions on moral judgment. While the SIM would hold that attributions of the kind we are dealing with here are made after the moral judgments, the GSM would hold that they are made before. Figure 1 illustrates this difference, and also shows attributions as taking the place of post-hoc reasoning in SIM when applied to the present study. Further, according to the SIM, as the attributions would be made based on the judgments, and not vice versa, they should only ever have predictive power over judgments when made directly after judgments. The GSM would predict that attributions have a stronger predictive power if made before judgments, or that (if attributions are always made) the predictive power would remain the same between the two possible conditions.

However, as research on the Dual Process Model and system 1 and system 2 processing has showed us, there may also be an effect of the context, which must be considered in comparing the GSM and SIM.
When comparing GSM to SIM there may be context effects which can affect conclusions; in other areas of research (in this case executive functions) it has been recognized that both system 1 and system 2 processing may be functional, but in different contexts (Rabbitt, 1997). Literature on executive functions emphasize that system-2 processes require effort. It has been argued that system-1 may act as a default mode of processing when possible, to save resources and time (Miller & Cohen, 2001). Thus, to encourage the use of system 2, it may be needed to establish a context where time and resources are available. Also, system 2 mainly deals with novel situations that have not yet been automated, long-term planning, or when different sets of rules apply than would regularly be the case (Miller & Cohen, 2001).

It could be the case that many of the studies investigating moral judgments have simply failed to provide the conditions needed to activate system 2-type processes, instead encouraging quick “first impression” type choices; so called snap judgments (Ames, Kamrath, Suppes & Bolger 2010) (Turiel, 2010). Further, the opposite could also be true, meaning that only using one context that promotes system 2 reasoning, and then drawing conclusions to all contexts, would become a self-fulfilling prophecy. Unless moral judgments are made in several conditions that promote the systems differently, we could risk method bias. Thus, ideally at least two framings of a moral judgment task should be presented: one system-1-friendly, and one system-2-friendly.

In the context of moral judgments towards killing animals, the introduction of tasks related to attribution may have an effect on subsequent tasks of moral judgments. Perspective-taking has led to increased empathy in children towards other children (Hoffman, 2001) and for adults asked to put themselves in the positions of another (Blom-Kendal & Montgomery, 2001). Making attributions means ascribing capacities to an animal, and as this partly involves thinking about the specific conditions of the animal, it could create a form of perspective-taking in that participants could imagine that the animal has similar capacities to one’s self, leading to more empathy towards it and to rating the killing of it as more morally wrong.
The present study

Purpose
The purpose of the present study is to examine how attributions of capacities relate to moral judgments regarding the killing of different animals. Examining this will involve three related aspects: how the introduction of tasks relating to attributions affect moral judgments, the predictive power of attributions on moral judgments, and also the possible relation between political stance on the animal rights issue and how attribution relates to moral judgment, as this connects to the “progress” of animal and human rights that SIM failed to account for.

As no previous study has addressed these particular issues, the operationalization of the tasks will be based on the theoretical workings of SIM and GSM. Predictions based on these models conflict at several points, which also enables comparison. Based on qualitative accounts of the animal rights movement group comparisons between participants that are active proponents of animal rights, and those who are not, will be made to investigate if attribution is a root of differences between the groups.

As the framing or context of the tasks may affect judgments, two manipulations will be made to examine this aspect: one within-subjects (Time 1 vs. Time 2) and one between-subjects (Condition 1 vs. Condition 2). All participants will begin by first making judgments about the moral wrongness of killing animals on a stand-alone scale, without the interference of other scales (Time 1). Then, days later, judgments will be made again to the same animals, this time introducing the concept of attributions, and adding scales dealing with attributions (Time 2). At Time 2 participants will be randomly assigned to one of two conditions, either making judgments before or after giving attributes to the animals in question (see Method section for design overview). The study will take the form of a questionnaire with mixed model factors.

Predictions
Predictions were based on findings from studies on perspective-taking (such as Hoffman, 2001), the hypothetical relations of a GSM, the workings of SIM (Haidt, 2001), and qualitative accounts by animal rights proponents (Gålmark, 1998). Predictions based on GSM and SIM contrast each other at several points.

Prediction 1: Effect of task framing - Time 1 versus Time 2.
- GSM would predict a framing effect, in the form of perspective-taking, on moral judgments, leading to more sympathetic judgments when judgments are made together with attributions at Time 2.
- SIM, given that judgments only change when specific conditions are met, would not predict any group level difference (beside random error) between Time 1 and Time 2, unless one of the specified conditions are met. Perspective-taking is a possibility if conditions for the “private reflection link” are met.

Prediction 2: Effect of order of presentation - condition 1 versus condition 2

Further predictions related to political differences (measured by Polarity Scale) between animal rights proponents and opponents were also investigated, but excluded here.
Based on GSM and causality, if there is an effect of perspective-taking due to tasks involving attributions, making attributions for named animals before judgments (condition 1) should enhance the effect of perspective-taking at Time 2. This would mean more sympathetic judgments for condition 1 at Time 2, but not Time 1.

Predictions concerning the predictive power of attributions
Prediction 3: The predictive power of unnamed animals (generalizations)
- GSM predicts that moral judgments made for unnamed animals (given attributes only) should explain the majority of the variance for named animals.
- SIM predicts that the majority of variance for judgments about named animals would not be explained by judgments made for unnamed animals, when controlling for non-hypothetical factors such as an animal identity and affective ratings to animals.

Prediction 4: The predictive power of attributions and affective ratings
- SIM predicts that affective ratings towards animals should be more powerful predictors of moral judgment than attributions of capacities.
- GSM predict the opposite relation.

Prediction 5: The predictive power attributions in relation to condition
- GSM predicts that attributions are always made, even without deliberation, and thus always a powerful predictor. If any difference exist between conditions, it should be that attributes becomes a more powerful predictor when attributions are made before moral judgment, as this would enhance the process steps of the GSM.
- The SIM predicts that attributes should become a more powerful predictor only when attributions are made following moral judgments, as attributions are considered post-hoc creations.

Predictions concerning animal rights and moral judgment
Prediction 6: attribution and judgment in animal rights proponents.
- Based on qualitative accounts (Gålmark, 1998), it is predicted that the animal rights proponents would rate animals as more morally wrong to kill, and that this would be rooted in proponents attributing more capacities than non-proponents.

Method
Participants
115 volunteers participated in the study (mean age = 31.15, SD = 13.5, 93 female, 3 undecided). Participants were recruited from two populations: students at the Psychological Department at Stockholm University (n=54), and from the mailing lists of the two animal rights groups “Djurens Rätt” and “Djurrättsalliansen (n=61). Students at the Psychological Department received course credits for their participation. The reasoning for recruiting from animal rights groups were several: to gain a larger sample, a wider distribution of ratings, and to enable group comparisons based on political stance on the issue of animal rights.

Materials
Overview of scales and measures
With the exception of the Humanism and Normativism scale, the other measures of the questionnaire were designed specifically for the study. Four scales were created to represent the stages involved in a GSM: a judgment scale for named animals, a judgment scale for unnamed animals, an attribution scale for named animals, an ordering scale for attribution properties. The scale Affective ratings was created to relate to the SIM.
Operationalization of attribution-judgment schemas

Building on the notion that steps of the schema process can be made explicit, the tasks and scales were built to reflect different steps of the schema. Figure 2 illustrates this below, to the left are the steps of the schemas, with corresponding scales to the right.

<table>
<thead>
<tr>
<th>Schema step</th>
<th>Scale name</th>
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<tbody>
<tr>
<td>1. Assessing the importance of different capacities (attributes)</td>
<td>1. Ordering scale for attribution properties</td>
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<tr>
<td>2. Relating sets of capacities to judgments (attribution-judgment schemas)</td>
<td>2. Judgment scale for unnamed animals</td>
</tr>
<tr>
<td>3. Attributing capacities to the animal in question</td>
<td>3. Attribution scale for named animals</td>
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<tr>
<td>4. Making a judgment based on which attributes the animal is attributed</td>
<td>4. Judgment scale for named animals</td>
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</table>

Judgment scale for named animals

The judgments of different animals were based on Phillips and McCulloch (2005) study, but with different measures and use. As Phillips and McCulloch (2005) study focused on issues of international trade, and how different views about animals and animal treatment might affect that aspect, and the focus here is on moral judgment, a number of changes were made.

The judgment scale presented the names of 13 different animals, and participants made judgments on a 5-point scale regarding if it was morally wrong to kill the animal with 4: “Extremely morally wrong” 3: “Very wrong” 2: “Moderately wrong” 1: “Somewhat wrong” 0: “Not wrong at all”. The included animals were: worm, rat, cow, chimpanzee, fish, dog, guinea pig, jelly-fish, chicken, human, moose, plankton, and fly. The order of the animals was randomized. The animals represented were partly chosen based on the earlier study by Phillips and McCulloch (2005), and partly adapted to reflect a wider range of animals of different capacities.

Ordering scale for attributed capacities

This scale presented five psychological attributes, or cognitive capacities, which could be ascribed to animals. The properties were 1: Independent movement 2: Pain reaction 3: Emotional capacities 4: Memory including emotional memories 5: self-awareness. The participant was tasked with ordering the capacities in relation to how important they were for consideration in the case of killing animals. The capacities came with descriptions

Judgment scale for unnamed animals

---

4 Participants also rated how severe they thought legal punishment of killing the animal should be, on a similar 5-point scale, which was not included for analysis.
Based on the properties presented in the Ordering scale, this scale presented unnamed animals with certain combinations of the cognitive properties. The participant was then tasked to make judgments about moral wrongness and level of punishment for killing the unnamed animals (in the same manner as judgments for named animals).

**Attribution scale for named animals**

Also based on the properties presented in the Ordering scale, this scale presented the same named animals as the Judgment scale for named animals, and tasked participants with attributing variations of the five capacities to the animals. The capacities came with descriptions. Although conceived to be on a given ranking in respect to evolutionary progress, there were no set conditions on how the capacities could be given, and any combination was possible.

**Humanism and Normativism**

The Polarity scale (Tomkins, 1963), here named by its two dimensions Humanism and Normativism was included in the questionnaire as a control for variation related to political ideology, but was later excluded from analysis. The scale used was a translated Swedish version of the scale consisting of 30 statements presented with a Likert scale (Nilsson, 2013).

**Affective ratings (for named animals)**

This scale tasked participants with making affective ratings about the thirteen previously named animals. The scale ranged from 1 to 7, with 1: “I like it very much”, 4: “Neutral”, and 7: “I dislike it very much”.

**Control variables**

The control variables gender, age and level of education were gathered at Time 1 only. Gender was coded as female = 1, man = 2, and no answer = 3. Education was coded as 1-4 with 1 = “grundskola”, 2 = “Gymnasium”, 3 =”Påbörjat högskoleutbildning” 4= “Avslutat högskoleutbildning” (a fifth option “none of the above” was included, but was not used).

**Procedure**

Participants were reached by information regarding the study and then volunteered to participate. Information was posted at the Department of Psychology at Stockholm University, and also spread via news letters to members of the two animal rights groups “Djurens Rätt” and “Djurrättsalliansen”. The two animal rights groups contributed by spreading information about the study to their members. The questionnaire was filled in online, and participants were instructed to minimize distractions and to avoid discussing their answers with others. All participants started with completing the first part of the questionnaire, which included background questions and the Judgment scale for named animals. The first part ended with the participant leaving an email address which was then used to send a personal link to part two of the questionnaire. This link was sent out with a minimum of six days after the completion of the first.

Part two of the questionnaire was made available to participants by the personal link sent to them six days after completion of part one (on average, the time between part one and two was 8.7 days for the student sample). Part two included all of the scales, which also meant repeating the Judgment scale for named animals. Two different versions of part two was created, randomizing the order of the Attribution scale and the Judgment scale for named animals, this was done to test predictions regarding the order of presentation of these two scales. The order of the first four tasks was based on the steps of GSM, made to mimic the
way in which a schema is applied (see Table 1). Condition 1 represents the normal operation of a schema according to GSM, with the four relevant tasks following its order. Condition 2 built on the same base structure, but the order of judgments and attributions for named animals were switched, as would represent their order in SIM. Only the order of the first four steps in condition 1 and condition 2 built on the order of the schema, with the last two tasks (Humanism/Normativism and Affective ratings) simply added to the end. Figure 2 illustrates the order. After completion of the questionnaire participants who were interested in the results of the study were able to leave their email address and comments. After completion of the study an email was later sent out to participants which explained the details and preliminary results of the study.

Figure 2: Order of tasks in the questionnaire, by time and condition

### Results

**Results for primary questions**

Correlations between all variables used as well as their means, SD and, when applicable, their reliability coefficients are presented in Table 2.
Table 2. Bivariate correlation matrix of all variables and reliability (Cronbach’s alpha), means and standard deviations for each variable.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>Alpha</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Education</td>
<td>.241*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Gender</td>
<td>-.076</td>
<td>.038</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Judgments T1</td>
<td>.112</td>
<td>-.108</td>
<td>.006</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.947</td>
<td>3.336</td>
<td>0.917</td>
</tr>
<tr>
<td>5. Judgments T2</td>
<td>.071</td>
<td>-.125</td>
<td>.039</td>
<td>.902**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>.952</td>
<td>3.266</td>
<td>0.898</td>
</tr>
<tr>
<td>6. Judgments unnamed</td>
<td>.096</td>
<td>-.124</td>
<td>-.035</td>
<td>.761**</td>
<td>.825**</td>
<td>1</td>
<td></td>
<td></td>
<td>.897</td>
<td>3.798</td>
<td>0.830</td>
</tr>
<tr>
<td>7. Capacities Attributed</td>
<td>.137</td>
<td>.202</td>
<td>-.096</td>
<td>.555**</td>
<td>.611**</td>
<td>.477**</td>
<td>1</td>
<td></td>
<td>.916</td>
<td>3.290</td>
<td>0.666</td>
</tr>
<tr>
<td>8. Affective Ratings</td>
<td>.247**</td>
<td>.044</td>
<td>-.121</td>
<td>.511**</td>
<td>.492**</td>
<td>.376**</td>
<td>.565**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05; **p < .01 (2-tailed)

Table 3. Means and standard deviations of judgments concerning specific animals. Scores for moral judgments for the animals ranged from 1: Not wrong at all to 5: Extremely morally wrong, regarding the moral wrongness of killing them. Scores for affective ratings ranged from 1: “I like it very much” to 7: “I dislike it very much”, with 4: “neutral”, meaning that scores above 4 indicate negative affect, while scores below 4 indicate positive affect.

<table>
<thead>
<tr>
<th>Animal name</th>
<th>Worm</th>
<th>Rat</th>
<th>Cow</th>
<th>Chimpanzee</th>
<th>Fish</th>
<th>Dog</th>
<th>Guinea Pig</th>
<th>Jellyfish</th>
<th>Chicken</th>
<th>Human</th>
<th>Moose</th>
<th>Plankton</th>
<th>Fly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mean moral judgments T1</td>
<td>2.99</td>
<td>3.14</td>
<td>3.69</td>
<td>4.3</td>
<td>2.88</td>
<td>4.27</td>
<td>3.69</td>
<td>2.66</td>
<td>3.35</td>
<td>4.73</td>
<td>3.69</td>
<td>2.17</td>
<td>2.21</td>
</tr>
<tr>
<td>(1.239)</td>
<td>(1.31)</td>
<td>(1.238)</td>
<td>(0.938)</td>
<td>(1.299)</td>
<td>(0.958)</td>
<td>(1.119)</td>
<td>(1.35)</td>
<td>(1.298)</td>
<td>(0.626)</td>
<td>(1.18)</td>
<td>(1.221)</td>
<td>(1.232)</td>
<td></td>
</tr>
<tr>
<td>2. Mean moral judgments T2</td>
<td>2.42</td>
<td>3.02</td>
<td>3.62</td>
<td>4.35</td>
<td>2.78</td>
<td>4.27</td>
<td>3.56</td>
<td>2.40</td>
<td>3.35</td>
<td>4.76</td>
<td>3.70</td>
<td>2.07</td>
<td>2.18</td>
</tr>
<tr>
<td>(1.199)</td>
<td>(1.304)</td>
<td>(1.225)</td>
<td>(0.918)</td>
<td>(1.303)</td>
<td>(0.872)</td>
<td>(1.171)</td>
<td>(1.183)</td>
<td>(1.305)</td>
<td>(0.601)</td>
<td>(1.069)</td>
<td>(1.175)</td>
<td>(1.136)</td>
<td></td>
</tr>
<tr>
<td>3. Mean number of attributed capacities</td>
<td>1.97</td>
<td>3.79</td>
<td>4.14</td>
<td>4.85</td>
<td>2.78</td>
<td>4.57</td>
<td>3.73</td>
<td>1.50</td>
<td>3.55</td>
<td>4.98</td>
<td>4.00</td>
<td>0.92</td>
<td>1.97</td>
</tr>
<tr>
<td>(1.004)</td>
<td>(0.987)</td>
<td>(0.847)</td>
<td>(0.463)</td>
<td>(1.212)</td>
<td>(0.609)</td>
<td>(1.029)</td>
<td>(0.986)</td>
<td>(1.094)</td>
<td>(0.131)</td>
<td>(0.908)</td>
<td>(0.975)</td>
<td>(1.063)</td>
<td></td>
</tr>
<tr>
<td>4. Mean affective ratings</td>
<td>3.82</td>
<td>3.75</td>
<td>1.93</td>
<td>1.90</td>
<td>2.70</td>
<td>1.48</td>
<td>2.30</td>
<td>4.06</td>
<td>2.10</td>
<td>2.03</td>
<td>2.13</td>
<td>4.42</td>
<td>3.66</td>
</tr>
<tr>
<td>(1.490)</td>
<td>(1.982)</td>
<td>(0.989)</td>
<td>(1.231)</td>
<td>(1.279)</td>
<td>(0.940)</td>
<td>(1.428)</td>
<td>(1.552)</td>
<td>(1.127)</td>
<td>(1.490)</td>
<td>(1.155)</td>
<td>(1.562)</td>
<td>(0.999)</td>
<td></td>
</tr>
</tbody>
</table>


Effects of task framing and order of presentation

The effect of task framing (no attribution tasks at Time 1, attribution tasks at Time 2) and condition (attributions made before or after judgments) on the judgments made for the different animals were investigated within the same analysis. Thus, predictions 1 and 2 were analyzed together. The judgments of wrongness of killing animals (hereafter simply “judgments”) were used as the dependant variable in a 2x13x2 mixed measures ANOVA, with within-subject factors animal (identity) and framing (Time1/Time2), and the between-subjects factor condition (condition 1/condition 2). Mauchly’s test of Sphericity indicated that the assumption of sphericity had been violated for factor animal ($\chi^2(77) = 712,430, p < 0.001$) and for the animal*time interaction ($\chi^2(77) = 207,216, p < .001$). Greenhouse-Geisser was used to correct for non-sphericity. The alpha-values were set to 0.05 for all statistical tests. Significant differences were further examined by post-hoc comparisons using the Bonferroni correction.

The analysis of within-subjects effects showed a significant main effect of framing ($p = 0.011$, $F(1) = 6.75$, $\eta^2 = .056$), a significant main effect of animal identity ($p < 0.001$, $F (4,877) = 184.79$, $\eta^2 = .621$), a significant interaction effect of animal identity*condition ($p = 0.012$, $F (4,877) = 2.99$, $\eta^2 = .026$), and a significant interaction effect of framing*animal identity ($p < 0.001$, $F(9,034) = 7.89$, $\eta^2 = .065$). There was no main effect of condition.

In contrast to Prediction 1, the direction of the main effect of framing on mean values of judgments was that they decreased from Time 1 to Time 2. This was the opposite direction compared to Prediction 1. Regarding the interaction of identity*framing, mean values of judgments were shown to be decreasing for some of the “lower” species of animals from time 1 to time 2. Figure 3 illustrates that the lower mean judgments seen at Time 2 as compared to Time 1 seems to be particularly driven by a select few animals being judged as less wrong to kill. Figure 3 also illustrate the main effect of animal identity, as can be seen in the spread of different animals from “higher” to “lower” on the mean values of judgments.

As can be deducted from Table 3, the order of animals, by mean judgments made at Time 1, from lowest to highest was the following: Plankton, Fly, Jellyfish, Fish, Worm, Rat, Chicken, Cow, Guinea Pig, Moose, Dog, Chimpanzee, Human. In general trends, and across conditions, only the animals Chimpanzee, Human and Moose increased in mean ratings, Dog and Chicken remained the same, and the other animals were judged less wrong to kill at Time 2, as compared to Time 1 (temporarily not addressing the statistical significance of these trends). This means that the indicated general trend was for animals rated with higher capacities to be rated more wrong to kill at Time 2, while animals with lower capacities were rated as less wrong to kill (Moose, Chimpanzee and Human were in the top 4 of mean capacities attributed) (see Table 3 for details).

Changes in mean judgments to animals between Time 1 and Time 2 were followed up with post-hoc tests, investigating the significant interaction of framing*animal identity. Post-hoc Bonferroni-corrected t-tests of the differences between judgments of the animals at the two times were made. These yielded two significant differences: for the animals worm ($t(114)= 8.08, p <0.000$) and jellyfish ($t(114)= 3.21, p =0.002$). Judgments for these two animals were significantly lower at Time 2 as compared to Time 1. Some animals displayed trends of the same direction, with rat ($p =0.08$) and guinea pig ($p =0.083$) being closest to significance. Visual inspection of Figure 3 also illustrates this point.
In contrast to Prediction 2, there was no interaction effect of condition and framing (Time 1 / Time 2) that would indicate that the conditions affected judgments differently. There was also no main effect of condition, that would have indicated that groups chosen for the different conditions made judgments differently. However, the interaction effect of condition*animal identity relates to Prediction 2. The significant interaction was followed up by post-hoc comparisons of the individual animal judgments for condition 1 and condition 2. Post-hoc Bonferroni-corrected comparisons yielded no significant differences (although one difference would have been significant at an uncorrected alpha level, for the animal fish, at $p = 0.028$, in the direction of lower mean judgments at condition 2). Though none of the post hoc comparisons proved significant, inspection of mean scores indicated that the difference was that for the group which was selected for condition 2, animals with lower capacities were rated as less wrong to kill, while the three animals with the highest capacities were rated as equally or more wrong to kill, in comparison to condition 1. However, as this effect existed for both Time 1 and Time 2, it did not seem to be caused by the introduction of conditions at Time 2, but rather indicated group differences.
Following up the differences in judgments in groups in condition 1 and condition 2, post-hoc Bonferroni-corrected comparisons of the two groups in relation to attributed capacities and affective ratings (as these were hypothesized to affect moral judgments) showed that the groups were significantly different. The two groups were significantly different in attributing capacities, with participants in condition 1 giving animals a higher number of mean capacities ($t(113) = 2.91, p = 0.004$). The groups were also trending in difference in regards to affective ratings, although just barely not significantly different.

Inserting age and sex in the ANOVA used here did not produce any significant main or interaction effects related to these two variables.

Figure 4. Mean values for judgments made for animals, sorted by highest to lowest, comparing condition 1 and 2.

In order to examine if the results would be affected by attributing capacities to and rating affect towards the animals these two factors were also entered into a second ANOVA as covariates (using mean scores for all animals together), with all other factors equal to the first. The analysis showed significant between-subject effects of attributed capacities ($p < 0.001$, $F(1) = 25.709, \eta^2 = .188$) and affective ratings ($p = 0.004$, $F(1) = 8.66, \eta^2 = .072$). Further, there were significant interaction effects between attributed capacities and animal identity ($p = 0.001$, $F(5,229) = 7.68, \eta^2 = .038$), affective ratings and animal identity ($p = 0.001$, $F(5,229) = 4.12, \eta^2 = .036$), and a three-way interaction between attributed capacities*animal identity*framing ($p = 0.017$, $F(9,091) = 2.24, \eta^2 = .020$).
Also, the inclusion of the two factors “attributed capacities” and “affective ratings” decreased the effects of the first ANOVA: the main effect of framing (p = 0.028, F(1) = 4.96, eta² = 0.043), the main effect of animal identity (p = 0.001, F(5,229) = 4.12, eta = 0.036), and the interaction of animal identity and framing (p = 0.033, F(9,091) = 2.02, eta² = 0.018). The interaction effect of animal identity and condition was no longer significant.

Results concerning predictive power

Predictive power of unnamed animals on named

As the judgment scale for unnamed animals only consisted of judgments for five scenarios with additive capacities (1: animal with independent movement, 2: animal with independent movement and pain reaction, 3: animal with previous capacities and emotional capacities, 4: animal with previous capacities and memory, 5: animals with previous capacities and self-awareness) it relied on participants following this particular order when giving attributes to named animals, to facilitate comparison with judgments for named animals. Many participants diverged from this order, however, making such planned comparisons impossible. There was, in general, no commonly used systematic to how capacities were attributed. Further, the ranking of capacities on the ordering scale for attributed capacities also showed a lack of a common systematic, although pain reaction was ranked as the most important capacity in relation to moral judgments by most, with a majority of 62.6% ranking it as most or second-most important capacity. In total, the answers included 40 different combinations of orderings of the five capacities. None of the orderings were used by more than 10 participants (8.7% of total).

Because of the lack of a commonly used systematic in attributing capacities, animal-to-animal comparisons were not possible. Instead of the planned comparison of animal-to-animal, a comparison using sum scores of average judgments for named animals and sum score of average judgments for the unnamed animals (only having combinations of capacities) was made. Earlier correlations (Table 2) hinted at high shared variance between named and unnamed animals with sum scores of judgments for unnamed animals correlating at .761 (p < 0.01, R² = 0.579) with named animals at Time 1 and correlating at .825 (p < 0.01, R² = 0.681) with named animals at Time 2.

Partial correlations were then calculated between the judgments for unnamed animals and judgments for named animals (for both Time 1 and Time 2), partialling out the variation related to Affective Ratings. This was done in order to control for the possible influence that affective ratings towards animals would have over the relation between judgments for named and unnamed animals. The correlations remained significant, only dropping slightly, with sum scores of judgments for unnamed animals correlating at .715 (p < 0.001, R² = 0.511) with named animals at Time 1 and correlating at .794 (p < 0.001, R² = 0.630) with named animals at Time 2. Thus both correlations remained significant, and at both Time 1 and Time 2, more than half of the variation for the named animals could be explained by variation for the unnamed animals.

Predictive power of attributions and affective ratings

For the predictions 4 and 5 analyses were carried out with regression analysis, using judgments made concerning wrongness for killing animals (using mean score over all animals) as dependent variable and Attributed Capacities and Affective ratings as independent variables (Judgment scale for unnamed animals was also inserted, to be controlled for, in a preliminary model).
The significant correlations between mean judgments made for named animals and mean number of attributed capacities in Table 2 were followed up by regression analysis for the different conditions. As there were indications that participants chosen for condition 1 and condition 2 differed as groups already at Time 1 separate regression analyses were carried out. This meant calculating four separate regression analyses, one for each time and condition. All of the four analyses were calculated using mean scores for judgments for all named animals as dependent variable, and sum of attributes given as independent variable, while controlling for mean affective ratings. These regression analyses address predictions 4 and 5. As the summed scales of judgments made at Time 1 and Time 2 both showed some indications of skewness, a test of normality was conducted, and both scales were non-significantly different from a normal population by Kolmogorow-Smirnov and Shapiro-Wilk measurements, thus the scales were used as they were, without any transformation.

Table 4 shows the first regression analysis, calculated for judgments made at Time 1. As the predictors used here were not introduced at Time 1, but only later at Time 2, the regression can be seen as a “retrospective” prediction. The regression analysis was made in two steps, first including only the factor “Attributed Capacities”, then in model 2 including the factor Affective Ratings. Attributed Capacities and Affective Ratings were both significant predictors for the Condition 2 group, but not for the Condition 1 group. The difference between Model 1 and Model 2 illustrate how the predictive power of the factor “Attributed Capacities” changes as the factor “Affective Ratings” is introduced, showing that the two factors shared some variance. Comparisons between the predictive power of “attributed capacities” for condition 1 and condition 2 groups, in model 2 (using beta weights), showed a significant difference ($t(113) = 2.46, p < 0.05$). Further, the difference in significance of the factor “affective ratings” in the condition 2 group as compared to condition 1 group was also an indication of group differences. This meant that the groups differed already before they were subjected to different conditions, complicating any comparisons and directly relating to Prediction 5.

Table 4. Regression analysis with judgments at Time 1 as dependent variable (per condition), showing standardized beta weights.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Condition 1 Model 1 (n=65)</th>
<th>Condition 1 Model 2 (n=65)</th>
<th>Condition 2 Model 1 (n=50)</th>
<th>Condition 2 Model 2 (n=50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attributed Capacities</td>
<td>.536***</td>
<td>.416**</td>
<td>.553***</td>
<td>.388**</td>
</tr>
<tr>
<td>Affective Ratings</td>
<td>.186</td>
<td>.411***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R2 adjusted</td>
<td>.276***</td>
<td>.285***</td>
<td>.291***</td>
<td>.429***</td>
</tr>
</tbody>
</table>

**p<0,01, ***p<0,001

Table 5 shows the following two regression analyses, calculated for judgments made at Time 2, also comparing the two different conditions and Time 2. The same procedure was used as for Time 1, using judgments for named animals as dependent variable, and sum of attributes...
given as independent variable, while controlling for affective ratings. The same procedure was used as for Time 1, with two models. Attributed capacities was the only statistically significant predictor, with Affective Ratings non-significant (however trending at 0.094 and 0.061, respectively). Follow-up t-tests showed that there was a significant difference between the predictive power of attributions for Condition 1 and 2 (t(114)=4.65, p < 0.001) with Attributed Capacities accounting for more variance at condition 2.

Table 5. Regression analysis with judgments at Time 2 as dependent variable (per condition), showing standardized beta weights.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Condition 1 Model 1 (n=65)</th>
<th>Condition 1 Model 2 (n=65)</th>
<th>Condition 2 Model 1 (n=50)</th>
<th>Condition 2 Model 2 (n=50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attributed Capacities</td>
<td>.581***</td>
<td>.436**</td>
<td>.637***</td>
<td>.548***</td>
</tr>
<tr>
<td>Affective Ratings</td>
<td>.225</td>
<td></td>
<td>.226</td>
<td></td>
</tr>
<tr>
<td>R2 adjusted</td>
<td>.327***</td>
<td>.346***</td>
<td>.393***</td>
<td>.426***</td>
</tr>
</tbody>
</table>

**p<0.01, ***p<0.001

A comparison made between Time 1 and Time 2, collapsing the two conditions into one, indicates that the predictive power of Attributed Capacities increased from Time 1 to Time 2. Further, the predictive power of Affective Ratings decreased somewhat from Time 1 to Time 2. Post-hoc t-tests confirmed this, with a significant difference between the power of the predictor attributed capacities (beta values) at Time 1 and 2, showing that attributed capacities increased in predictive power at Time 2 (t(114)= 7.43, p < 0.001). Further, the predictive power of Affective Ratings showed the reverse relations, with post-hoc t-tests showing that the predictive power decreased significantly from Time 1 to 2 (t(114)=6.69 , p < 0.001). Further, it appears that the factors Attributed Capacities shared some variance, indicating that there could be common underlying factors to some degree. However, despite the lowered beta values of attributed capacities at both Time 1 and Time 2 when Affective Ratings were introduced in model 2, as compared to model 1, the predictor remained highly significant. The adjusted r-square for both Time 1 and Time 2 also showed that while the models predicted a significant amount of variation, the factors combined accounted for 35 -39 percent of the total variation.

Prediction 6

**Political stance differences**

---

An alternative model was calculated using judgments for unnamed animals as a predictor representing a “general attitude” towards animals. This model showed similar results as the one presently used, but also indicated that Attributed Capacities remained a significant predictor even when judgments for unnamed animals was included in the model as a factor representing a “general attitude”. The alternate model factors accounted for an explained variation of 64-74 percent.
The question items "Are you active in animals rights debate, such as message boards etc" and "What do you think of the present animal rights legislation" were combined to create a group split with participants who were actively involved in animals rights and also wanted legal changes to increase animal rights (more than in minor details). The group split created two groups of relatively equal size, with 47 active animal rights proponents and 68 “non-proponents”.

Independent samples t-test comparisons between the groups were conducted for the factors Attributed Capacities, Affective Ratings, Judgments made at Time 1, and Judgments made at Time 2. The two groups showed significant differences for the factor Attributed Capacities \((t(113)=3.27, p = 0.001)\), Affective Ratings \((t(113)=4.71, p < 0.001)\), Judgments made at Time 1 \((t(113)=4.72, p < 0.001)\), Judgments made at Time 2 \((t(113)=3.88, p < 0.001)\). The four significant effects were in the direction of animal rights proponents judging animals as more wrong to kill at both Time1 (mean 3.8 compared to 3.01) and Time2 (3.64 compared to 3.0), attributing animals with more capacities (mean 3.55 per animal, compared to mean 3.15 per animal) and having more positive affective ratings towards animals overall (2.09 out of 7 in reverse-scored scale, compared to 2.77), as compared to non-proponents of animal rights. A Bonferroni correction did not eliminate any of the significant effects.

Regarding the predictive power of the attributes, a similar model was used as previously. This time both predictors “Attributed Capacities” and “Affective Ratings” were added from the start. Different conditions at Time 2 were collapsed into one score, as the two groups were evenly split between the conditions. The analysis was conducted separately for the two groups and times. Table 6 illustrates the results of the regression analysis. Attributed capacities remained a significant predictor of moral judgment throughout both Time 1 and Time 2 for both groups. Comparing the power of the predictor Attributed Capacities (beta values) at Time 1 between groups showed that Attributed Capacities was a significantly more powerful predictor for non-proponents than proponents at Time 1 \((t(113)= 6.42, p < 0.001)\). Using the same comparison for Time 2, Attributed Capacities was a significantly more powerful predictor for non-proponents than proponents there as well \((t(113)= 8.78, p < 0.001)\). Affective ratings only reached significance as a predictor for the animal rights proponents group, and only for Time 2, with non-significant trends for judgments at Time 1.

Table 6. Regression analysis with judgments at Time 1 and 2 as dependent variables (per group), showing standardized beta weights.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Rights Proponents</th>
<th>Rights proponents</th>
<th>Non-proponents</th>
<th>Non-proponents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=47)</td>
<td>(n=47)</td>
<td>(n=68)</td>
<td>(n=68)</td>
</tr>
<tr>
<td>Time 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attributed Capacities</td>
<td>,366*</td>
<td>,429**</td>
<td>,400**</td>
<td>,511***</td>
</tr>
<tr>
<td>Affective Ratings</td>
<td>,267^</td>
<td>,283*</td>
<td>,196</td>
<td>,117</td>
</tr>
<tr>
<td>R2 adjusted</td>
<td>,262***</td>
<td>,347***</td>
<td>,260***</td>
<td>,318***</td>
</tr>
</tbody>
</table>

*p< 0.05, **p< 0.01, ***p<0.001, ^trend p<0.10
Discussion

Predictions

The purpose of this study involved examining three related aspects: how the introduction of tasks relating to attributions affect moral judgments, the predictive power of attributions on moral judgments, and the possible relation between related political stance and moral judgment. These three aspects were related to their respective predictions, which will first be discussed in some detail. Synthesizing the results of the predictions, findings will then be analyzed in terms of contrasting SIM and GSM, followed by general conclusions.

Prediction 1: Effect of task framing

The significant difference between judgments made at Time 1 and Time 2, with both a significant main effect and an interaction effect with animal identity (framing*identity), suggests that there was an effect of framing or context. Overall, animals were judged as less wrong to kill at Time 2, as they were given lower mean scores than at Time 1. More specifically, the trend that applied to the judgments was that the highest capacity animals were not affected by this decrease and that the decrease in moral wrongness in killing animals from Time 1 to Time 2 was limited to “lower” animals.

This was not the hypothesized “perspective-taking” effect of Prediction 1. An overall perspective-taking effect would have predicted more “empathic” ratings, in this case higher mean judgments, at Time 2, which is the reverse effect of what was the case here. Normally, perspective-taking makes participants more empathic towards the subject, as one is reminded that one is equal or similar to the subject. However, given that this “reversed” perspective-taking effect occurred for the “lower” animals, and not the “higher”, it could be evidence of the same kind of effect, applied to a new context. This reversed perspective-taking effect could perhaps be the caused by participants being reminded how dissimilar they were to the subject, rather than how similar they were (the animals in question were rated with fewer human-like capacities) and then feeling less empathic towards the subject. The normal perspective-taking effect is found for humans taking the perspective of other humans, and it may apply differently to taking the perspective of an animal, especially when the animal is attributed fewer human-like capacities. It is possible that the difference between Time 1 and Time 2 was caused by making repeated measurements, and not the change in context of the measurements. Further studies will have to be made with more conditions to examine this.

As the findings here are novel, a reversed perspective-taking effect was not predicted by SIM or GSM. Both SIM and GSM can explain perspective-taking of the standard form, however, and thus could possibly also explain this reversed effect, if it can be seen as being of the same nature. For GSM, perspective-taking is a natural part of development and learning moral rules (Hoffman, 2001), and for SIM the private reflection link relates to perspective-taking and could reasonably explain the results. The difference between Time 1 and Time 2 cannot be used here to compare SIM and GSM, Instead, the effect of framing complicates rather than differentiates between SIM and GSM, as it could indicate that there are, to some degree, different processes taking place at Time 1 and Time 2 (as a results of different contexts/framing). Such an interpretation would fall in line with research on dual-process models (Greene et al., 2007) and the use of system 1 and system 2-processes. It could also be a matter of participants using different strategies or heuristics for making judgments, or different schemas activated in different contexts.

Prediction 2: Effect of order of presentation
Regarding the different conditions, and prediction 2, the ANOVA showed no significant interaction effect of framing (time 1/ time 2) and condition, such that participants in condition 1 would make more empathic ratings at Time 2, but not Time 1, as compared to participants in condition 2. There was no main effect of condition, meaning that there was no significant general difference between judgments made for all animals at condition 1 and condition 2. This means that neither the prediction based on SIM or on GSM was confirmed.

A significant condition*animal interaction showed that there were significant differences for some animals between the condition groups, however the difference observed for both Time 1 and 2. The interaction appears to indicate that the groups differed in the spread of the judgments they made, with the condition 1 group having a lower spread than the condition 2 group. As this effect was seen for both Time 1 and Time 2, it indicated that the groups were different even before they were split into the two conditions, thus there is no evidence for an effect of the conditions themselves, and the variation of presentation order. Further, the effect was small, and none of the individual t-tests of animals proved significant at Bonferroni-corrected p-values.

**Prediction 3: Predictive power of unnamed animals (generalizations)**
The originally planned comparisons between judgments made for named animals and unnamed animals on an animal-to-animal basis (with animals of the same attributes) were not possible. The comparison had built on the assumption that capacities would be attributed in an exclusively step-wise manner, starting with the “lowest” capacity and building upwards, so that no “higher” capacity would be attributed without the preceding “lower” capacities. No general pattern for the ordering scale of attributes or for the attributing of different capacities was found, however. This may indicate that different participants use different kinds of capacities in making judgments, that the list of five capacities used here was too incomplete, or that there is no underlying systematic in which participants assign cognitive capacities at all.

The analysis using sum scores of average judgments for named animals and sum score of average judgments for the unnamed animals, while not ideal, did show a significant relation between judgments made for named and unnamed animals. The partial correlations calculated showed that the kinds of judgments were highly correlated at both Time 1 and Time 2, which would fall in line with the predictions of GSM, and not SIM, and could be an indication that actual judgments are based on generalized judgments.

Using sum scores is not ideal, however, and interpretations may be problematic. It could be argued that the large correlation indicate another underlying factor, such as a general care for animals not based on affection towards the identified animals in question. Using the moral judgments for unnamed animals to indicate such a general factor is a possibility, and this use was also employed here, although not in the main analyses. Also, an argument could be made regarding the causation, in that judgments for named animals at Time 1 were made before any judgments were made for unnamed animals, and the judgments made for named animals were remembered and used to make judgments for unnamed animals. Arguably, it is unlikely that such detailed information would be remembered.

**Prediction 4: Predictive power of attributions and affective ratings (overall)**
At Time 1 attributed capacities was more significant as a predictor than affective ratings. Even more clearly, at Time 2 attributed capacities was the only significant predictor of the two, at both conditions. This indicates that, overall, attributed capacities was the more
powerful predictor. Given these findings predictions based on GSM gain some support, while predictions made by SIM do not. Overall the increase in predictive power of attributed capacities, together with the decrease of predictive power of attributed capacities from Time 1 to Time 2 indicate an effect of framing on predictive power.

**Prediction 5: Predictive power of attributions and affective ratings (at conditions)**

There was a significant difference in the predictive power of attributes given between conditions 1 and 2; however, differences between the groups existed already at Time 1, before they were subjected to different conditions. This indicates that any supposed effect of condition was really an effect of an uneven group randomization. Further, regarding differences between the two groups or conditions, it should be noted that the wider distribution of judgments for the condition-2 group, as seen in the ANOVA (see Figure 4), could inflate the predictive power to some degree. Further, causality cannot fully be examined here.

Prediction 6: attribution and judgment in animal rights proponents.

The qualitative accounts of Gålmark (1998) were partly confirmed, as animal rights proponents attributed animals with significantly more capacities than non-proponents, as well as judged the animals as more wrong to kill. However, it remains unclear if attributions are one of the root causes of division over the animal rights issue, as attributed capacities was a stronger predictor of the moral judgments of non-proponent’s rather than proponents. This could be caused by a ceiling-effect, however, as animal rights proponents attributed several animals with the maximum amount of attributes, thereby possibly reducing the variation of this measurement. Further, animal rights proponents judgments were also more related to the Affective Ratings which were made, which could indicate that animal rights proponents do not just feel more positive affect towards animals, they are also more affected by their affect when making moral judgments, as compared to non-proponents. For both groups, Attributed Capacities remained the strongest predictor, however.

Contrasting SIM and GSM (Affective Ratings and Attributed Capacities)

In the present study only predictions three through six can be used to contrast SIM and GSM. Of these, all point towards the same conclusion, that Attributed Capacities was a highly significant predictor, while Affective Ratings was only significant at Time 1, or for subgroups. If prediction 1 can be used to compare SIM and GSM may be the subject of debate, as it depends on if the effect of framing is to be seen as a form of perspective-taking. In regards to prediction 2, the two conditions could have been used to address the notion of causality, and given either support or arguments against the notion that attributions are “post-hoc rationalizations”, as hypothesized here by SIM, if the randomization had not produced two groups which were unequal already at Time 1. The ANOVA which included Attributed Capacities and Affective Ratings, and was carried out in relation to prediction 1 and 2, however, point towards Attributed Capacities as being the most powerful factor, even when animal identity and Affective Ratings were also included.

The attributed capacities at Time 2 were even significant predictors for judgments made at Time 1, where no mention of attribution of capacities was made (even when judgments for unnamed animals was used to control for a “general attitude” towards animals). The significant effect of framing indicates that making participants aware of the possible use of attributions enhance their predictive power. However, the causality of the underlying process is difficult to draw conclusions about. On the one hand the finding that predictive power of attributed capacities remained strong even at Time 1, even when participants were not in any
way instructed to make them, could be indicating that attributions were implicitly made at Time 1. On the other hand, this could also be indicative of other common factors. More experimental conditions need to be introduced to examine this.

That affective ratings were made much later in the questionnaire, in relation to the judgments, than the attribution of capacities should be taken into account. Yet the fact that both predictors were tested also for Time 1, when none of the predictors had been introduced, and that conditions varied when making attributions, can be seen as a control for possible order effects. Given that the inclusion of the factors Attributed Capacities and Affective Ratings still leaves variance in moral judgments unaccounted for, even when including animal identity and political stance, indicates that there could be more factors that are relevant to moral judgments, or that the factors used could be better operationalized.

The finding that the factors Attributed Capacities and Affective Ratings had some shared variance could indicate that they are both somewhat related to a common confounding factor. If the two factors are indeed related as an implication it would become more difficult to disassociate GSM from SIM predictions. As mentioned earlier, the division of reason and intuition or facts and values can often blur, and attribution of capacities could be likely to relate to affective ratings in the way that the display of certain capacities bring about certain affective reactions. Attributed Capacities contributed with its own variance to such a high degree, however, that it should stand as a separate factor, despite some shared variance.

In general the main results in comparing SIM and GSM is the predictive power of attributions on moral judgments, and the findings here converge on the notion that attributions are strongly related to judgments about the moral wrongness of killing animals. The strong relation between attributions and judgments might indicate that SIM have limitations. If attributions are best modeled as the sort of schema-process suggested here by the GSM, then developers of SIM may need to consider making additions to the model or otherwise explain the effects of non-emotional identity-independent processes such as generalized schemas of attributions. It is possible that elements of GSM can be integrated into SIM. Such an integration could synthesize elements in similar ways as the Dual-process (Greene, et al., 2007) have synthesized intuition and reason as different and competing processes.

**Limitations**

Generalizations to general populations may be problematic because of the non-representative sample used here. First, attitudes towards treating animals varies between cultures (Phillips & McCulloch, 2005), indicating that moral judgments concerning killing animals would as well. Second, as participant involvement is based on voluntarism there may be selection bias due to drop-out and initial involvement. This may have lead to skewed proportions of male/female ratios and age groups. Third, the study recruited more animal rights proponents and students than is representative for a national population. The number of people who want to give animals more legal rights are still considered a minority of the total populace (Phillips & McCulloch, 2005), and it was necessary to recruit from animal rights groups in order to recruit a high number of participants with this political stance. This was done to enable comparison between participants who actively want increased animal rights, and those who do not. Both proponents and non-proponents of animal rights showed similar behavior when compared as different groups, showing that attributions was a significant predictor regardless of group. This could indicate that even though the groups were significantly different in their ratings, it was a matter of degree, and not of completely different mechanisms.
Terminology may be a barrier for comparisons, and it should be noted that “attributions” and “cognitive capacities” have very specific uses here. Differences between low-level perceptual attributions and the higher-level conceptual attributions used here could be made more clear. The use of sum scores, instead of individual scores, should merit caution when it comes to conclusions. Group-level tendencies, rather than analysis of specific animals, should be the appropriate level of discussion. As the operationalization did not specify exact scenarios, it should be noted that the attitudes and judgments expressed are general, and that they may vary in relation to context.

SIM as a model of moral judgments is not fully represented by the operationalization of affective ratings towards animals. However, it was here simply held that in a comparison between attributed capacities and affective ratings, SIM would predict that affective ratings would be the most powerful as a predictor of moral judgments. Further, that SIM has not yet explained attribution processes, as conceived here, other than as possible post-hoc rationalizations, may simply mean that this aspect has yet to be covered by the model. As such, the interpretation of findings here should remain open to future debate, and to future development of the model. GSM, while producing contrasting predictions to SIM, should not be seen as a complete stand-alone model, but rather as an operationalization of a schema.

**General Conclusions**

After introducing tasks relating to attributions in the questionnaire at Time 2, judgments changed significantly compared to Time 1. The change in judgments, while not directly predicted by general accounts of perspective-taking such as Hoffman’s (2001), could represent a similar and reversed effect, leading to less empathy for animals less humanlike. The significant differences in judgments between Time 1 and Time 2 is consistent with the notion that different task framing can promote differently the use of system 1 or system 2 processes (Rabbitt, 1997). That there were differences in how the judgments were made is further supported by the change of predictive power of the factors Attributed Capacities and Affective Ratings in relation to judgments at Time 1 and 2. It is possible that the reversed perspective-taking effect can be seen as evidence of more system 2 processing at Time 2, when the context was more friendly to system 2 processes, although retest effects can also be a cause. As there is insufficient data to draw final conclusions on the matter of system 2 processing, it should simply be concluded that the framing can have some effect on judgment, even when judgments are made on the same scale with the same instructions. This is in accordance to dual-process experiments (Greene, et al., 2007), and that different framings of a task may lead to different judgments must be considered when attempting to draw general conclusions about how moral judgments are made.

Overall the findings of the present study indicate that attribution of cognitive capacities is related to moral judgments about the wrongness of killing animals. This falls in line with the qualitative accounts presented by authors such as Gålmark (1998), although it remains unclear of attribution is the cause for disagreement on the animal rights issue. In relation to Phillips and McCulloch (2005) study, the effects, while not directly comparable due to the use of different scales and different areas of application, point in the same direction. For the larger field this opens up the possibility that attribution processes can play a significant part in modeling how moral judgments are made. Critics of SIM and promoters of SIM may both find the role of schemas and attribution processes worth considering. As SIM already deals with cultural and group influence and aspects of internalization, it is possible that the use of schemas can be explicitly worked into the model. However, as generalized schemas and affectively-laden intuitions, as modeled here, contrast on several levels, the two produce
opposing predictions, in a similar but not equal way that the Dual-process Theory produces opposing predictions depending on which process is used (Greene, et al., 2007). Although the schemas of attribution and judgment, as modeled here, may fall between the dichotomy of system 1 and 2, they use generalized features, and as such can be seen as being less case-dependent than intuitions, and thus, to some degree, more “rational”.

While attribution-judgment schemas may not necessarily provide an alternative model to SIM, or prove that rational deliberation is what changes moral judgments, it addresses Bloom’s (2010) critique about how morals have changed in a “progressive” manner; as increased knowledge and perspective-taking leads to attribution of capacities similar to ones own to other humans and even animals, the change in attribution can cause changes in judgments. In theory, this could mean that the historical change of more inclusive rights has depended on changes in the attribution of more “self-like” cognitive capacities to other humans and animals. In practice, the present study can provide new approaches and methods of testing and comparing models. There are alternate ways to operationalize and compare models, such as exemplified here by degree of generalization, and the causal role of different steps of a process. Such alternate levels of comparison stress that there are other fruitful methods of comparison than using the notion of system 1 and system 2 processes. While this does not resolve the underlying conflict in the field of two competing “schools” of models of moral judgment, it may move the battle, or redraw the battle lines.

**Future studies**

Regarding the different models of moral judgment, and SIM, forthcoming studies should investigate either how such models could explain the role of attributions other than as post-hoc phenomenon, or if additions to the models should be made. As mentioned earlier, synthesizing theories could become an option. GSM, while not being a complete model of moral judgment, should serve as an example of aspects which need to be considered. Further, it should be possible to create new operationalizations, in which SIM should yield testable predictions in opposition to contrasting models of moral judgments. This could mean novel approaches to more fully operationalize SIM with all its elements, rather than the limited affective ratings used here. Relating to the development and operationalizations of SIM, future studies should investigate other ways to make testable predictions, other than using broadly defined “intuition versus reasoning” concepts. Other concepts could include the degree of generalization of judgments, and investigate when judgments are made based on general rules or individual cases.

Building on the present study, the reversed perspective-taking effect should be examined, in order to replicate findings. As this effect should exist when participants imagines the perspective of a moral subject who is not as similar to them as other human beings, and has less human-like capacities, it would follow that future studies test this effect in relation to other organisms of different abilities. Regarding the causality of making moral judgments, more conditions could be employed to examine their relations. For instance, conditions in which attributions are made without any kind of prior moral judgments, to ensure that the relation between the two is not post-hoc rationalization. In regards to moral judgments about killing animals, other operationalizations could be explored, using different capacities, or different methods of introducing capacities. The possible role that different kinds of attributions may play in other moral judgments must be further explored. This would mean examining other cases of moral judgments than general attitudes towards killing animals, and even non-moral judgments. Other areas of inquiry may be judgments regarding political decision, punishment, voting, and legal issues.
References


