

# Moral Biases and Decision: Impact of Information System on Moral Biases

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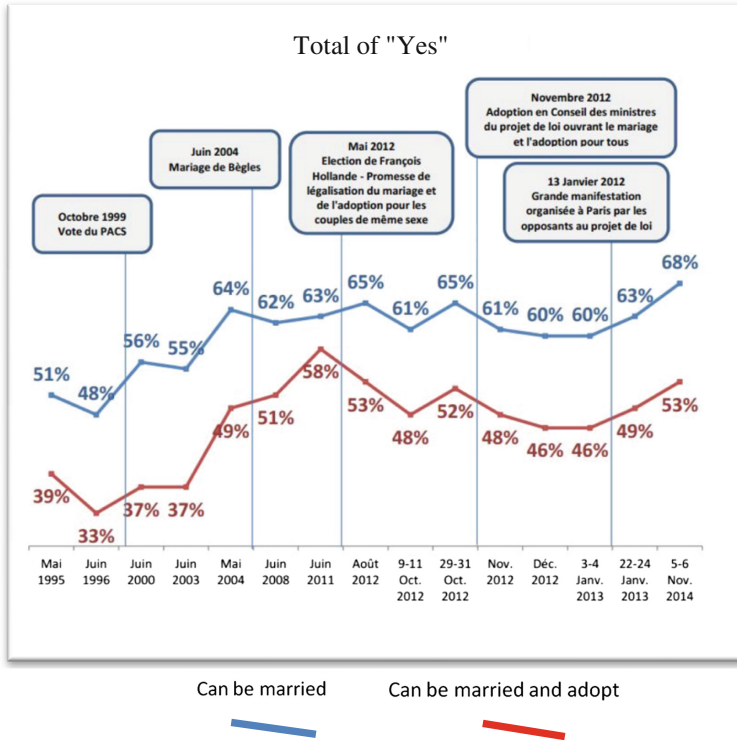
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**Abstract.** The aim of this work, is to find a better way to understand an information system that take into consideration agent's through moral system, words, image, appeal to culture or religion, in order to correct to some biases observed in polling in France during the same-sex marriage debate. This approach will thus, in diverse and multicultural societies, provide to managers or politicians with a better definition of problems, to better predict the behavior of individuals when the efficiency of the decision taken and the possible opposition it can generate. In this way, they can build an information system capable of correcting the deviation from the expectations of agents. We could consider that this component would be the main one in decision-making during the passage of the law. We can then assess the value of this component in the calculation of expected utility as developed by Harsanyi. We can easily show that when the information system is corrected, the actors can then adhere to processes that would be in opposition to their moral principle or religious values due to the fact that in reality the lack of information has caused the appearance of this moral utility in decision-making based in principle on a single dominant component.

**Keywords:** Information · Harsanyi · Social representation · Central person-age · Neuroscience

## 1 Introduction

Very recently, we see in France, despite strong adherence to the values of the republic ring fenced the equality of citizens, and despite full adherence to these values, many citizens have struggled through many means either the web 2.0, policy actions or public events against the law that allows same-sex marriage [1]. If this law was voted smoothly in many other countries, in France many people and political parties still require the removal of this law. The reason given by the majority is mostly religious or even moral. This moral bias has imposed many politicians to make decisions that go against the principle they stand for as a representative of the republic. This moral bias is greater than the expected utility predicted in the rational approach that would be normally the well-being of all.



**Fig. 1.** Evolution of poll for same-sex marriage in France

Socrates said each of us contributes to his own happiness. Every citizen must be able to appreciate the decision elements to be considered in various social contexts which, luckily, it was not directly confronted (euthanasia, death penalty, resistance to ideological pressures, etc.). According to this basic consideration, we can see that the French citizens have now accepted maxim of Socrates. However a minority still remain opposed to the underlying issues such as adoption for this issue itself or on partisan positions. Indeed, 68 % of French are now favorable to marriage for all, and 53 % to the adoption by homosexual couples [2] (Fig. 1).

In order to comprehend these positions more clearly, it seems to us essential to understand how changing the environment or social representation in which the agent is located, can affect this agent. This could be placed on the main work on the social representation of Moscovici [3] and Abric [4] which are quite relevant to this study. Kohlberg's model [5, 6] will enable us to understand the meaning of moral and social development of an agent. Although critics are issued on this basic model, it remains satisfactory in our approach and in line with our vision of the decision-making actors in this social confrontation and to better track the game theory, including bringing our interest to know the Harsanyi approach that will consider the moral issue is closely linked to the decision, when it is not only rational [7, 8]. To bring some rational explanation to our point of view for this singular position in French polling, we will

take consideration of the work of Durkheim [9]. Obviously, the French singularity can be understood from the collective consciousness in France, it makes better explanation for the stage or representation that would be dominant in France.

## 2 Social Representation and Moral Judgment

The concept of Moscovici's social representation [3] is significant in many ways, first by dedicating this notion as a crucial element in which an individual is enrolled in the institution, in a consensual reality and in the orientation of his communications or in his behaviors. This new form of study allows to globalize our approach to the individual by analyzing the information, values and opinions that he enjoys and coupling to external parameters which it is subjected such as norms or rules. In this way, J-C. Abric has defined the central core theory which shows that social representation is organized around a structural nucleus in connection with social representation of a society and its history [4]. This core is usually collectively shared, it defines the principle of a community as relatively stable, which gives it certain properties such as resistance to change. There are around this central core, a peripheral elements that are unstable, that evolve around the central core, which can contribute to the adaptation of representation in various social contexts, they will serve as particular interface with other social representations or other communities and can be mediators or can relay certain messages or information. Abric shows that social representation has useful functions including the membership of individuals to a given representation, a function that allows to know, to understand and explain reality. It also serves a purpose to set place of communication and social interaction, a social identity function that will preserve the specificity of social groups and keep socializing, a guidance function, which allows the production of expectations but also to decide in a particular social context and finally, a justificatory function that will be used to justify our choices and attitudes. Ultimately, a social representation allows to an agent to interpret the reality and understand new phenomena enabling their integration in socially and culturally shared mental framework, consistent with systems of values, judgments, beliefs, opinions. It also guides our behavior and our practices and interactions with others, developing a social identity, identification of the agent to one (or more) group and backup of the specificity of social groups. It finalizes our behaviors and allows to justify our attitudes in a given situation, with regard to society in general or in respect of their partners or their membership to social communities.

From above, and to understand why a person may choose a particular social representation, the information framework that he consider and therefore the decisions that he will take, we think essential to know the evolution of the individual within the organization and why it can be part of a particular representation. To permit this analysis, we link this work with the development of Kohlberg's model based on six stages grouped by two into three distinct levels [5]. The first level is that of a first-time character of the person decides according to its own interests and risks. There are two stages within the second stage, the aim is to maximize personal gain by avoiding penalties and possible retaliation. At the second level of moral development, the group is dominant and morality becomes that of the group or of a society. In stage 3, the reference group becomes the family, the network or close friends, in this spirit, loyalty, shared values, and mutual trust become the

main criteria for evaluating social behavior. In stage 4, the approach is compared to the national community or to the whole society, the agent must then comply with the laws, rules and norms of a society. It is this condition that ensures the well-being of individuals. We find that in our analytical work according Harsanyi [7], it is at this stage that the “conventional” moral value or ethic is at its highest. Finally, the third level allows an agent to be in an unclear social representation in the light of stage 4, standards become blurred in many respects, the point of view of the individual puts into perspective some of them. In stage 5, the individual is capable of raising his consciousness to comment on the laws and want to change them in some cases. They accept in the name of a social contract to join the majority of a decision provided if there is no opposition between legality and morality. Finally in stage 6, the individual will also involve beyond the accepted moral values but through his the construction of his own values system on issues such as euthanasia, bioethics, as well as minority positions at the societal level, by acting on the construction of a new social contract collectively decided. Through this study, we can see that informational status is an essential condition able to change a person from one stage to another. Moreover, it is well illustrated by the statement of the following dilemma or also by the effect of accumulation of information which state that the older we get, the more reasonable (or rational) we become. In fact the context or statement will play a leading role in his reading of the situation by the agent. The formulation of the dilemma will predispose the agent’s response, Sobesky [10] shows that the response of two groups of individuals is strongly influenced by the game situation or the dilemma. The decisions to break the law are very sensitive to the presence or absence of a personal interest for the protagonist of the story: stealing a drug to save his wife is easily possible... but not to save his neighbor. It appears that the involvement of the agent will affect the given answer. Indeed, the level of moral judgment is generally lower in dilemmas reported in real life, in fact, dilemmas with personal involvement induce lower judgments than those without implication [11] as if the individual involved feels less guilty from a moral point of view [11, 12] when a link to the group or social representation exists. We can consider that people who are not personally involved in a situation are more “moral” than those who are or feel close to the situation.

Several categories of so-called real-life dilemmas were listed [12], the philosophical dilemmas such the death penalty, euthanasia, anti-social dilemmas that are related to the transgression of rules such as cheating on exams, resistance to social pressures such as pressure in religious matters, lifestyle or occupational choices and finally pro social dilemmas when conflicts are inevitable between several positive motivations, for example: person’s stand in relation to the divorce of their own parents, helping a friend who commits a crime, preventing their mother from taking drugs, etc. This perspective approach to social representation and Kohlberg’s model [6], to better understand how the individual acquires moral and emotional values [13] and it may or may not involve them in his judgments, it also shows the consideration of the point of others view, the reciprocity phenomena, the establishment of mutual trust, especially in the case of relations between “homogeneous” agent situated on the same level and at the same stage. Durkheim has already introduced in 1898 [14] in a less formal way, the idea of collective representation and opened the way of the interface between psychology and sociology.

In fact a decision may cover several stages where the agent can be situated since it is the justification of the decision that determines actually his moral level. In this regard, Durkheim indicates that the moral of each society is directly related to the

structure of the people who practice it [9]. We can conclude that often can settle a clannish state and resistance against any societal evolution. The society belief that the country's unity could be broken and that the new law may cause division and discord among the people, which was the belief for some opponents.

### 3 Information Impact on Kohlberg Stage

In modern information society, some agents have a fairly deep knowledge of the implementation of laws and rules. They can consider that such laws cannot be moral. It is important to note that agents easily distinguish between moral and legal, what is legal is not necessarily moral [15]. Moreover, a conclusion of this work is to consider that the opposition will be between agent obeying to Nash's approach [16] versus more Harsanyi's agents [7]. It is therefore commonplace to assume that the availability of information on the running of society can contribute to the development of responses to different dilemmas in moral judgment context. However, it is much less clear render this information more effective, even if the information is available, it must be assimilated, and we will see that the moral component can be a barrier to its acquisition, hence the crucial role of the peripheral elements in a central core social representation [4]. The central core in France was organized around religious groups who developed an information strategy, making stronger beforehand this resilience of the social representation. This evolution of the available information that lowers the "moral" component or conservative occurred through these peripheral elements often rightly involved. In fact, the information or knowledge gained on other social, cultural representations, and any real interaction with a person from another culture, may impact on individual frameworks such as sharing feelings, consideration to the needs of others....

This approach allows us to put the legal process that were established through marriage for all. The situation in France was made without the fact that the informational instruments have been totally up especially with respect to the resistant structure in which we can indicate that individuals are mostly positioned in stage 4, a stage where individuals are attached to group norms according also to Haidt's theory [17]. Durkheim explains that the correspondence between the collective consciousness and social change is a balance parameter in our society, a crisis can occur when there is a discrepancy between the moral and social or societal developments [9]. It is certain that this antagonism can generate a moral crisis and a shift between the two groups. Here we see the beginnings of the approach to game balance in the sense of Harsanyi, between a purely rational Nash's assessment and a Harsanyi's assessment that considers a moral or ethical component [18].

### 4 Decision and Game Theory

Rational term is closely related to the daily use of the concept of reason. Indeed, rational being means that we design things without any bias, based on our beliefs and desires and then react to our gains without violating any standards. It also involves ethical behavior. Game theory starts from a fundamental premise that clarifies the decision of a player. We

consider that all agents are informed in a symmetrical way and know that other players are rational although the reality is quite different. De facto, only a rational approach, is the best action that would be logical and free of any risky behavior [19] pursuing a goal that aims to find the most intelligent solution, whatsoever the consequences, to maximize expected utility. It is therefore useful to explain expected utility, formalized by von Neumann and Morgenstern [20] and Savage [21]. It is a concept that indicates that the individual first tries to satisfy his needs by calculating all possible strategies and the results expected for each one of them by measuring the probability and expected value. However, each agent acts according to his own preferences depending on the expected result. Henceforth two concepts that are preferences and satisfaction will guide this choice. Moreover, if the result is considered inaccessible, the agent generally will change his preference which is considered as a cognitive dissonance.

The game of a prisoner's dilemma illustrates this difficulty of the choice of two agents, where the choice of each agent does not lead to a collective optimum but to individual optimization theorized by Nash [16]. In our work, we can consider that it is the state of the future society which will be at stake. If the party against the law cooperates with the supporters then I lose the state of actual society that I consider as perfect in the sense of my own social representation. We may consider the level or stage in where the agent is situated, or possibly his partition information available to it. It is a social innovation that has no observable effect which induces a risk or uncertainty. In the first and in the second case, we would act on the informational level and in the first case, as we will see later, on the concept of morality that can be considered as structural. Whatever the game to consider, like cooperative games and non-cooperative non-zero sum game, i.e. where the sum of the issues is not zero, since zero sum game are equivalent to losses of one the agent to the gain of other agent, it is complex enough to fit common social situations in a real-life situations. The situation we have here is to analyze in a rather non-cooperative structure since two clans are opposed to societal change who represents the challenge between the two "agents". In our configuration, we can consider that this is a non-zero sum game because whatever the outcome of the result, the consequences will be negative in a social point of view. The social division can appear or even a crisis can emerge in Durkheim's sense, resulting in moral values that are disconnected from the societal evolution.

The vote takes into consideration the moral issue that are evoked by Harsanyi in his approach to ethical game theory. It also takes into account rationality with an ethical conscience of the agent. If Nash's equilibrium in the prisoner's dilemma leads them to confess, the Harsanyi state that cooperation between the players will be the solution for "ethical reason", and will avoid some puzzling result as the fact that Nash equilibrium will tend to drive all agents to confess the crime even those who have not committed anything. The experimental results from the behavioral game theory [22], show that the rate of cooperation depends on two approaches, internal to the game through the value of the gains [23], the role of communication between players and here we see the role of the information system or mediation and of course the importance of peripheral agents and external logic of the game which depends on the characteristics of the players such as social origin, culture or personality, and we see here the dimension related to our previous approach through social representation of Moscovici and the belonging to a level or stage according Kohlberg makes sense. From above, the agent can be considered in a risky or

uncertain environment, so the agent will use the information as a tool to improve his knowledge or strengthen personal choice. When information is accessible and coherent, the agent will probably make a decision that will have a collective preference, if all agents are consistent to the risk. This common preference, analyzed in terms of risk, is not an individual decision but it becomes a collective construction assessed in terms of belief. This part of the analysis of the choices or the orientations of the agents was carried out a posteriori, once the law was implemented. In the first context before the law, the opposition camp was part of a process according to Harsanyi with a moral component that reflected its own assessment of the situation, in respect to the classification of Kohlberg and also in the social representation in which they enrolled. The second evaluation of game theory in the evolution of choice is rather under the risky or uncertain situation in which information, through direct peripheral elements as defined by Abrieu, enabled the agent to remove any doubt or uncertainty in which the society would be after the law was voted [24]. Obviously nothing has changed and so we can see clearly an evolution of the state of public opinion, we can estimate that over 70 % of the French citizens are now favorable or neutral.

We can conclude in this section, that the Pareto optimal equilibrium has been reached, although it appears in radically different conditions. Indeed, Nash's equilibria is strongly influenced by the history of interactions between agents. The notion of belief plays an extremely important role and indeed if the belief agents into another equilibrium is possible, this equilibrium will be sought and achieved. The Nash equilibrium can be changed if we change the belief of agents. This Pareto-dominant equilibrium can be achieved if we are able to build a dynamic collaborative space. This is due to the existence of several possible equilibria driven by a balance through rational and individualistic action and other equilibrium due to the cooperation between the players as long as this cooperation appears, exists and considers the collective gain is greater than the individual gain.

## **5 Discussion About Vote of Marriage of All in France, a Moral Effect?**

To analyze further this iconoclastic position in Europe, where many countries have voted the law without incident and without social protest as in Spain or in Portugal, countries with strong Catholic culture. Nevertheless, the religious consideration, because of the separation between state and religion, still poses conceptual problems in France. Secularism is a singular fact in France. For centuries, the concept of moral was religious in nature, indeed religion and morality were not yet separated. A "feeling" of "duty" and a "good" were two elements that although quite general, apply a moral phenomena to both religious and secular moral systems, indeed the question of morality also had a singular development in the concept dictated by Durkheim: "*moral purposes are those which are intended for society. To act morally is to act for the collective interest*" [9]. We initially see a changing position after the vote. Indeed, if the society was divided between those who are supporters or indifferent to the law, and those who are against the law, they are guided by the morality that is integrated to a Harsanyi arbitration. It is certain that today the majority is no longer against including



the so-called right wing parties. This leaves us with a quite complex situation to analyze where social and religious representations play a visible role in the formation of opposition groups to the law in structuring favorable agents as a community structure in order to place them in socially level within the meaning of Kohlberg at a stage 5 or 6 for supporters, and at a stage 4 for the opponents. The French population found a year after the vote, that the situation did not upset the French society, useful information has come down to the agent, his was able then to change his beliefs and join the stage 5 or 6 of Kohlberg's model. The general utility in which it was registered namely the welfare of society compared to normative concepts, biased by a moral point of view that could justify an opposite response to the rational principle of well-being.

This is our conclusion with regard to the Harsanyi valuation approach against agents that operate according to a Nash approach. We can also conclude that the supporter of the marriage for all, also seeks the individual well-being against the old standard and wanted to change it, which is a justified perspective of Kohlberg of this agent at 5 or 6 stage. We can also conclude that the agents who were previously against marriage for all, are in "cooperative mode", as are their positions within classic societal norms and highlights the collective happiness, while supporters would promote individual happiness. In fact the position of the latter was enrolled in a cooperative mode, but the normative and moral underlying of society had to be changed in light of cultural changes. This notion of morality can not only view as philosophical or religious but must be analyzed in terms of the neuroscience concept because moral behavior requires an emotional component [25]. A study conducted by Freeman et al. showed a shift in the decision because the situation described below, is considered moral by the actors. They analyzes the bias among US physicians, they had to decide on hypothetical scenarios in which they considered deceive an insurance company was the only way for a patient to obtain the approval of a treatment or a diagnosis [26]. This emotional or sentimental feeling according to Hume, also described by the involvement of actors during a moral judgment shows that emotional closeness and thus cerebral essence. Damasio has shown that conscious or unconscious emotions are integral to the moral component and that it plays a fundamental role in our reasoning ability and such absence can lead to strange situations namely irrational [27]. Brain deterioration observed in patients treated as Elliot shows this neuroscience cause. Indeed, the prefrontal cortex is impaired in all patients with Elliot type are remarkably, this area is not responsible for the immediate response to emotional stimuli. Rather, it is the interpretation of these stimuli, which is involved in a second time. By cons, it is essential to reasoning. This demonstrates that if we are disconnected from the emotional experience, we cannot make a rational decision [28].

This emotional issue is very complex, with feeling such passion, thirst or hunger, the idea is more about the reason for less vivid and especially figment of our imagination, which can lead to imaginative bias and can also create an opposite sense, like the fact that the donation is tax deductible. If the act of donation is approved in the first time and can create a positive emotion, the fiscal privilege can generate an opposite sentiment finally. This is the first emotion that will affect our judgment. This complex situation can lead to judgment being made using the frontal and prefrontal area of our brain, the part that are designed to deal with emotion and feelings [29]. Without being able to justify, in some way, stage 4 would appeal to our frontal lobe whereas the stage 5 would be located at the prefrontal area.



If the rational decision-making involves almost all of our brain, the emotional charge is mainly localized in the amygdala, hypothalamus, insula, the ventromedial part [30], the bridges between different areas and rational emotional [31]. It is obvious that this component located in prior specific areas, seems beyond the reach of informational field, it is also the result of the legacy of the learning process, but the post-informational factors after the implementation of a law with a strong emotional charge, seems to affect the attitude of some people, however it still remains open the question in where area these information acts. Thus, we can integrate into the moral utility factor analyzed by Harsanyi, the emotional component that depends on each agent, according to his social representation and Kohlberg's level in which he is located. This emotional component will surely increase the resistance to change, or to act positively, for example on the peripheral agents of Abrie's model that could be involved either personally or with relationships involved. Emotions and sentiments mechanically play a major role in the decision-making process in France, compared to the other countries that have also adopted the law:

$$U = U_r + U_{mH}$$

where  $U_{mH} = U_m + U_e$  and  $U_m$  moral component (from religious or from social agreement) et  $U_e$  emotional component

The utility function that composes the moral judgments, including decentration to save a classical conception of society, is not based on pure hazard. This irrational utility component is significant in our conservative societies. An agent can fluctuate from one stage to another relatively easily as we have seen in France during the evaluation of the death penalty, including in the fringe opposed to marriage for all, or nowadays on abortion which is now widely accepted in most Western countries across Europe. The most notable exception to these trends is in the work of Jean Piaget which analyzes the impact of the environment in all its social, cultural or informational dimension. "*Socialization is by no means the result of a single causality, as the pressure of the adult social group on the child by means of family education and school education [...] rather involves the intervention of a multiplicity of different types of interactions and sometimes opposing effects*" [32].

The societal changes seen after the law was voted, including the cooperation mechanisms, seem to appear quite mechanically. Nowadays, everyone agrees with the abolition of slavery, even if it was previously accepted by most, as it is morally reprehensible from a religious point of view. The discriminatory approach keeps a negative bias on rational moral decision that considers that all individuals are equal. Moreover, the information is clearly important for these mechanisms but also through moral neuroscientist [25]. When the information system is corrected [24], the actors can then follow the process that would have been against their previous religious or moral values due to the fact that in truth, nothing stands in the lack of information that led to the emergence of the concept of moral utility in making decisions based on the principle of a single dominant component would be without this assumption only rational. However, should this information be included in a Harsanyien mind process? [8]. As already stated by Durkheim, "*means an education that prohibits any loan to the principles underlying the revealed religions, which relies exclusively on ideas, feelings and practices of individuals simply because, in a word a purely rationalist education*" [9].

This French ambiguity between the moral issue and religious and secular morality, can authorize the introduction of information to co-construct the agent's moral state that is appropriate according to the visible state and thus consequently eliminate the state of uncertainty. In fact, the opposition and resistance felt during adolescence and later in adulthood does not directly relate to the process of individual development during childhood [33]. A more likely explanation, however, is that the cognitive development of the child involves a process of building a social thought and that the roots of the opposition and resistance are already existing in childhood [34], it is certain that situate individuals in stages is a tempting approach to explain some situations, and demonstrate why some decisions are final. We have shown that under the influence of information and the reality of a situation, as in the case of anti-abortion law or the abolishing of the death penalty, the society has not changed fundamentally, individual freedoms and personal rights have been preserved, and it may be a lighting element in post-evolution of agents that explain this evolution in positive way. We can consider the population with a moral bias are in the classical Durkheim's French philosophy. The stages 5 and 6 escape to the more traditional moral approach. Nevertheless and as Durkheim said, *"the solidarity derived similarities is at its maximum when the collective consciousness exactly does our total consciousness and coincide in all respects with her, but at that moment, our individuality is null"*, from this statement, we can argue that the French confrontation is either the result of the singularity of an active and vibrant democracy conscious of other countries or in crisis compared to other nations where the law has been voted without incident.

## 6 Conclusion

Among many theories evoked in this work, we have seen that the post-informational process still have an important impact on those who are in resistance versus the law. This can be explained by the impact of information on lowering their moral and mainly emotional component in the utility function rather than their fatal acceptance of the law. As a proof, the acceptance of adoption which knows the same trends as the support of the same-sex marriage. The main result shows that when voting a controversial law, the government must consider post-voting process, showing that society don't knows no major upheavals, and the overall consensus is not affected by societal changes, such as the same-sex marriage or adoption, and often the shortcut of that information can lead to moral or emotional judgments, which in itself seems fairly obvious at first sight. We have shown here why and how to overcome these psychological and social obstacles, and how to avoid them in the future.

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