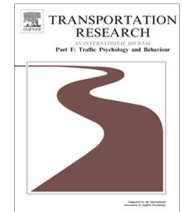


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## Social representations associated with men and women drivers among French adolescents and adults. Effects of the perceiver's age, sex, and socioeconomic status



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### ABSTRACT

The aim of this study was to investigate the specific contents of the social representations (SR) associated with men and women drivers and examine the effects of the social insertions of individuals (i.e., age, sex and socio-economic status) on the content and structure of these SR. A preliminary study with 414 French participants identified thematic content associated with men and women drivers using the verbal association method. Based on these themes, 833 French participants, equally distributed by age group (from 12 to 50 years-old and over), sex and socioeconomic status (SES), were asked to answer a questionnaire on men ( $N = 422$ ) or women ( $N = 411$ ) drivers. The results show that each of these SR is organized around three factors: incompetence, prudence and lack of self-control for women drivers; carelessness, skills and self-control for men drivers. In-group favoritism bias can be noted in both groups as male participants, more than female ones, rated men drivers as having self-control and women drivers as lacking self-control, whereas female participants, more than male ones, perceived men drivers as careless and women drivers as prudent. Despite this phenomenon, more male respondents than female ones in all age groups seemed to believe that women are not competent at driving, whereas both sexes seem to agree that men have good driving skills. Among most age groups, three characteristics associated with men drivers (confidence, speed and pleasure of driving) and four characteristics associated with female drivers (caution, civil, compliance with rules and vigilance) emerged as central in the SR. The SR associated with men drivers appeared to be stable and shared across age groups, whereas the SR associated with women drivers appeared more mixed, heterogeneous and unstable with age. Female participants with higher SES consider women drivers as more incompetent, less prudent and more lacking self-control than female participants with lower SES.

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## 1. Introduction

There is much empirical evidence on sex differences in driving behaviors and accidentology. In most Western countries, men are two to three times more likely to die in a traffic accident than women (Hanna, Taylor, Sheppard, & Laflamme, 2006; Nell, 2002; Özkan & Lajunen, 2005). Their probability of being injured in a car accident is 25% higher than that of women (Evans, 1991). Studies show that men are more frequently involved in accidents related to traffic rule violations. In France, for the same mileage, women have 2.5 times fewer points removed from their driving licenses, and are convicted 6.2 times less often for offenses (Assailly, 2005). Indeed, men show a lower degree of normative motivation to comply with traffic rules (Yagil, 1998).

However, despite these objective data on accidentology, women are still considered as being poor drivers. In fact, many studies in the field of stereotypes showed that the negative stereotype of women drivers is still effective. Berger (1986) tried to understand the origin of the popular beliefs against women drivers and how they became identified with a negative stereotype in the early twentieth century. According to him, this stereotype may be linked to beliefs that they would be unable to handle stressful situations requiring rapid decision-making because of their physical vulnerability and emotional sensitivity, which would make them poor drivers. Furthermore, some studies have suggested that these stereotypes are used by drivers, which may impact on driving behaviors (Davies & Patel, 2005; Derks, Scheepers, Laar, & Ellemers, 2011). In the framework of the stereotype threat phenomenon (Steele & Aronson, 1995), these stereotypes provide the foundation for strong inductive inferences which can have significant cognitive and behavioral consequences, particularly for driving. In line with this assumption, studies have shown that negative beliefs associated with women drivers could lead to an impairment of their driving performances (Chateignier, Chekroun, Nugier, & Dutrévis, 2011; Félonneau & Becker, 2011; Yeung & von Hippel, 2008).

Analyses of how individuals perceive men and women drivers may be useful for apprehending and understanding the various speculations and everyday discussions in this area. Moreover, it also appears to be an important aspect in studies on the stereotype threat phenomenon and its implications in the context of driving. However, as far as we know, the precise content of these perceptions has only been explored in-depth among adolescents but not among adults (Granié & Papafava, 2011).

The theory of social representations (SR) is relevant when attempting to fully comprehend these daily discussion topics, insofar as it not only allows revealing the content and the structural organization of such social constructs but also allows putting it into perspective with the social insertions of individuals. In this perspective, this theory provides a methodological framework for studying the aspects associated with men and women drivers. SR are common sense theories used to give meaning to social objects (Moscovici, 1988, 2008). These lay theories circulate through society as common sense knowledge to explain, make sense of, and understand the environment. Thus SR are a form of shared social knowledge. In this sense, the SR of a social group correspond to the way individuals perceive this group and is composed of all the information and beliefs that individuals produce and share socially (Moscovici, 2008).

Since the work initiated by Moscovici on SR, two approaches have focused on their organization. Firstly, in the framework of the structural model of the SR, the “central core theory” was developed by Abric (1993, 2001; see Rateau, Moliner, Guimelli, & Abric, 2011, for a review) to investigate the internal hierarchy of SR. This approach aims at demonstrating how the elements constituting a representation are structured. This theory assumes that any representation is organized around and structured by a central core composed of several elements (i.e., opinions, beliefs, knowledge) that are subject to consensus between the individuals who share this representation and are insensitive to context variations (Abric, 2001; Flament, 1995; Lo Monaco, Lheureux, & Halimi-Falkowicz, 2008; Rateau et al., 2011; Wagner, Valencia, & Elejabarrieta, 1996). Furthermore, various elements are also related to the representation but are not part of the central core. These “peripheral elements” allow flexibility in the representation and reflect the individual appropriation and context in which they are actualized.

Secondly, according to Doise (1986, 1990) and the sociodynamic model, representations are structured by common “organizing principles” from which will occur interindividual differences. These variations in position-taking on such or such object are regulated by the social positions of the individuals, their experiences or their integration in a context or a given social situation. For Doise, Clémence, and Lorenzi-Cioldi (1993), the study of SR is not limited to their consensual properties but includes the socially regulated interindividual variations derived from the representational field (i.e., taking into account the variations between individuals and groups in the organization and dynamics of a social representation). These individual variations are considered as systematic fluctuations in the weight (and/or in the degree of importance) that individuals or groups give to the various dimensions underlying the representational structure. Contrary to the central core theory, the analysis of the representational structure consists in identifying the principles that organize individual differences. Usually, within the framework of social representation studies, the organizing principles are identified using multidimensional data analyses. Moreover, in line with Bourdieu (1990), they aim at studying the social regulations of position-taking, therefore the social anchoring of ways of representing the object. In this sense, considering social anchoring consists in analyzing the effects of social insertions regarding a particular SR. According to the principle of structural homology (Bourdieu, 1990), correspondences exist between cognitive structures and social insertions. Thus it is possible to observe links in the social field between the social position occupied and an individual's way of thinking and positioning themselves regarding, for example, an object, a debate, the adoption or not of a social practice, etc.

These two different approaches have been developed to account for SR. Indeed, one can distinguish the structural model, which is based on the concept of consensus, from the sociodynamic model, which focuses on socially regulated interindividual variations. In line with these two approaches of SR, a number of studies (e.g., Lo Monaco, Piermattéo, Guimelli, & Abric, 2012; Moliner, 1995; Moliner & Tafani, 1997; Rateau, 2004; Tafani, Bellon, & Apostolidis, 2002) have tried to articulate them. Indeed, the objective was to take into account both the consensus and the interindividual variations. In order to study the effect of social regulation on the structure of SR, recent studies articulated the use of methodologies designed to explore the structure of the SR according to the central core theory (Moliner, 2002) and multidimensional data analyses related more to the sociodynamic model (Doise et al., 1993). Proceeding in this way allows identifying the effect of social insertions relative to an object and studying the structure of SR between subgroups (Lo Monaco et al., 2012).

In this framework, some studies have shown how gender asymmetries (e.g., Lo Monaco et al., 2012; Lorenzi-Cioldi, 1997) and economic and cultural asymmetries (e.g., Flament, 1996; Lo Monaco et al., 2012; Tafani & Bellon, 2001; Viaud, 2000) could have an impact on SR. However, few studies have considered the effect of age. In the framework of intergroup relation studies, Dafflon (1999) showed that the perceived homogeneity of the out-group varies according to an affiliation such as age, which can generate asymmetrical relations. It can be hypothesized that the perception of the out-group changes with age due to the effects of socialization and the gradual internalization of asymmetries in the social structure, thereby influencing the structure of SR related to social groups (Dafflon, 1999).

Despite its usefulness for understanding social objects, the theoretical framework of SR has rarely been employed in the field of transportation. Only one study by Pianelli, Abric, and Saad (2010) analyzed the SR of traffic speed, speed limitation and an intelligent speed limitation system, and the effect of social anchoring on these SR through multidimensional analyses. To the best of our knowledge, no studies have yet investigated the content and structure of SR associated with men and women drivers, or the effect of the perceiver's age, sex, and socioeconomic status (SES) on these SR.

In this context, this research attempts to analyze the specific content of the SR of men and women drivers, specifying their different modalities of social anchoring. Indeed, the SR theory is susceptible to clarify this issue, insofar as it can determine the content of a representation and allows setting this content in perspective with social insertions (Doise, 1993). More specifically, concerning social insertions, the present study proposes to examine how the importance attributed to these contents and the structural status of the elements composing the SR may vary depending on the social insertion of individuals, using several socio-demographic variables such as age, sex and SES. The methodological framework provided by the structural approach to SR seems appropriate and relevant to identify the content and structure of these social constructs.

## 2. Methodological perspectives

In order to explore the SR associated with men and women drivers and the structural status of the characteristics associated with these SR according to social insertions, a preliminary study was conducted to identify its specific content.

The method used for this preliminary study was a verbal association procedure. This method is particularly effective for identifying the specific content of social representations (Abric, 2003), which is the objective of the present research. Many studies have used the verbal association method to reveal various representational contents (Dany, Urdapilleta, & Lo Monaco, 2015; Gaymard, 2006; Lo Monaco & Guimelli, 2011; Mouret, Lo Monaco, Urdapilleta, & Parr, 2013; Slovic, Flynn, & Layman, 1991; Wagner et al., 1996).

Data collection was conducted on a convenience basis in several towns and cities in southeastern France, such as Marseille and Salon-de-Provence. French-speaking participants ( $N = 414$ ) were asked to associate “5 words or expressions that came to mind to describe a man (or a woman) driver”. Two hundred and three participants were asked to produce associations from the inductor “man driver” and 211 participants were asked to produce associations from the inductor “woman driver”. The sample was balanced on sex, age and SES to ensure data comparability with the main study.

The thematic analysis conducted on the SR of “the man driver” allowed identifying 17 topics: disrespectful, impatient, speed, dangerous, does not comply with the traffic rules, manly, show-off, dexterous, careful, confident, pleasure of driving, technical skills, inattentive, civil, incompetent, natural facilities, calm. The thematic analysis conducted on the SR of the “woman driver” allowed identifying 17 topics: careful, dangerous, inattentive, lack of technical skills, slow, clumsy, complies with the traffic rules, vigilant, civil, lack of confidence, disrespectful, calm, impatient, transgression of the rules, not made for driving, mastery of the vehicle, functional aspects of driving. These characteristics and their frequencies of occurrence in both samples are presented in [Appendix A](#).

The topics mentioned by the participants became the items of the questionnaire of the present study which were used to test the effects of social anchoring on the content and structure of these SR.

### 2.1. Social representations associated with men and women drivers

The first objective of the present study was to assess the importance attributed to the different characteristics associated with men and women drivers. The list of topics associated with the SR of men and women drivers was submitted to the participants. For each characteristic, they were asked to evaluate their respective importance by indicating the extent to which it corresponded to their idea of men and women drivers. The participants positioned themselves on a 10-point scale (from (1) = “no, not at all” to (10) = “yes, absolutely”).

## 2.2. Structural status of characteristics associated with men and women drivers

The second objective was to explore the structure of these SR in order to identify the essential or central character of the elements composing the core of the SR of the man or woman driver.

To distinguish between the components of the representational field, a structural diagnostic test was used to proceed to a systematic identification of the central vs. peripheral elements. The “test of context independence (TCI)” (Lo Monaco et al., 2008) is based on the context-insensitivity property of the central elements of an SR. Indeed, this test assumes that central elements have a trans-situational property that makes them insensitive to the immediate context, whereas the peripheral elements are characterized by lower insensitivity to contextual variations than the central ones (Abric, 1993, 2001; Flament, 1995; Wagner et al., 1996). The list of topics associated with the SR of the man or woman driver was resubmitted to the participants. The instructions delivered to the participants were the following: “in your opinion, are men (or women) drivers always, in all cases...?”. In accordance with Lo Monaco et al. (2008), for each item, four categories of answers were proposed (i.e., 1 = definitely not, 2 = rather not, 3 = rather yes, 4 = definitely yes).

Lastly, the last part of the questionnaire consisted of identification questions. In order to test the effects of social insertions on the content and structure of these SR (i.e., social anchoring), questions on sex, age and SES were asked. Two other identification variables were added to control their effects on the SR (validation of driving license and year of validation).

## 2.3. Sample and procedure

In the main study, 833 French-speaking participants answered either the questionnaire on women drivers ( $N = 411$ ) or the questionnaire on men drivers ( $N = 422$ ). The population was divided into subgroups based on age, sex and SES (Table 1). A junior-high school and a high school were solicited in southeastern France, in order to collect data on participants aged between 12 and 15 years-old and between 16 and 18 years-old. Concerning adult participants, data collection was conducted in certain towns and cities in southeastern France, such as Marseille, and a hospital in a southeastern France where we were allowed to interview people in the waiting rooms.

Socioeconomic status (SES) was obtained by asking participants to give the occupational category to which they belonged and by classifying them according to the grid of occupational categories of the French National Institute of Statistics and Economic Studies (e.g., Desrosières & Thévenot, 2002; Tafani, Haguel, & Menager, 2007), in order to obtain a balanced sample between higher SES (entrepreneurs, liberal professions, intellectual professions) and lower SES (intermediate professions, employees and workers). Students or high school students were asked about the occupational status of their parents.

Of the respondents on the “woman driver” questionnaire, 241 (58.6%) had a driver's license. This license was obtained on average during 1990. Concerning respondents for the “man driver” questionnaire, 250 (59.2%) had a driver's license. This license was obtained on average during 1991.

## 3. Results

### 3.1. Factors organizing the SR on men and women drivers

In order to extract the factors organizing the representational field, data on the importance attributed to the different characteristics associated with the man or the woman driver were analyzed by a Principal Component Analysis (PCA) with Oblimin rotation. Oblimin rotations were preferred since a link was assumed between the different dimensions structuring the SR (Fabrigar, Wegener, MacCallum, & Strahan, 1999). The factors selected were those with eigenvalues higher than 1, according to Kaiser's (1960) criterion. A cut-off point of .40 was used for item loading values. Items with loading values  $> .39$  on two factorial axes or more were excluded. This analysis allowed identifying 3 factors that explained 61.73% of the variance for the “man driver” and 3 factors that explained 53.75% of the variance for the “woman driver”.

**Table 1**

Distribution of the sample according to age, sex and socioeconomic status (SES).

Age	Man driver				Woman driver				Total
	Male participants		Female participants		Male participants		Female participants		
	SES+	SES–	SES+	SES–	SES+	SES–	SES+	SES–	
12–15	22	22	15	23	19	20	16	20	157
16–18	19	17	20	23	17	21	22	24	163
19–29	20	23	21	23	19	21	21	20	168
30–49	21	25	20	24	21	20	21	23	175
50 and over	20	22	20	22	22	21	20	23	170
Total	102	109	96	115	98	103	100	110	833

Note. SES+ refers to higher SES, SES– refers to lower SES.

**Table 2**

The saturation of the items on the three factors resulting from the Principal Component Analysis (PCA) with Oblimin rotation of the different characteristics associated with men drivers.

	Mean (SD)	Factor 1 Carelessness	Factor 2 Driving skills	Factor 3 Self-control
Incompetent	4.03 (2.11)	.894		
Inattentive	4.82 (2.02)	.806		
Do not comply with the traffic law	5.70 (2.44)	.711		
Dangerous	5.75 (2.36)	.624		
Disrespectful	5.57 (2.40)	.547		
Technical skills	7.16 (1.95)		.741	
Pleasure of driving	7.88 (1.92)		.736	
Confident	7.32 (1.74)		.662	
Speed	7.14 (1.84)		.621	
Calm	4.22 (2.11)			.940
Civil	4.36 (2.17)			.889
Careful, cautious	5.66 (1.98)			.553
Impatient	4.43 (2.19)			-.404
Eigenvalues		4.59	2.13	1.30
Cronbach alpha		.83	.66	.78
Percentage of explained variance		35.32%	16.40%	10.01%

For men drivers (see Table 2), for Factor 1 (35.32% of explained variance) the characteristics loaded included incompetence, inattention, non-compliance with traffic rules, danger and disrespect, in this case characteristics related to the “carelessness” of men drivers ( $\alpha = .83$ ). Factor 2 (16.40% of explained variance), which included technical skills, pleasure of driving, self-confidence and speed, could be interpreted as related to the “driving skills” possessed by men ( $\alpha = .66$ ). The elements loaded on Factor 3 (10.01% of explained variance) were “calm”, “civil”, “careful” and “impatient” (with opposite saturation for the latter item, thus referring to patience;  $\alpha = .78$ ), reflected “self-controlled” relations to others and more specifically a patient driving style (Taubman-Ben-Ari, Mikulincer, & Gillath, 2004). Four items (“manly”, “show-off”, “natural facilities” and “dexterous”) loaded on two or more factorial axes were excluded, resulting in a three-factor solution containing 13 items.

For women drivers (see Table 3), the aspects loaded on Factor 1 (33.62% of explained variance) were related to clumsiness, slowness, lack of technical skills and confidence, inattention, danger, “not made for driving”, and mastery of the vehicle (with reverse saturation), thus characteristics relating to the “incompetence” of women drivers ( $\alpha = .81$ ). Factor 2 (12.54% of explained variance) included prudence, compliance with traffic rules, and vigilance, and can be interpreted as related to the “prudence” of women drivers ( $\alpha = .77$ ). Finally, Factor 3 (7.59% of explained variance) included impatience, calm, civil (with opposite saturation for both items, thus referring to lack of civility and calm) and disrespect, which referred to interaction with other road users, and more specifically to a “lack of self-control” ( $\alpha = .66$ ).

Two items (“the functional aspects of driving” and “transgression of the rules”) which were loaded on two or more factorial axes were excluded, resulting in a three-factor solution containing 15 items.

**Table 3**

Saturation of the items on the three factors resulting from the Principal Component Analysis (PCA) with oblimin rotation of the different characteristics associated with women drivers.

	Mean (SD)	Factor 1 Incompetence	Factor 2 Prudence	Factor 3 Lack of self-control
Clumsy	4.18 (2.26)	.787		
Slow	5.23 (2.49)	.739		
Lack of technical skills	5.08 (2.68)	.667		
Lack of confidence	4.59 (3.53)	.626		
Inattentive	4.78 (2.45)	.599		
Dangerous	4.10 (2.44)	.587		
Not made to drive	2.60 (2.38)	.479		
Mastery of vehicle	6.34 (2.30)	-.47		
Careful, cautious	7.19 (2.14)		.822	
Comply with the traffic law	7.23 (2.03)		.778	
Vigilant	6.73 (2.10)		.757	
Impatient	5.35 (2.18)			.824
Calm	5.93 (2.07)			-.581
Civil	6.54 (2.14)			-.535
Disrespectful	3.38 (2.25)			.533
Eigenvalues		5.04	1.88	1.13
Cronbach alpha		.81	.77	.66
Percentage of explained variance		33.62%	12.54%	7.59%

On the basis of the factors highlighted by the PCA, the scores of items saturating on each of these factors were computed and used as composite scores in the following analyses. Items loaded with opposite saturations (i.e., Impatient, Mastery of vehicle, Calm and Civil) were reversed to compute these composite scores.

### 3.2. Effect of perceiver's age, sex and socioeconomic status on elements associated with men drivers

Scores of individuals on the three factors associated with men drivers generated from the Principal Component Analysis were subjected to a series of ANOVAs in order to test the effects of the socio-demographic variables (sex, age and SES) on the characteristics attributed to men drivers. The first series of ANOVAs was conducted on the whole sample and effects of sex and SES were then tested for each age group separately. Bonferroni post hoc tests were used to report the significant differences between age groups when the ANOVA showed a significant effect of age. Mean scores on each factor according to sex, age and SES groups are summed up in [Table 4](#). All the effects of socio-demographic variables (statistical criteria and significance) on the importance attributed to the organizing principles of the SR of men drivers for the whole sample and analyzed by age group are summed up in [Table 5](#).

Concerning Factor 1 (i.e., Carelessness), significant main effects on the perceiver's sex and age were observed for the whole sample. As seen in [Table 4](#), female respondents attributed greater importance to this factor than male respondents. The Bonferroni post hoc test showed that the 12–15 age group attributed lower importance to this factor ( $p < .05$ ) than the 19–29 age group.

Concerning Factor 2 (i.e., Driving skills), a significant main effect of the perceiver's age was observed for the whole sample. The Bonferroni post hoc test showed that the 16–18 age group attributed greater importance to this factor ( $p < .05$ ) than the 50 and over age group. Concerning the 19–29 age group, an interaction effect between sex and SES was observed. The sex difference was greater for the lower SES group than for the higher SES group, as shown in [Table 4](#). A main effect of sex was observed for the 30–49 age group. Female respondents in this age group scored male driving skills higher than male did.

Concerning Factor 3 (i.e., Self-control), a significant main effect of the perceiver's sex on the whole sample was observed. Males attributed greater importance to this factor than females. An interaction effect of sex and SES was observed among participants aged 50 and over, where the sex difference was greater for the lower SES group than for the higher SES group, as shown in [Table 4](#).

### 3.3. Effect of perceiver's age, sex and socioeconomic status on elements associated with women drivers

Scores of participants on the three factors associated with women drivers generated from the PCA were subjected to a series of ANOVAs to test the effects of the socio-demographic variables (age, sex and SES) on the characteristics attributed to women drivers. The first series of ANOVAs was conducted on the whole sample and the effects of sex and SES were then tested for each age group separately. Bonferroni post hoc tests were used to report the significant differences between age groups when the ANOVA showed a significant effect of age. Mean scores on each factor according to sex, age and SES groups are summed up in [Table 4](#). All the effects of socio-demographic variables (statistical criteria and significance) on the importance attributed to the organizing principles of the SR of women drivers for the whole sample and analyzed by age group are summed up in [Table 5](#).

Concerning Factor 1 (i.e., Incompetence), significant main effects were observed for the perceiver's sex, age and SES for the whole sample. As shown in [Table 4](#), women's incompetence was more pronounced among males and higher SES respondents than among females and lower SES respondents. The Bonferroni post hoc test ( $p < .05$ ) showed the group aged 19–29 attributed greater importance to this factor than the group aged 50 and over.

Concerning Factor 2 (i.e., Prudence), significant main effects of perceiver's sex, age and SES can be observed for the whole sample. As shown in [Table 4](#), females and lower SES respondents attributed greater importance to this factor than males and higher SES respondents. The Bonferroni post hoc test ( $p < .05$ ) showed respondents between 12 and 15 attributed greater importance to this factor than other age groups.

Concerning Factor 3 (i.e., Lack of self-control), significant main effects of perceiver's sex and SES were observed for the whole sample, where males and higher SES respondents attributed greater importance to this factor than females and lower SES respondents.

### 3.4. Central elements

The aim of the study was also to highlight the central/peripheral structure of the representations studied. The “test of context independence (TCI)” ([Lo Monaco et al., 2008](#)) was used to perform a diagnosis of centrality (see [Section 2.2](#)). As central elements are considered to be independent of the immediate context, an item is considered central if it designates *always, in any case* as a characteristic of the given SR (i.e., by answering affirmatively to the TCI). In line with this method, a characteristic is considered central if it gives rise to an affirmation rate that does not significantly differ from 100% (i.e., using the  $D_{max}$  Kolmogorov–Smirnov test: [Abric, 2003](#); [Kanji, 2006](#); [Lo Monaco et al., 2008](#); [Moliner, Rateau, & Cohen-Scali, 2002](#)). In accordance with [Lo Monaco et al. \(2008\)](#), the affirmation rate was calculated by combining the answers “rather yes” (=3) and “definitely yes” (=4). Given the number of participants, an affirmation frequency was considered as close to 100, with a significance level of  $p < .05$ , if it exceeded the threshold calculated by the test (for example, if the

**Table 4**  
Mean composite scores on each factor according to age, sex and SES.<sup>a</sup>

	Age group																			
	12–15			16–18			19–29			30–49			50+			Total				
	SES–	SES+	Total	SES–	SES+	Total	SES–	SES+	Total	SES–	SES+	Total	SES–	SES+	Total	SES–	SES+	Total		
<i>Men driver</i>																				
Carelessness (From 5 to 50)	Man	22.72	21.36	22.04	24.17	20.94	22.47	25.08	28.35	26.60	24.48	25.38	24.89	24.54	25.95	25.21	24.22	24.38	24.29	
	Woman	24.37	25.93	24.97	28.95	25.00	27.07	28.17	27.57	27.88	29.08	27.85	28.52	29.86	25.30	27.69	28.04	26.36	27.27	27.27
	Total	23.58	23.21	23.42	26.87	23.02	24.94	26.63	27.95	27.25	26.73	26.58	26.66	27.20	25.62	26.45	26.18	25.34	25.78	25.78
Driving skills (From 4 to 40)	Man	30.68	28.86	29.72	31.47	32.00	31.75	29.08	29.40	29.23	28.16	27.42	27.82	27.95	27.90	27.93	29.33	29.06	29.21	29.21
	Woman	29.20	28.86	29.07	30.13	30.10	30.11	31.86	27.95	30.00	30.79	29.40	30.16	29.27	28.05	28.69	30.26	28.86	29.62	29.62
	Total	29.91	28.86	29.44	30.72	31.02	30.87	30.48	28.66	29.62	29.44	28.39	28.97	28.61	27.97	28.31	29.81	28.97	29.42	29.42
Self-control (From 4 to 40)	Man	22.09	20.41	21.25	17.82	19.53	18.72	18.43	18.25	18.35	20.44	20.00	20.24	23.73	19.85	21.88	20.60	19.63	20.13	20.13
	Woman	20.46	17.27	19.23	15.59	18.05	16.76	16.61	17.62	17.09	15.12	17.05	16.00	15.54	18.80	17.09	16.70	17.78	17.19	17.19
	Total	21.24	19.13	20.30	16.56	18.78	17.67	17.52	17.93	17.71	17.84	18.56	18.17	19.64	19.32	19.49	18.60	18.73	18.66	18.66
<i>Women driver</i>																				
Incompetence (From 8 to 80)	Man	39.30	37.05	38.24	39.33	45.29	42.00	43.42	42.52	43.00	42.55	43.57	43.07	35.80	39.73	37.81	40.07	41.59	40.81	40.81
	Woman	24.70	34.12	28.89	28.29	32.31	30.22	31.25	36.24	33.80	24.95	31.32	28.14	29.08	25.80	27.56	27.67	31.91	29.71	29.71
	Total	32.00	35.67	33.69	33.44	37.97	35.55	37.48	39.22	38.35	33.33	37.30	35.34	32.29	33.09	32.69	33.69	36.65	35.12	35.12
Prudence (From 3 to 30)	Man	24.45	19.72	22.21	18.71	18.47	18.61	20.05	18.36	19.25	20.25	18.62	19.41	19.71	19.36	19.53	20.60	18.91	19.78	19.78
	Woman	24.00	22.31	23.25	22.71	22.77	22.74	22.95	19.09	20.98	24.68	22.00	23.34	23.43	19.95	21.81	23.54	21.21	22.41	22.41
	Total	24.22	20.94	22.72	20.84	20.89	20.87	21.46	18.75	20.12	22.57	20.34	21.45	21.66	19.64	20.67	22.11	20.08	21.13	21.13
Lack of self-control (From 4 to 40)	Man	17.95	21.05	19.42	19.76	22.29	20.89	19.23	19.63	19.43	16.50	20.28	18.44	18.52	19.36	18.95	18.42	20.44	19.40	19.40
	Woman	16.65	17.37	16.97	18.71	16.36	17.59	16.25	19.52	17.93	14.63	18.50	16.57	15.95	16.50	16.21	16.47	17.67	17.05	17.05
	Total	17.30	19.32	18.23	19.20	18.95	19.08	17.78	19.57	18.67	15.52	19.37	17.47	17.18	18.00	17.58	17.42	19.03	18.20	18.20

<sup>a</sup> Standard deviations are not reported for the sake of clarity but are available on request from the corresponding author.

**Table 5**  
Effects of socio-demographic variables on the importance attributed to the organizing principles of the two SR for the whole sample and by age group.

	Men drivers			Women drivers		
	F1 Carelessness	F2 Driving skills	F3 Self-control	F1 Incompetence	F2 Prudence	F3 Lack of self-control
<i>Whole sample</i>						
Sex	$F(1,402) = 11.72^{***}$ , $\eta_p^2 = .03$	-	$F(1,402) = 21.01^{***}$ , $\eta_p^2 = .05$	$F(1,400) = 82.24^{***}$ , $\eta_p^2 = .17$	$F(1,400) = 28.03^{***}$ , $\eta_p^2 = .06$	$F(1,400) = 15.93^{***}$ , $\eta_p^2 = .04$
Age	$F(4,402) = 2.55^*$ , $\eta_p^2 = .02$	$F(4,402) = 2.73^*$ , $\eta_p^2 = .02$	-	$F(4,400) = 2.70^*$ , $\eta_p^2 = .02$	$F(4,400) = 3.12^*$ , $\eta_p^2 = .03$	-
SES	-	-	-	$F(1,400) = 4.87^*$ , $\eta_p^2 = .01$	$F(1,400) = 15.97^{***}$ , $\eta_p^2 = .04$	$F(1,400) = 7.25^*$ , $\eta_p^2 = .02$
Sex × age	-	-	-	-	-	-
Sex × SES	-	-	-	-	-	-
Age × SES	-	-	-	-	-	-
Sex × Age × SES	-	-	-	-	-	-
<i>By age group</i>						
12–15						
Sex	-	-	-	$F(1,70) = 7.91^{**}$ , $\eta_p^2 = .10$	-	-
SES	-	-	-	-	$F(1,70) = 6.99^{**}$ , $\eta_p^2 = .09$	-
Sex × SES	-	-	-	-	-	-
16–18						
Sex	$F(1,74) = 4.79^*$ , $\eta_p^2 = .06$	-	-	$F(1,80) = 22.82^{***}$ , $\eta_p^2 = .22$	$F(1,80) = 15.93^{***}$ , $\eta_p^2 = .16$	$F(1,80) = 9.12^{**}$ , $\eta_p^2 = .10$
SES	-	-	-	$F(1,80) = 3.94^*$ , $\eta_p^2 = .04$	-	-
Sex × SES	-	-	-	-	-	$F(1,80) = 4.44^*$ , $\eta_p^2 = .05$
19–29						
Sex	-	-	-	$F(1,77) = 9.88^{**}$ , $\eta_p^2 = .11$	-	-
SES	-	-	-	-	$F(1,77) = 7.42^*$ , $\eta_p^2 = .08$	-
Sex × SES	-	$F(1,83) = 4.61^*$ , $\eta_p^2 = .05$	-	-	-	-
30–49						
Sex	-	$F(1,86) = 5.27^*$ , $\eta_p^2 = .05$	$F(1,86) = 8.12^{**}$ , $\eta_p^2 = .08$	$F(1,81) = 29.92^{***}$ , $\eta_p^2 = .27$	$F(1,81) = 20.31^{***}$ , $\eta_p^2 = .21$	-
SES	-	-	-	-	$F(1,81) = 6.18^*$ , $\eta_p^2 = .07$	$F(1,81) = 8.50^{**}$ , $\eta_p^2 = .09$
Sex × SES	-	-	-	-	-	-
50+						
Sex	-	-	$F(1,80) = 13.91^{***}$ , $\eta_p^2 = .14$	$F(1,82) = 19.39^{***}$ , $\eta_p^2 = .19$	-	$F(1,82) = 4.42^*$ , $\eta_p^2 = .05$
SES	-	-	-	-	-	-
Sex × SES	-	-	$F(1,80) = 8.30^{**}$ , $\eta_p^2 = .09$	-	-	-

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .



frequency of affirmation by the men aged 50 and over regarding women drivers was 79.26 or more). Since the number of participants varied depending on the condition, a corresponding threshold was calculated for each group to determine the structural status (i.e., central or peripheral) of each element. [Tables 6 and 7](#) give the frequencies of affirmation observed in each group.

[Table 6](#) shows that, for men drivers, three elements emerged as central in most age groups: confidence, speed and pleasure of driving. These elements all refer to the factor related to the “driving skills” possessed by men (Factor 2 of the PCA).

Concerning the representation of women drivers, [Table 7](#) shows that four elements emerge as central in most groups (and more specifically among adults for some of them): caution, civil, compliance with rules and vigilance. Three of these elements (caution, vigilance and compliance) are linked to the “prudence” attributed to women (Factor 2 of the PCA) and the fourth (civil) is related to the relationship with other users in its positive aspect (Factor 3 of the PCA).

## 4. Discussion

### 4.1. SR associated with men and women drivers

This study aimed at analyzing the specific content of the social representations of men and women drivers, specifying their different modalities of social anchoring (i.e., the social regulations in line with their social insertions). The results showed that these social representations are each organized around three principles (i.e. Factors) whose content varies according to the target. A contrast can be noted between the organizing principles regulating these two SR: women are seen as incompetent, prudent and lacking self-control, while men are seen as careless, skilled and self-controlled.

These findings are consistent with several studies that have shown that adolescents and preadolescents already differentiate expertise and driving skills according to a driver's sex: women have abilities for safety but not for driving, while men have driving skills but neglect safety ([Granié & Papafava, 2011](#)). As [Näätänen and Summala \(1976\)](#) showed that the tendency to drive fast and overtake is considered as an indicator of competence, the results of the present study could thus be interpreted by the following relationships: since women are incompetent they must be cautious, and because men are competent they can take risks at the wheel ([Granié & Papafava, 2011](#)). These representations of men and women drivers are in line with previous research ([Tafari et al., 2007](#)), showing that to define their social representation of a “good car”, women give more attention than men to safety, reliability and robustness, whereas men give greater attention to engine power and hedonism. Thus the results of the present study are in line with other findings suggesting that perceivers tend to differentiate driving skills from safety skills ([Lajunen & Summala, 1995](#)), where the former seem to be considered as masculine skills and the latter as feminine ones. This content appears to be internalized in an essentialist way by perceivers ([Heyman & Giles, 2006](#); [Prentice & Miller, 2006](#)), as driving skills seem to be described as inherent to the individual's sex group, suggesting, on the one hand, that men are naturally good at driving, and, on the other hand, that this activity does not match the definition or the essence of women ([Granié & Papafava, 2011](#)).

These findings suggest that asymmetrical attributions may be made according to the driver's sex: in the case of an accident, men would be judged as not having sufficiently taking other users into account while women would be judged to having demonstrated a lack of mastery of the vehicle ([Lawrence & Richardson, 2005](#)). Conversely, in the case of good driving (or accident avoidance), women would be judged to have been cautious and vigilant toward other road users (thus avoiding an accident) while men would be judged as having expertise and dexterity in car driving (and it is due to those skills that they avoid an accident). This echoes the findings of [Deaux \(1977, 1984\)](#) and [Deaux and Emswiller \(1974\)](#) according to whom performances that are consistent with expectations are attributed to stable and internal causes (such as ability) while performances that are inconsistent with expectations are attributed to more unstable causes (such as effort or luck). Since people usually expect men to succeed more than women (which remains the case for driving), women's successes are more likely to be attributed to luck or effort, whereas men's successes are more likely to be attributed to ability ([Swim & Sanna, 1996](#)). Conversely, since people usually expect women to fail more than men, women's failures are more likely to be attributed to a lack of ability, whereas men's failures are more likely to be attributed to a lack of effort or luck. In this regard, [Lawrence and Richardson \(2005\)](#) pointed out that accidents caused by women are seen as an inability to adopt the right behavior (i.e., acts of omission; [Shaver, 1985](#)), whereas men's accidents are attributed to carelessness or risk-taking (i.e., acts of commission). This indicates that men's successes are attributed to internal factors, and that these factors explain the failure of women. It is noteworthy that these performance expectations and the reasons attributed to these performances are formulated by the consensus of both sexes ([Deaux & Emswiller, 1974](#)).

### 4.2. Effects of perceiver's age in the modulation and structure of these SR

This study has raised the fact that these SR varied according to the social insertions of the individuals. Indeed, these SR are anchored through a set of positional asymmetries that reflect contrasted social regulations. Regarding social anchoring, the results emphasize the role of sex, age and SES in the modulation and structure of the SR. Comparisons of the affirmation frequencies for beliefs related to these SR revealed significant differences according to age, sex and SES. This can be explained by the fact that central beliefs (i.e., the core of the SR) are linked to historical, sociological and ideological environments and therefore are highly related to identity and social positions. The effects of the social insertions of individuals on the structure of these SR can be observed as certain elements appear to be central only in certain subgroups.

**Table 6**  
Central elements identified on the basis of the Kolmogorov–Smirnov test for men drivers (in %).

Factor	12–15			16–18			19–29			30–49			50+		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Carelessness	44.2	35.1	40.0	60.0	57.1	58.4	<b>83.7*</b>	75.0	79.3	69.6	68.2	68.9	53.7	<b>81.0*</b>	67.5
Do not comply with traffic rules	48.8	40.5	45.0	52.8	52.4	52.6	60.5	54.5	57.5	57.8	36.4	47.2	31.0	42.9	36.9
Dangerous	20.9	26.3	23.5	41.7	42.9	42.3	53.5	59.1	56.3	65.2	67.4	66.3	57.1	69.0	63.1
Disrespectful	14.0	16.2	15.0	16.7	21.4	19.2	20.9	15.9	18.4	32.6	22.7	27.8	29.3	35.7	32.5
Incompetent	23.3	31.6	27.2	27.8	41.5	35.1	48.8	27.3	37.9	41.3	36.4	38.9	38.1	41.5	39.8
Inattentive	<b>88.4*</b>	<b>92.1*</b>	<b>90.1*</b>	<b>88.9*</b>	<b>100*</b>	<b>94.9*</b>	<b>90.5*</b>	<b>93.2*</b>	<b>91.9*</b>	<b>93.5*</b>	<b>97.7*</b>	<b>95.6*</b>	<b>88.1*</b>	<b>97.6*</b>	<b>92.9*</b>
Confident	<b>88.4*</b>	<b>92.1*</b>	<b>90.1*</b>	<b>97.2*</b>	<b>95.2*</b>	<b>96.2*</b>	<b>88.4*</b>	<b>93.2*</b>	<b>90.8*</b>	<b>89.1*</b>	<b>93.2*</b>	<b>91.1*</b>	<b>82.9*</b>	<b>92.9*</b>	<b>88.0*</b>
Speed	74.4	<b>84.2*</b>	79.0	<b>91.7*</b>	<b>88.1*</b>	<b>89.7*</b>	<b>90.7*</b>	<b>90.9*</b>	<b>90.8*</b>	<b>93.5*</b>	<b>90.9*</b>	<b>92.2*</b>	<b>83.3*</b>	<b>90.5*</b>	<b>86.9*</b>
Pleasure of driving	<b>83.3*</b>	<b>86.5*</b>	<b>84.8*</b>	75.0	<b>83.3*</b>	79.5	76.7	<b>79.5*</b>	78.2	76.1	69.8	73.0	68.3	<b>81.0*</b>	74.7
Technical skills	26.2	32.4	29.1	22.2	26.2	24.4	23.3	13.6	18.4	28.3	13.6	21.1	42.9	19.0	31.0
Calm	71.4	57.9	65.0	38.9	50.0	44.9	30.2	38.6	34.5	43.5	44.2	43.8	57.1	35.7	46.4
Careful, cautious	63.4	64.9	64.1	33.3	21.4	26.9	23.8	20.5	22.1	26.1	15.9	21.1	42.9	23.8	33.3
Civil	62.8	76.3	69.1	75.0	<b>82.9*</b>	79.2	<b>86.0*</b>	<b>88.6*</b>	<b>87.4*</b>	78.3	<b>84.1*</b>	81.1	71.4	<b>92.7*</b>	81.9
Impatient															

\* Frequencies non-different from 100 ( $p < .05$ ) according to the Dmax Kolmogorov–Smirnov Test.

**Table 7**  
Central elements identified on the basis of the Kolmogorov–Smirnov test for women drivers (in %).

Factor	12–15			16–18			19–29			30–49			50 +		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
	Incompetence	31.3	31.4	31.3	44.1	19.6	30.0	57.5	31.7	44.4	48.8	20.5	34.1	35.7	4.8
Dangerous	20.6	9.1	14.9	32.4	6.5	17.5	37.5	14.6	25.9	22.0	6.8	14.1	17.1	4.7	10.7
Inattentive	36.4	25.7	30.9	45.5	15.2	27.8	45.0	31.7	38.3	56.1	25.0	40.0	45.2	16.3	30.6
Lack of confidence	53.1	34.3	43.3	55.9	22.2	36.7	67.1	36.6	50.0	48.8	13.6	30.6	35.7	14.0	24.7
Lack of technical skills	43.8	18.2	30.8	38.2	17.8	26.6	52.5	26.8	39.5	46.3	34.1	40.0	57.1	46.5	51.8
Mastery of the vehicle	68.8	<b>80.0</b> *	74.6	50.0	<b>87.0</b> *	71.3	57.5	70.7	64.2	65.9	<b>90.9</b> *	78.8	73.8	<b>86.8</b> *	80.0
Not made for driving	15.6	14.3	14.9	17.6	2.2	8.8	20.0	7.3	13.6	7.3	13.6	10.6	19.5	4.7	11.9
Slow	48.5	37.1	42.6	58.8	32.6	43.8	67.5	46.3	56.8	63.4	25.0	43.5	59.5	28.6	44.0
Prudence	71.9	<b>93.9</b> *	83.1	58.8	<b>91.3</b> *	77.5	<b>82.5</b> *	<b>92.7</b> *	<b>87.7</b> *	<b>87.8</b> *	<b>95.5</b> *	<b>91.8</b> *	<b>90.5</b> *	<b>92.9</b> *	<b>91.7</b> *
Careful, cautious	<b>80.6</b> *	<b>94.3</b> *	<b>87.9</b> *	76.5	<b>80.4</b> *	78.8	<b>85.0</b> *	<b>95.1</b> *	<b>90.1</b> *	<b>90.2</b> *	<b>93.2</b> *	<b>91.8</b> *	78.6	<b>95.3</b> *	<b>87.1</b> *
Comply with traffic rules	75.0	<b>91.2</b> *	83.3	64.7	<b>89.1</b> *	78.8	72.5	<b>95.1</b> *	84.0	<b>80.5</b> *	<b>88.6</b> *	84.7	<b>83.3</b> *	<b>95.3</b> *	<b>89.4</b> *
Vigilant	67.6	<b>88.6</b> *	78.3	44.1	<b>80.4</b> *	65.0	55.0	<b>80.5</b> *	67.9	61.0	<b>84.1</b> *	72.9	73.8	74.4	74.1
Calm	75.8	<b>84.8</b> *	80.3	67.6	<b>89.1</b> *	80.0	<b>82.5</b> *	<b>87.8</b> *	<b>85.2</b> *	<b>80.5</b> *	<b>90.9</b> *	<b>85.9</b> *	<b>81.0</b> *	<b>88.4</b> *	84.7
Civil	21.2	20.0	20.6	20.6	6.5	12.5	15.0	7.3	11.1	12.5	2.3	7.1	22.0	9.3	15.5
Disrespectful	56.3	25.7	40.3	52.9	41.3	46.3	40.0	26.8	33.3	34.1	38.6	36.5	45.2	34.9	40.0
Impatient															

\* Frequencies non-different from 100 ( $p < .05$ ) according to the Dmax Kolmogorov–Smirnov Test.

First of all, age seems to have an effect on the SR associated with men and women drivers, insofar as the differences seem to be maximized among younger age groups. These results could be an effect of the search for positive distinctiveness and of gender intensification (Hill & Lynch, 1983) beginning at age 12, as research shows that sex stereotype conformity tends to peak in the early adolescent period and then decline over time (Berndt, 1996). Apart from the general increase in sex stereotyping in adolescence, the area of cars and driving is particularly invested by boys and participates in the construction of (Walker, Butland, & Connell, 2000). Whatever their physical strength, the technical ability to control the performance of a motor vehicle at high speeds helps boys to demonstrate their manhood. Driving is seen by boys as egalitarian means (regardless of their intellectual abilities, physical skills, racial or ethnic group) of gaining empowerment as a man (Walker et al., 2000). Thus boys' acceptance of and compliance with the image they have constructed about male drivers could explain why, even before starting to drive, boys of 12–16 years old have riskier attitudes than girls in terms of speed and not wearing a seatbelt (Mann & Lansdown, 2009), confirming the results of Harré, Field, and Kirkwood (1996) on 15-year-old adolescents.

Secondly, age appears to have less effect on the image of men drivers than on the image of women drivers. Indeed, the SR associated with men drivers seem to be stable and shared across age groups, whereas the SR associated with women drivers appears more mixed, heterogeneous and unstable with age. The stability of the representation of men drivers can be seen in the components of the central core of the SR. The elements concerning the confidence and fast driving of male drivers are present in the central core of the SR in all age groups, from 12 to 50 and over. On the other hand, the careful and civil elements of the SR of women drivers only appear in the central core of the SR of the group aged 19–29, these elements being central only for women in lower age groups. Furthermore, compliance with rules is part of the central core of the SR in the group aged 12–15 and over 19 but does not belong to the central core in the 16–18 age group. Thus, based on the different elements, our results suggest that the SR of men drivers is stable across age groups, whereas the SR of the women drivers is more unstable with age. This could be linked to the fact that cars and activities associated with them (washing, repairing, and of course driving), are part of the “male gender role”. Indeed children learn early on about gender roles and, from 2½ years of age (or even from 18 months for girls; Serbin, Poulin-Dubois, Colburne, Sen, & Eichstedt, 2001), associate cars with boys and dolls with girls (Kuhn, Nash, & Brucken, 1978). More generally, children have accurate knowledge about sex-typed activities for adults (including cars) before the end of kindergarten (Serbin, Powlishta, & Gulko, 1993). Thus, very early on, children of both sexes associate cars with men. The stability of the SR of men drivers, already shown in school pupils from 11 years old (Granié & Papafava, 2011), may be due to the fact that men driver serves as a normative reference for drivers (Dontsov & Kabalevskaya, 2013), from which is defined, by differentiation and opposition, the typical behavior of women drivers, more ambivalent and heterogeneous due to the different identity issues for male and female.

#### 4.3. *Effects of perceiver's sex in the modulation and structure of these SR*

The results show differences depending on the perceiver's sex concerning characteristics associated with drivers of each sex. More male participants than female ones rated men drivers as having self-control and women drivers as lacking self-control. In contrast, more female participants than male ones perceived men drivers as careless and women drivers as prudent. These results are in keeping with research on intergroup relations, which have shown how individuals seek positive distinctiveness by denigrating the out-group while promoting the in-group (Allen & Wilder, 1975; Brewer & Silver, 1978; Tajfel & Turner, 1986). Thus one can conclude on in-group favoritism bias (Tajfel, Billing, Bundy, & Flament, 1971) where participants promote their in-group, by attributing higher positive and fewer negative characteristics to the drivers of their own sex group, and denigrate the out-group by attributing fewer positive and higher negative characteristics to the drivers of the other sex group. The analysis of the central core also showed that its components were affected by participants' sex. Some positive characteristics of women drivers were included only in the core of female participants (i.e., calm, mastery of the vehicle), but this phenomenon did not occur with male respondents for men drivers. Thus it seems that female tend to promote their gender group more than men do. Power-based gender stereotype approaches (Zemore, Fiske, & Kim, 2000) and the effects of social asymmetry between sex groups (Hurtig, Kail, & Rouch, 2002) can provide understanding of these results in women. Thus, research has shown that the dominant position of the male group (Lorenzi-Cioldi, 1988a, 1988b; Sidanius, Pratto, & Rabinowitz, 1994) leads members of the socially dominated female group to over-promote the in-group (Powlishta, 1995; Rudman & Goodwin, 2004; Serbin et al., 1993). The emergence of certain added positive characteristics of women drivers may have been used by the female participants to reverse the negative stereotype according to which they are poor drivers. It appears that associating driving with the male role in society causes females to “defend” their gender identity more than males need to.

But despite this in-group promotion among female, men's driving skills were considered relatively important and reflected a consensus between male and female participants (i.e., no effects of the perceiver's sex on the whole sample), whereas women's incompetence was considered relatively average in a general way and was more pronounced among men. In fact, males seem to believe (at least more than females) that women are not very competent at driving, whereas both groups seem to agree that men have good driving skills. Thus it appears the SR formulated by the members of the male dominant group concerning the members of the female subordinate group enables the former to legitimize their dominant position. However, at the same time, the SR formulated by the members of the female subordinate group concerning the members of the male dominant group allows the former to justify their position of subordination. In this sense, developing and sharing a negative representation of women drivers allows the male group to justify their dominant position in road space. Moreover, according to Fiske (1993), stereotypical judgment is a way of exercising control over others, reinforcing

the power of an individual or group. In other words, stereotypes are used by members of dominant groups to maintain the status quo (Vescio, Gervais, Heiphetz, & Bloodhart, 2009). This can be related to the work of Berger (1986), according to whom negative stereotypes about women drivers were widespread in the early twentieth century due to men's fear of women's emancipation, further promoted by the car. As a result, this fear supported a negative stereotype toward women drivers, in order to minimize the impact of the automobile as a perspective of women's liberation and involvement in social change. Various popular beliefs against their driving style appeared, destined to make them poor drivers. Furthermore, from a normative viewpoint, it could be hypothesized that the propagation of the negative representation of the women drivers, and the masculine qualification of this practice, has formed a norm according to which women are not made for driving. Consequently, when women fail, it confirms the commonly-held negative representation, but when they succeed, they threaten the established order and are qualified as exceptions: this kind of woman is given a masculine image (i.e., tomboy). In fact, this widespread negative representation constitutes a way of normalizing behaviors and aims at maintaining the social order. Concerning the effect of sex, this research also illustrated the central role of intergroup differentiation in SR. This reflects that the topic of the questionnaires emphasized sex differences that challenge social identity. Intergroup differentiation is more salient when participants are focused on intergroup comparison and when social identity is threatened (Jetten, Branscombe, & Spears, 2002; Jetten, Spears, & Manstead, 1997). This can explain why more females than males consider that men are careless drivers and why fewer females than males consider that women do not have driving skills.

#### 4.4. *Effects of perceiver's SES in the modulation and structure of these SR*

The results show that the SES also impacts the SR on women drivers. Indeed, participants with higher SES consider women drivers as more incompetent, less prudent and more lacking self-control than participants with lower SES. In addition, the results showed that differences between males and females seem to vary according to the participant's SES. Female's responses indeed tend to be closer to those provided by the male group when they have higher SES. This was the case for the positive elements associated with their group (e.g., prudence): females with higher SES criticized their group more than those with lower SES, as their responses were more similar to those of males. This was also the case for the negative elements associated with their group (e.g., incompetence), where the same phenomenon seemed to occur: females with higher SES were more likely to devalue their group. Concerning elements associated with men drivers, lower SES females promoted men more than did higher SES females (and even more than males did). Again, in this case the responses of females with higher SES were more similar to those of males, as if socioeconomic status for females with higher SES were more important than membership of a gender group, since the former leads to a dominant and valued position that the latter does not confer. By devaluing their sex group, females with higher SES may emphasize their dominance linked to their socioeconomic status and thus get closer to the position of males. From the perspective of social dominance (Sidanius & Pratto, 1999), this reflects the depreciation exerted by the dominant group (i.e., females with higher SES) to maintain its asymmetry with the dominated group (i.e., females with lower SES). As discussed previously, this phenomenon seems to take place on a larger level, between the male and female groups, with the same perspective of maintaining the status quo.

#### 4.5. *Practical consequences from a traffic perspective*

The practical significance of these results obviously concerns sex differences in crashes and driving behaviors. In addition to biological sex differences, differences in observable risk-taking between men and women in road space are due to the manifestation of a behavior consistent with social expectations (Ronay & Kim, 2006). As the results showed, expectations were also observed in the sex stereotypes associated with driving and socially interpreted as due to innate differences between sexes in their attitudes toward risk-taking and driving (Granié & Papafava, 2011). Consequently, the level of individual compliance with masculine stereotypes has a direct effect of increased risk-taking (Özkan & Lajunen, 2006), as taking risk is a behavior involved in the social definition of masculinity (Green, 1997; Green & Hart, 1998; Papadakis & Moore, 1991; Walker et al., 2000). The level of individual compliance with feminine stereotypes also plays an indirect role in causing a higher level of traffic rule internalization that inhibits taking risks (Granié, 2009). More specifically, the differentiated beliefs about the driving abilities of men and women could have direct implications on men's and women's behaviors and may give rise to stereotype threat effects on women drivers. Previous studies (Chateignier et al., 2011; Félonneau & Becker, 2011; Yeung & von Hippel, 2008) provided evidence that risk-taking is influenced by gender identity, more specifically by the mobilization of individuals belonging to a social gender group and by behaviors allowing individuals to demonstrate this social identity. These beliefs could explain why, even before they start driving, boys have riskier attitudes than girls in terms of speed and not wearing a seatbelt (Harré et al., 1996; Mann & Lansdown, 2009) and why girls' and boys' attitudes toward driver training differ, with boys feeling more competent as drivers than girls (Nyberg & Gregersen, 2007; Wiberg, 2006).

## 5. Conclusion

The objectives of this study were to analyze the specific content of the social representations of men and women drivers and to specify their different modalities of social anchoring by examining the effect of social insertions on these social representations. The results showed that the SR of men and women drivers are organized around three principles (or dimensions): carelessness, driving skills and self-control for men and incompetence, prudence and lack of self-control for

women. Some characteristics regarding men drivers (confidence, speed and pleasure of driving) and women drivers (caution, civil, compliance with rules and vigilance) emerged as central in most age groups. Analysis of the structure of these SR showed that it varied according to the social anchoring variables. Thus the SR of men drivers appears to be stable and homogeneous through age groups, whereas that of women drivers is more heterogeneous and differentiated according to the age group of the participants. In addition, although each individual tends to overvalue, especially among females, their own sex group and devalue the other sex group, both sex groups seem to agree that men have good driving skills and participants with higher SES tend to have a more negative representation of women drivers than participants with lower SES.

These results can therefore be used as the basis of more detailed research on the effect of these beliefs on individuals' driving behavior and on socialization regarding risk-taking. The results showed that differentiated social representations of drivers according to their sex group do indeed exist and can be detected in individuals' discourses from adolescence and across age groups. These social representations of men and women drivers are the expression of more general sex stereotypes: female compliance and male risk-taking. Furthermore, they reveal an essentialist view of sex roles. Thus the social promotion of an activity for a certain group of individuals, in this case men, can bring individuals to interpret underlying abilities as naturally present in the individuals of this group and to consider individuals of the other group as being naturally unfit. These results could thus be explained by the acceptance of, and compliance with, the image individuals of both sexes have constructed about male and female drivers in a culture where seeking out risk through driving is part and parcel of the construction of manliness (Hopkins & Emler, 1990). Lastly, the results of this study showed that the representation of men and women drivers – and maybe the behaviors related to it – appears to be a field of expression of personal and social identity and thus is involved in social differentiation (Green, 1997; Green & Hart, 1998; Papadakis & Moore, 1991; Walker et al., 2000).

## Appendix A

Categories (Men drivers)	Characteristics	Frequency	Categories (Women drivers)	Characteristics	Frequency
Disrespectful	Aggressive, angry, rude, vulgar, grumpy, intolerant, incivility, discourteous, selfish, individualistic, self-centered	N = 199	Careful, cautious	Cautious, prudent, reassuring, protective, less risk	N = 160
Impatient	Impatient, hurry, brutal conduct, nervous, impulsive, stressed, horn	N = 142	Dangerous	Reckless, dangerous, imminent death, unconscious, accident	N = 139
Speed	Drive fast, speed	N = 107	Inattentive	Low concentration, distracted, makes up while driving, doing two things at the same time	N = 93
Dangerous	Reckless, dangerous, carelessness, unconsciousness, accidents, road hogging	N = 106	Lack of technical skills	Difficulties in maneuvering, understands nothing about mechanics, does not know their way, parking difficulties park	N = 70
Do not comply with the traffic rules	Noncompliance with the highway code, irresponsibility, alcohol, drugs, offenses, transgression of the rules	N = 76	Slow	Drive slowly, drives like a granny, traffic jam	N = 68
Manly	Virility, domination, sense of superiority, power, macho, sexist	N = 72	Clumsy	Lack of practical skills, lack of mastery, poor reflexes, clumsy, poor conductor, bad driver	N = 59
Show-off	Arrogant, flirt, proud, conceited	N = 62	Comply with the traffic rules	Compliance with limitations, compliance with highway code, compliance with traffic signals, responsible	N = 52

## Appendix A (continued)

Categories (Men drivers)	Characteristics	Frequency	Categories (Women drivers)	Characteristics	Frequency
Dexterous, Good driver	Practical skills, mastery of vehicle, control, reflexes, piloting, performance	N = 47	Vigilant	Attentive, focused, alert	N = 49
Careful, cautious	Prudent, security, responsible, attentive, focused, alert	N = 41	Civil	Respectful, courteous, cordial, citizenship, polite, kind	N = 47
Confident	Confidence, self-confidence	N = 40	Lack of confidence	Shy, hesitant, unsure of herself, timid, anxious, panic	N = 42
Pleasure of driving	Pleasure, like driving, freedom, travel, big cars, fast cars, the importance of the car, attached to the vehicle	N = 28	Disrespectful	Rude, incivility, vulgar, aggressive, hysterical, angry	N = 40
Technical skills	Maneuvers, mechanics, sense of direction, technique, good for parking	N = 23	Calm	Patience, calm, less impulsive	N = 40
Inattentive	Inattentive, low concentration, distracted	N = 19	Impatient	Impatient, hurry, nervous, stressed, horn	N = 39
Civil	Gallant, cordial, citizenship, polite	N = 14	Transgression of the rules	Noncompliance with the highway code, irresponsible, alcohol	N = 37
Incompetent	Drive poorly	N = 13	Not made for driving	Not made for it, “another woman at the wheel”, naturally bad	N = 32
Natural facilities	Facilities, talented, natural talent, abilities, predisposed, natural expertise	N = 12	Mastery of the vehicle	Skills, mastery, control, smooth driving, good driver	N = 22
Calm	Calm, serenity, patient	N = 9	Functional aspects of driving	Daily trips, small cars, cheaper car, sober car, practical car	N = 21

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