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**Predicting the vote:**  
**Implicit attitudes as predictors of the future behaviour**  
**of decided and undecided voters.**

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## Abstract

Two studies aimed at assessing the predictive validity of implicit political attitudes in relation to voting behaviour. In Study 1, we demonstrated the validity of the adopted measure (i.e., the IAT; Greenwald, McGhee, & Schwartz, 1998) with a sample of voters who clearly sided with one of the opposing parties. In Study 2, implicit political preferences were measured in a sample of undecided voters one month before the elections, and actual voting behaviour was assessed immediately after the elections. Results demonstrated that implicit political attitudes were good predictors of future voting behaviours. These findings provide support for the hypothesis of the presence of embryonic and unconscious attitudes even in the case of those voters who at the explicit and conscious level deny any preference for one of the two opposing candidates.

## Key Words:

implicit processes, affect, IAT, decision making, political choice

### Predicting the vote:

Implicit attitudes as predictors of the future behaviour of decided and undecided voters.

Political surveys have to systematically deal with the recurrent problem of undecided voters. Indeed, at each political survey a significant proportion of respondents report that they have not yet developed any clear voting preference. Even a few months before the election, undecided rates of 20% or more are not uncommon (Mannheimer, 2003; Perry, 1979). For instance, in the Italian context, fifteen days before the general election of 2006, around 10% of the respondents were unable to report for whom they would vote if the election were to be held the following day (La Repubblica, 2006)<sup>1</sup>. In addition, data indicate that most of these undecided respondents come to a decision only a few days before the vote, if not the very same day of the election, while in the polling booth (Barisone & Mannheimer, 1999).

Despite the numerical relevance of this part of the electorate, there is not yet a full understanding of the psychological processes that characterize their route from uncertainty to the expression of a vote. In particular, empirical research in social cognition has not yet directly tackled this issue. At each election, we know the socio-demographic characteristics of undecided voters, but less is known about the decision processes that may ultimately lead them to vote for one candidate or the other. In the present paper, we will test the hypothesis that, despite a verbal report of uncertainty, undecided electors will nonetheless show different implicit attitudes toward the different political candidates and, more specifically, that these spontaneous responses will be

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<sup>1</sup> According to the results of the survey published on the newspaper *La Repubblica* on March 23, 2006 (i.e., 15 days before the Political Election to be held on April 9, 2006 in Italy) 10 % of the electorate described themselves as still undecided, when answering the question “If you should vote tomorrow, for which party would you vote?” (“Se domani dovesse votare, quale partito voterebbe?”). This percentage of undecided voters is twice as large in comparison to the gap between the two major coalitions reported in the same survey (i.e., 5%), indicating that undecided voters may actually determine the final outcome of the electoral competition.

predictive of the future voting behaviours. To this end, in the present paper we used a recently developed implicit attitude measure, namely the IAT (Greenwald, McGhee, & Schwartz, 1998).

A better understanding of implicit attitudes among undecided voters could be helpful in two ways. First, it will provide a new perspective into the decision processes of undecided voters. Using participants' spontaneous and uncontrolled reactions as a pipeline to detect attitudes toward political candidates, we hypothesize that in most cases even undecided voters will display an embryonic preference for one of the two opposing candidates (e.g., De Houwer, 2006; Fazio & Olson, 2003). In addition to the theoretical relevance of this issue, it also has practical implications for carrying out political surveys. Indeed, undecided respondents confound the predictions derived from surveys and introduce a significant error component. According to the pre-electoral surveys, in many cases the percentage of undecided voters is indeed much larger than the advantage of one party over the other. If this is the case, an indication of how these undecided voters will finally vote, may substantially improve the electoral forecast. Therefore, it would become crucial to employ measurement tools aimed at detecting the likely future voting behaviours of those who report being undecided. This is what will be pursued in the current paper.

*The role of affect in political judgment.* For a long time, research on decision making has underestimated the role of affect. The goal was mainly to develop normative models in which decision making was considered as a very rational process aimed at maximizing expected utility (e.g., Edwards, 1961). Affective responses were, at best, regarded as a side product of rational thinking that in no way could impact on the final outcome. Starting from the eighties, however, several researchers have demonstrated the strict interaction between affect and cognition (Bower, 1981; Simon, 1982). Our cognition about an object influences the way we feel toward the object (Lazarus, 1982), and, at the same time, these affective responses do shape our perceptive and cognitive processes. Other researchers even went a step further by claiming that the affective system may operate independently of the cognitive one, and that the former is more informative for the latter than vice versa (Zajonc, 1980). For instance, Abelson and his colleagues (Abelson,

Kinder, Peters, & Fiske, 1982) drawing upon survey data and found that affect toward candidates is a stronger predictor of voting behaviour compared to trait inferences about candidates (see also Marcus, 1991; Ragsdale, 1991; Riggle, Ottati, Wyer, & Kuklinski, 1992; Sullivan, Aldrich, Borgida, & Rahn, 1990). Similarly, Christ (1985), by means of discriminant analyses, found that the emotion-eliciting qualities of candidates were largely related to voting preferences at least in the case of decided voters. In sum, there is now widespread agreement about the crucial role of affect in political decisions (see Glaser & Salovey, 1998; Marcus & MacKuen, 2001).

Starting from these new theoretical perspectives, several different lines of research began to investigate the complex interplay of affective and cognitive processes. In particular, one fruitful line of research focused on the more spontaneous affective responses that arise when the perceiver encounters or thinks about a specific object. Importantly, such affective responses may arise in an automatic fashion without any need of consciously thinking or ruminating about the properties of the stimulus (Fazio, Sanbonmatsu, Powell, & Kardes, 1986; Zajonc, 1980; see also Johnson & Hasher, 1987). The investigation of these spontaneous affective responses has become particularly relevant because attitudes could be conceived of as a simple association between an object and the evaluation attached to it (Fazio, 2001). Therefore, spontaneous affective responses are automatically activated, without the need for conscious cognitive processes, and may then influence later behaviours. The efficiency of this process depends on the strength of the association between the object and the evaluation. The higher the accessibility of the affective responses (i.e., fast and efficient retrieval from memory) the stronger their influence will be on subsequent cognitive processes and behaviours. This hypothesis has been nicely demonstrated by Fazio and Williams (1986) in the course of the 1984 presidential elections in the United States. The authors asked a group of participants to evaluate a number of political topics and to report how much, in their opinion, Reagan and Mondale could be judged as good candidates for the presidential office. Importantly, the latencies between the end of a question and the response were collected as an index of accessibility, and they were indeed predictive of the coherence between the expressed attitude

and relevant behaviour: the faster the response, the higher the coherence between the expressed attitude and the subsequent voting behaviour.

This new conceptualization of spontaneous affective responses had a large impact on the study of decision making processes. Affective reactions can be conceived as the earliest responses to a stimulus. This idea is nicely captured by Zajonc who notes that «we do not just see 'a house': We see a 'handsome' house, an 'ugly' house, or a 'pretentious' house (...). We sometimes delude ourselves that we proceed in a rational manner and weight all the pros and cons of the various alternatives. But this is probably seldom the actual case. Quite often 'I decided in favour of X' is no more than 'I like X' (...) We buy the cars we 'like', choose the jobs and houses we find 'attractive', and then justify these choices by various reasons» (Zajonc, 1980, pp. 154-155).

Damasio (1990) has also demonstrated how rationality does not always lead to good choices if it is not supplemented by a preserved affective system. Emotions are necessary for making good choices that take into account the “pros” and “cons” of each option.

In the same line, Slovic and his colleagues (Slovic et al., 2002) proposed the so called “affect heuristic”, according to which affective responses emerge in a fast, spontaneous, and automatic fashion, and determine the background on which the decision is generated. The mental representations of objects and events are expected to be labelled according to their valence. When people are asked to express a judgement or make a choice, besides a search in memory for cognitive contents, they activate an affective tag containing all the evaluations which are consciously or unconsciously associated to the attitude object. In this way, affect is used as a cue to operate choices or make decisions. This affective feeling becomes immediately available and in several cases, especially when mental resources are limited, enables to overcome an effortful controlled analysis of all the positive and negative aspects of the choice.

This line of reasoning can be particularly valuable in the domain of political decision making. For instance, it has been proposed that political leaders, symbols, or issues that have been evaluated in the past are encoded in long-term memory together with an affective tag (Lodge & Taber, 2005;

Redlawsk, 2002). When individuals process new information they also activate previous concepts in memory together with the affectively linked nodes. Importantly, this retrieval can occur automatically. Therefore, in order to save time and mental resources, information processing may proceed on the basis of the “how do I feel?” heuristic (see Clore & Isbell, 2001). According to this strategy, if the emotions elicited by the new information are coherent with the activated affective nodes, the information is acquired, accepted and stored. In contrast, new information which contradicts current affect and evaluation, is denied, challenged, or simply ignored.

The results obtained in a research carried out by Morris, Squires, Taber, and Lodge (2003) using a psycho-physiological paradigm clearly support the above hypothesis. The authors used event related potentials within a priming paradigm, in order to test the hypothesis that the evaluative component of the attitude toward political leaders, social groups, and political issues is spontaneously activated by the mere exposition to the stimulus. To choose the concepts for the priming procedure, the same method used by Fazio and his colleagues (1986) was employed: In a pre-test session, participants were requested to produce, as quickly as possible, evaluative judgements about several objects, like political leaders and political concepts. The five strongest positive and negative stimuli were selected for each participant on the basis of the shortest response latencies, and were subsequently used as primes in an evaluative priming task, during which participants’ reaction times were recorded. Separate averages were calculated for response times following congruent prime/target pairs (e.g., response to a positive target word, which followed a prime object toward which the respondent had a positive attitude) and incongruent prime/task pairs (e.g., response to a negative target word, which followed a prime object toward which the respondent had a positive attitude). Results clearly demonstrated that mean response times were significantly slower when the prime/target pairs were affectively incongruent. These results allowed the researchers to conclude that implicit affective evaluations are automatically activated and that these evaluations influence the forthcoming information processing. This conclusion was further supported by the presence of a larger N400 component in the electrical brain activity for

incongruent pairs, which furthermore supported their conclusion, because such component is thought to reflect spontaneous reactions to incongruity (Kutas & Hillyard, 1980).

Results from a recent series of studies by Lodge and Taber (2005) and from a review on the use of the implicit measures in the field of political attitudes (Burdein, Lodge, & Taber, 2006) confirmed the automaticity of affective responses toward political leaders, parties, and political issues. More specifically, they demonstrated that the activation of consistent responses and the inhibition of inconsistent responses were stronger in the case of participants with more polarized attitudes and with more sophisticated political ideas. Taken together, these studies strongly suggest that there may be important differences across individuals in the affective responses activated by political matters. Even more interestingly, there are some hints that these differences may be predictive of individual behaviours (Fazio & Williams, 1986). This last aspect is the starting point of the present work.

In the current studies, we aimed at expanding the described theoretical and empirical work and at examining the spontaneous responses of both decided and undecided voters. According to the aforementioned literature, in the case of decided voters one should expect a large consistency between voting preferences and the evaluative tone of spontaneous responses (Burdein, Lodge, & Taber, 2006; Lodge & Taber, 2005; Morris et al., 2003). Most importantly, we tested whether the spontaneous affective responses of undecided voters are predictive of their subsequent voting behaviours. We hypothesized that the investigation of the spontaneous and automatic attitudes of those who describe themselves as still undecided in the pre-electoral surveys will provide insights into how weakly developed attitudes develop into electoral choices. These attitudes may indeed not be solid enough to be expressed at the explicit and conscious level in the pre-electoral interview, but at the same time they likely guide cognitive processes leading to later voting behaviour.

*The Implicit Association Test (IAT).* Several implicit attitude measures are now available in the literature (De Houwer & Eelen, 1998; Fazio et al., 1986; Greenwald et al., 1998; Nosek &



Banaji, 2001). Most of these techniques are based on the analysis of spontaneous evaluative processes (e.g., De Houwer, 2006; Fazio & Olson, 2003). Among these instruments, the Implicit Association Test (IAT, Greenwald et al., 1998) has emerged in the last few years as the most frequently used and most carefully tested technique.

The IAT is based on a series of computer-administered categorization tasks. Participants are requested to discriminate stimuli belonging to four different categories. For instance, in a study assessing spontaneous political preferences, participants may be presented with pictures of left- and right-wing candidates together with positive and negative words. In the initial two phases of the IAT, participants are required to either categorize evaluative words on the basis of their valence (phase 1) or political candidates on the basis of their political membership (phase 2). Stimuli appear on the monitor one after the other and participants have to quickly categorize them by using two response keys on the computer keyboard. These two initial phases basically serve to learn the meaning of each response key. The third phase is a combination of the previous two phases and participants have now to perform a double categorization task. Both evaluative words and pictures of political candidates are presented one after the other in random order, and participants are required to categorize words as either “good” or “bad” and political candidates as either “left-wing” or “right-wing” politicians. Importantly, only two response keys have to be used. Therefore, the same response key has to be used, for example, for both positive words and left-wing politicians, whereas another response key has to be pressed to categorize both negative words and right-wing politicians. In this case, if the respondent’s attitude toward left-wing politicians is positive, the task will be relatively easy since evaluatively congruent concepts have to be mapped together on the same response key. In contrast, participants with right-wing political ideas will find it more difficult to perform the task and this will result in an increased number of errors as well as in longer response latencies. In general, when the task requires to press the same key for two concepts that are already associated in the mental representation of the participants, the performance will be facilitated. In addition, such facilitation tends to increase the greater the mental association

becomes stronger. In the fourth phase of the IAT, participants have to categorize again the pictures of political candidates but the response key assignment is reversed in comparison to the second phase. The fourth phase is a learning phase in order to prepare participants to the fifth and last phase. In the fifth phase, participants have again to perform a double categorization task as in the third phase. This time, however, the association between evaluative words and political leaders is reversed with respect to the third phase. If in the third phase left-wing politicians shared the same response key with positive words, they now share the same response key with negative words, whereas the opposite holds true for right-wing politicians.

The rationale underlying the IAT measure is quite straightforward. As said, if two concepts, such as left-wing and positive, are associated in the cognitive representation of the respondent, and these two concepts share the same response key, then the categorization task will be easier, as compared to the task in which the two concepts are mapped onto different response keys. One characteristic of the IAT, which is critical in the present study, consists in the fact that no direct question is asked to participants about their attitudes (i.e., it is an indirect measure). In fact, it has been shown that implicit attitudes may be investigated through the IAT even when participants try to conceal them (Asendorpf, Banse, & Muecke, 2002; Banse, Seise, & Zerbes, 2001; Egloff & Schmuckle, 2002; Fiedler & Bluemke, 2005; Kim, 2003; Steffens, 2004). Furthermore, because of the indirect nature of the IAT, the respondent does not need to be aware of the mental representations under investigation, because IAT performance does not rely on conscious introspection, so that it is generally dissociated from controlled and verbally reported attitudes.

Thus far, the IAT has been applied to the study of attitudes toward several different social groups and issues (e.g., Amodio & Devine, 2006; Dasgupta & Rivera, 2006; Knowles & Peng, 2005), toward the self (e.g., Bosson, Swann, & Pennebaker, 2000), or toward physical objects like consumer goods (e.g., Brunel, Tietje, & Greenwald, 2004). Most importantly for our purposes, it has also proved useful in the investigation of political attitudes. For instance, Nosek and his colleagues (Nosek, Banaji, & Greenwald, 2002) applied the IAT in a study on the 2000 American

Presidential polls, demonstrating that this instrument is highly sensitive to the preference of respondents for one of two presidential candidates (see also Knutson, Wood, Spampinato, & Grafman, 2006). The positive features of the IAT concern several aspects. Beside the ease of implementation, the IAT has very good psychometric properties and it usually displays higher levels of reliability as compared to other implicit measurement techniques (Cunningham, Preacher, & Banaji, 2001). In addition, it is sensitive to individual differences (e.g., Greenwald et al., 1998) so that IAT-measured attitudes may be used to predict individual behaviours (see Asendorpf et al., 2002; McConnell & Leibold, 2001).

At the general level, the responses to the IAT seem to tap primarily an affective component. At least two different sets of results support this claim. First, there is evidence that IAT-measured attitudes often correlate with affectively based explicit measures – like responses to the feeling thermometer- but not with explicit measures that require conceptual judgments (Greenwald et al., 1998). Even more strikingly, it has been shown that responses to the IAT correlate with relevant psychophysiological responses, like amygdala activation (Phelps, O'Connor, Cunningham, Funayama, Gatenby, Gore, & Banaji, 2000). To the extent that amygdala activation signals early and uncontrollable affective responses, it is assumed that the IAT also captures spontaneous affective responses toward social targets.

*Overview of the research.* In the present work, two studies are presented, aimed at assessing the predictive validity of implicit political preferences, measured through the IAT, in relation to voting behaviour. The goal of the first study, conducted before the Italian General Election of 2001, was to investigate the validity of the IAT as an instrument for the prediction of the voting behaviour of those who had a clear political preference at the moment of the administration of the test. Hence, voters who had already developed a clear choice were administered an IAT aimed at investigating their evaluation of the two opposing political parties, and we examined how well the IAT index predicted their actual voting behaviour. In the second study, conducted prior to the Italian Local Elections of 2005, the performance on the IAT was used as predictor of the voting behaviour of

undecided voters, that is of those respondents who in the pre-electoral interview reported that they still had to make a choice.

### Study 1: The general elections, 2001

*Overview and main hypotheses.* The aim of this first study was to investigate the predictive validity of the IAT as an instrument for the detection of political attitudes and for the forecast of voting behaviours. In the Italian General Election of May 13, 2001, most parties were allied in two coalitions, called ‘Casa delle Libertà’ (the right-wing political coalition) and ‘Ulivo’ (the left-wing political coalition), headed respectively by Silvio Berlusconi and Francesco Rutelli. Since the whole electoral campaign of the two coalitions was focused on the two leaders, we investigated the relative preference for either Berlusconi or Rutelli. A sample of voters was contacted for a pre-electoral interview, approximately 4 weeks before the election, and the participants were administered an IAT that assessed the relative preference for the two political leaders. They were re-contacted after the election and asked for which coalition they had voted. This allowed us to test the relation between implicit political attitudes and the subsequent voting behaviour.

### *Method*

#### *Participants*

Seventy-four participants (47 male and 27 female) aged between 18 and 65 years, and living in the urban districts of Milan, were recruited thanks to the assistance of a national survey agency, that had already sampled them for participation in focus groups.

#### *Procedure*

One month before the election (Time 1), participants were asked whether they had already decided for whom to vote and, if they had already made up their mind, to report their preferred coalition. Next, they were administered the IAT, aimed at detecting the relative preference for Silvio Berlusconi (leader of the right-wing coalition) or Francesco Rutelli (leader of the left-wing coalition).

Pictures and names of the two candidates were used as stimuli in the IAT, together with 6 positive and 6 negative words (see Greenwald et al., 1998). As discussed in the introduction section, the whole IAT procedure consisted of a series of five blocks of trials (see Table 1 for a detailed presentation of the sequence of phases). In the first block of trials participants were required to categorize positive and negative words. In the second phase, the task required to categorize pictures of the two political leaders, Berlusconi and Rutelli. In the third phase, both evaluative words and pictures of the two candidates had to be categorized. The fourth phase required again to categorize pictures of the two political leaders, but this time the meaning of the response keys was reversed with respect to the second phase. In the fifth and last phase, there was again a double categorization task, but this time the pairing between a given candidate and evaluative words was reversed in comparison to the third phase. Whether the left-wing candidate shared the response key with positive words in the third or fifth phase was counterbalanced across participants, so as to avoid eventual order effects (see Greenwald et al., 1998).

A week after the election (Time 2) all participants were contacted again and invited to report their actual voting behaviour. Finally they were fully debriefed.

## *Results*

### *Pre-electoral intentions and voting behaviour*

Forty-four respondents had already made up their mind at the time of the pre-electoral interview (Time 1). Specifically, 12 of them intended to vote for the right-wing coalition, 22 for the left-wing coalition, and the other 10 were scattered among minor parties that were not allied with the major coalitions. The remaining 30 respondents reported to be undecided.

Seventy-two participants were again contacted after the election (Time 2), whereas two undecided participants could not be reached. Fifty-two participants went to the polls (19 voted for the right-wing, and 33 for the left-wing coalition) and 20 did not vote. Of the 12 participants who intended to vote for the right-wing coalition, 11 behaved according to their stated intention, and one

did not go to the polls. Of the 22 participants who intended to vote for the left-wing coalition, 18 voted according to their stated intention, and 4 did not go to the polls. Out of the 10 respondents who stated that they intended to vote for other parties, 1 gave the preference to the right-wing coalition, three to the left-wing coalition, and six did not vote for either coalitions (they voted for other parties, or choose not to vote). Out of the remaining 28 participants who described themselves as ‘not yet decided’ in the pre-electoral interview, 7 voted for the right-wing coalition, 12 for the left-wing coalition, and 9 did not vote or voted for parties that did not belong to one of the two major coalitions.

#### *Implicit political preferences and voting behaviour*

For each respondent, we computed a Diat index of preference for the two candidates. Latencies outside the 300-3000 ms. window were excluded and data were then treated in accordance to Greenwald’s scoring algorithm (Greenwald, Nosek, & Banaji, 2003). The computation of the Diat index requires several steps that are fully described by Greenwald and his colleagues (2003). This recently proposed index basically takes into account several different aspects of the performance, namely the mean response latencies in the two critical phases, the number of errors in such phases, as well as the overall variability in the responses of the participant. In this way, for each participant it is possible to verify whether pairing a given candidate to positive rather negative words corresponds to faster responses and a lower number of errors. In addition, the index takes into account individual differences in response time, so that the emerging implicit attitude score is not artificially influenced by the participant’s overall speed of response (i.e., larger index for slower participants). We arbitrarily calculated the Diat index in such a way that higher values indicated a relative preference for Rutelli over Berlusconi.

The validity of IAT-measured implicit attitudes was first investigated by comparing the implicit attitudes of those participants who had a well-formed explicit preference for the right-wing and for the left-wing coalition at the moment of attitude assessment, as expressed by their voting

intentions. A t-test revealed that the mean values of the Diat indexes of these two groups of respondents were clearly different,  $t(32) = 6.771$ ,  $p < .001$ ,  $\eta = .767$ , indicating that in the case of well-formed attitudes, implicit attitudes were also largely divergent ( $M = -.69$ ,  $SD = .42$  for participants who intended to vote for the right-wing coalition, and  $M = .78$ ,  $SD = .68$  for those who intended to vote for the left-wing coalition, respectively).

In order to test the coherence at Time 1 between the explicit and implicit attitudes of the decided voters we calculated a dichotomous index of implicit preference, considering as in favour of Berlusconi all the participants who were more facilitated in the task that associated Berlusconi with positive concepts, and viceversa, considering in favour of Rutelli those who were more facilitated when associating Rutelli and positive concepts. This dichotomous index of implicit preference was crossed with the expressed voting intentions at Time 1 thorough a chi-square analysis. The result,  $\chi^2(1) = 19.52$ ,  $p < .001$ , confirmed the high coherence between the implicit attitude component and the explicit voting intentions at Time 1.

Further analyses were restricted to those 52 participants (33 already decided and 19 not-yet-decided at Time 1) who actually voted for one of the two major candidates. A hierarchic logistic regression analysis on voting behaviour was conducted, in which the Diat index and certainty status at Time 1 (i.e., decided vs. undecided) were entered in the first step, and their interaction in the second step. The Diat index was standardized before computing the interaction term. The model in the first step was highly significant,  $\chi^2(2) = 29.858$ ,  $p < .001$ ,  $R^2 = 0.437$  (Cox and Snell),  $R^2 = 0.598$  (Nagelkerke). More specifically, the Diat index was a significant predictor of the vote,  $\text{Wald}(1) = 12.733$ ,  $p < .001$ , whereas certainty was not predictive of the vote,  $\text{Wald}(1) = .157$ ,  $p = .692$ . The interaction that was entered in the second step did not add any predictive power to the model,  $\chi^2(1) = 1.047$ ,  $p = .306$  for the second step,  $\text{Wald}(1) = .998$ ,  $p = .320$  for the interaction term.

The fact that the interaction term was not significantly related to the voting behaviour provides a preliminary indication that the Diat index was a good predictor of the actual vote both for participants who had already developed their choice and for undecided voters at Time 1. To

further investigate the predictive value of the IAT for the two groups of voters – decided and undecided at Time 1 – two separate logistic regression analyses were performed. Both in the case of decided and undecided participants the Diat index was regressed onto actual voting behaviour. A highly significant effect emerged in the case of decided voters,  $\chi^2(1)=25.678$ ,  $p<.001$ , and the ROC analysis (Green & Swets, 1974) yielded an AUC=.95, indicating that the Diat index could almost perfectly predict voting behavior at the individual level, among the decided voters. As for undecided voters, the logistic regression analysis was again significant,  $\chi^2(1) = 5.225$ ,  $p < .05$ , and the ROC analysis yielded an AUC = .79.

### *Discussion*

These results indicate that the implicit attitudes of participants who, at the moment of the pre-electoral interview, had already made up their mind, were almost perfectly related to their subsequent voting behaviour, supporting the validity of the IAT as an instrument for the prediction of voting behaviours. Even more interestingly, a clear relation emerged between the implicit attitudes of undecided voters and their subsequent voting behaviour.

The latter result is particularly interesting because it provides support for the hypothesis of the presence of embryonic and unconscious attitudes in the cognitive maps of those voters, who at the explicit level, deny a preference for one of the candidates. It was shown here that these nascent attitudes may be detected through an implicit measurement technique, namely the IAT. Indeed, these unconscious attitudes were highly related to actual voting behaviours approximately four weeks later. However, a limit of the present analysis consists in the small number of undecided respondents who took part in the study. Therefore, during the subsequent Italian Local Elections, which took place in April 2005, we conducted a second study, specifically focussing on undecided voters.

### Study 2: The local elections, 2005



The aim of study 2 was to examine the implicit attitudes of those voters who described themselves as still undecided in the pre-electoral interview, and to further investigate the validity of the IAT as a means of predicting of the electoral choice of those voters. Hence, only voters who described themselves as ‘not yet decided’ were eligible for this second study, in which we assessed the relative implicit preference for one of the two leading candidates (one month before the election) and actual voting behaviour in the Italian local election of 2005.

### *Method*

#### *Participants*

Several hundred people were contacted and asked whether they had already made their voting decision, that is whether they could identify a preferred candidate if the election were to be held the following day. When they were approached, these people were informed that we did not want to know for whom they intended to vote, but only whether they had already made up their decision, and that only those who described themselves as ‘undecided’ were eligible for the present study. In this way, we could be confident that our sample comprised only truly uncertain voters, because those who usually describe themselves as ‘undecided’ in order to conceal their political position in this case could have easily responded ‘yes’ without needing to disclose their choice. No credits, gifts or money were given to the participants.

Fifty-eight undecided voters were recruited approximately one month before the Local Election (Time 1) that was held in Veneto (Italy) in April 2005. All participants lived in the urban districts of Padova.

#### *Procedure*

At Time 1, participants who self-reported being undecided for the coming election performed an IAT to assess their implicit preference for either Galan (the right-wing candidate) or Carraro (the left-wing candidate). They were then given a questionnaire and a pre-stamped envelop and asked to

send it back after the election with the indication of their actual vote. In order to guarantee complete anonymity no socio-demographic data were collected and anonymity was further guaranteed by using numerical codes rather than names.

As in the previous study, to represent the two candidates in the IAT, six different pictures of the right-wing-coalition candidate, Giancarlo Galan, and six pictures of the left-wing-coalition candidate, Massimo Carraro, were used. Six positively valenced and six negatively valenced words (e.g., joy, love, ugly, death) were used to represent the two poles of the attitudinal dimension. The structure of the IAT was similar to the first study, and the order of administration of the two critical double-categorization blocks was counterbalanced between participants to avoid order effects. A detailed presentation of the various phases of IAT employed in the present study is provided in Table 2.

At the beginning of the session, every participant was given a different numerical code. This code was used to identify their performance on the IAT. Participants completed the IAT, and were subsequently given a short questionnaire on their voting behaviour, which they were asked to complete and send to the researchers after the election day (Time 2). The numerical code assigned to the participant was printed on the questionnaire, and this enabled to match the IAT performance with the questionnaire.

### *Results*

Fifty-one participants (88%) returned the questionnaire. Thirteen of these voted for Galan, 24 voted for Carraro, 8 did not go to the polls, and 6 voted for other candidates. Data from the IAT were treated as in Study 1, and higher values on the Diat index indicated a preference for Carraro over Galan.

A logistic regression analysis on the data from those participants who either voted for Carraro or for Galan, revealed that individual differences in the IAT index were significantly associated with voting behaviour,  $\chi^2(1)=6.329$ ,  $p<.02$ . The ROC analysis yielded an AUC=.734. Therefore, the

goodness of fit of the model and the ROC analysis support the predictive validity of implicit attitudes on future voting behaviours, even among undecided voters.

Further analyses were computed to investigate whether the Diat index discriminated the implicit attitudes of those voters who choose one of the two major candidates, from those voters who ended up giving their vote to other candidates or not voting. Because of the low number of those voting for other candidates and those not voting at all, and because of the similarity of their mean Diat indexes, we combined these two categories. Subsequently, an analysis of variance was carried out on the Diat index entering the voting choice (Galan, Carraro, neither of them) as between-participants factor. The results (see Figure 1) indicated that the Diat indexes were significantly different,  $F(2,48) = 3.136$ ,  $p < .05$ ,  $\eta^2_p = .116$ . Those who later voted for Galan showed negative scores on the IAT ( $M = -.14$ ,  $SD = .54$ ), those who voted for Carraro had positive scores ( $M = .38$ ,  $SD = .61$ ), and those who voted for neither of them fell exactly in between ( $M = .09$ ,  $SD = .70$ ). A linear trend analysis confirmed this finding [contrast: .369;  $F(1,48) = 6.246$ ,  $p < .02$ ].

### *Discussion*

Results from the present study confirmed, with a larger sample of participants, the existence of implicit political preferences in the attitudinal system of undecided voters. In accordance to what was observed in the first study, these spontaneous preferences were congruent with the political choices that were expressed during the vote, approximately 4 weeks later. The predictive power of the index yielded by the implicit measurement technique was well above chance, and the signal detection analysis furthermore indicated that the IAT had a good level of sensitivity to differences in implicit attitudes, and these differences were related to the future voting behaviour.

### General discussion

The main goal of the present research was to assess the latent preferences of people who define themselves as undecided prior to a political vote. We tested the hypothesis that, despite a

verbal report of uncertainty, undecided voters would nonetheless express different spontaneous affective responses toward the two candidates and, more specifically, that these spontaneous responses would be predictive of the future voting behaviours. To this end, we employed the IAT to detect the implicit component of the not-yet structured decision process. The IAT is considered as a reliable measure of implicit associations and it proved its predictive validity in several domains like consumer (Brunel, Tietje, & Greenwald, 2004) or nonverbal behaviours (McConnell & Leibold, 2001). It is here demonstrated that the IAT may also enable to predict actual voting behaviours, even in the case of voters who report about being undecided. Placing an emphasis on implicit attitudes is consistent with the hypothesis that a large number of social evaluations are the result of unintentional and automatic processes that occur outside of consciousness but that ultimately have a large impact on behaviours. In particular, it is here demonstrated in two different studies that the implicit attitudes about the two competing political candidates were significant predictors of the electoral choice both in the case of decided and undecided voters.

*Hot cognition and automatic affect toward political candidates.* The present results provide important indications on the significance of automatic preferences for voting behaviors. As we discussed in the introduction section, for a long time the role played by emotions, and particularly by spontaneous affect, was only marginally considered in research on decision making and voting choices, in what may be called the ‘cold’ cognition approach to political thinking. The citizen was often considered as a rational thinker. For example, several studies were conducted to understand the strategies underlying the information seeking process that accompanies the development and expression of a political choice. Interesting results emerged from this line of research, which could identify for instance the logical rules adopted in this information search process (e.g., Huang & Price, 2001; Lau, 2003; Lau & Redlawsk, 2001; Redlawsk, 2004). But in the meanwhile, the idea that emotion and affect play a significant role in electoral choices was slowly developing and many researches have now shown the relevance of ‘hot’ cognition, such as affective reactions toward political entities.

Evidence supporting the relevance of affective states in the political choices are accumulating (e.g., Abelson, Kinder, Peters, & Fiske, 1982; Bassili & Roy, 1998; Lau & Redlawsk, 2001; Lodge & Taber, 2005; McGraw, 2000; Morris et al., 2003; Redlawsk, 2004). According to the “hot cognition” view (see Lodge & Taber, 2005), sociopolitical concepts are affect laden. Once a sociopolitical concept has been evaluated, it becomes affectively charged and this affective tag is automatically activated within few milliseconds after the mere exposure to the concept. According to the ‘hot cognition’ hypothesis, this evaluation should be automatically activated any time one is presented with the candidate or a symbolic representation (Lodge & Taber, 2005).

Lodge and Taber (2005) found support for the hot-cognition hypothesis with an affective priming paradigm. Results from the present studies further support the hot-cognition hypothesis using a different implicit measurement technique, the IAT. Moreover the present results expand previous findings in an important way. The relevant question addressed here related to the role played by implicit political attitudes in the case of undecided voters. We hypothesized that spontaneous affective responses could also be shown by undecided voters, even though such spontaneous affective reactions were likely to be less strong in comparison to voters who already hold well-developed attitude structures. Importantly, spontaneous affective responses proved to be predictive of future voting behaviours and therefore a crucial additional question remains to be answered: What are the mechanisms that connect implicit preference and conscious expression of the political choice?

*How can implicit and unconscious preferences influence explicit voting behavior?* There is probably more than one way to bridge the gap between unconscious preferences and the conscious expression of the vote. One of these paths is related to the role played by automatic cognition in directing selective attention and perception. Beginning from the seminal work of Lazarsfeld and his colleagues (Lazarsfeld, Berelson, & Gudet, 1944), research showed that voters are not passive recipients of information, but they are actively involved in information selection (e.g., Donsbach, 1989; Redlawsk, 2002; Taber & Lodge, 2001, 2006), memory (e.g., Meffert et al., 2006; Redlawsk,

2001), and in all stages of information processing, including interpretation and counterarguing (e.g., Ditto & Lopez, 1992; Meffert et al., 2006; Taber & Lodge, 2006). Hence, on the basis of previous affect, the voter decides which information to attend and to process. Then the selected information is transformed and remembered according to the voter's motivations and pre-existing preferences. As a result of this biased information processing, attitude polarization arises (see Meffert et al., 2006; Taber & Lodge, 2006). This implies that even embryonic spontaneous affective responses, as those evidenced by undecided voters, are expected to exert an immediate and direct effect on subsequent processing, so that one's prior implicit preferences powerfully constrain the selection, encoding, and evaluation of new information (Lodge & Taber, 2005).

The pervasiveness of these automatic processes on incoming information is directly related to the strength of the attitude (e.g., Lodge & Taber, 2005). In particular, Meffert et al. (2006) and Taber and Lodge (2006) hypothesized and found that the strength of the initial attitude influenced the impact on selective cognitive processes: The polarization effect emerged most strongly among those participants who had strong initial candidate preferences, whereas those with weak and undifferentiated attitudes showed less bias in processing political arguments. Therefore, the impact of previous attitudes is expected to be stronger in the case of citizens who already hold well-developed and structured attitudes. Nonetheless, even where spontaneous affective preferences are initially small, they may still have expected to fuel a series of processes that lead to selectively accumulate evidence in favour of one of the two candidates and ultimately to vote for this candidate.

In sum, unconscious affective reactions toward political candidates, like the embryonic attitudes we detected among undecided voters, may guide the gathering and interpretation of information in the weeks before the election, and thus determine the direction in which the electoral choice is shaped. Future research will definitely have to focus on this general hypothesis that posits a link between spontaneous affective responses and selective information processing. In some cases, as for decided voters, the perceiver will eventually end up with more polarized attitudes, but, in the

case of undecided voters, knowledge about their spontaneous affective responses may provide insight in the process of attitude formation from initial indecision to the conscious expression of an electoral choice.

*The political affect – voting behaviour expressway.* Perhaps an even more intriguing path connecting affect and behaviour is a direct connection between automatic affect and approach-avoidance tendencies (see also Lodge & Taber, 2005). Substantial evidence does indeed indicate the presence of two broad motivational systems. One is called the ‘approach’ system, underlying approach toward rewarding stimuli. This system is associated with the experience of positive affect. The other is called the ‘avoidance’ system, underlying avoidance of aversive stimuli. This system is conceived as associated with the experience of negative affect (Lang, 1995; Lang, Bradley, & Cuthbert, 1998; Panksepp, 1998; Strack & Deutsch, 2004; Sutton & Davidson, 1997). Recent work in social cognition provides support for the notion that the mere presence of affectively laden stimuli can automatically activate these systems and the corresponding action dispositions (e.g., Castelli, Zogmaister, Smith, & Arcuri, 2004; Chen & Bargh, 1999). Such results are in line with a description of affect as mainly consisting in adaptive behavioural dispositions to approach what is positive and to avoid what is negative (Davidson, 1993; Lang, 1995). Similarly, voting decisions might be related to the interplay between the approach and avoidance motivational systems. This direct ‘*political affect – voting behaviour*’ link might be particularly relevant for the consistent minority of voters, who make their electoral choice in the electoral booth. Further research is needed to investigate this hypothesis.

*Automatic affect and the forecast of electoral results.* In addition to their theoretical implications, the current results are also particularly relevant for those engaged in the forecast of electoral results. Undecided voters often represent a relevant proportion of the electorate, and in many cases make the difference in the verdict of the polls. The Italian General Election of April 2006 is a perfect example of this situation. According to the surveys, even three days before the election day, a percentage of about 3-5% of the electorate declared themselves as still uncertain

about whether they would vote for the left-wing or the right-wing coalition, and those who were undecided could therefore determine the outcome. Especially in circumstances like these, an indication about the political preferences of those undecided people could be extremely valuable for people interested in voting forecasts. When the electoral choice is made very late, sometimes even inside the polling booth, implicit measures could improve our predictions. Of course, in the present paper we focussed on the underlying processes rather than on the prediction of the electoral outcome, and to this end we employed a numerically restricted sample which was not representative of the overall population. Polling agencies, however, may combine probabilistic sampling with the simultaneous collection of both implicit and explicit political attitudes measures. In this way, implicit attitude measures may represent additional predictors that are expected to increase the ability to foresee future voting behaviours and electoral outcomes.

Implicit and explicit attitudes are hypothesized to jointly contribute to the development of a voting choice. It has to be stressed that, in the present research, we did not test explicit attitudes in depth. We merely asked participants about their voting intentions at Time 1, that is for whom they would have voted if the elections were to be held the following day. Therefore, we collected only broad information about the fact of being decided or undecided, and in the former case for what candidate participants intended to vote. This research strategy did not enable to directly test whether there was any dissociation between implicit and explicit attitudes. Nevertheless, more sensitive explicit measures could also be used in conjunction with the IAT, like semantic differentials aimed at assessing the attitude toward each of the candidates or the forced requirement to indicate the preferred candidate. The collection of such data would allow to determine the correlation between implicit and explicit attitudes. Yet, the in-depth investigation of explicit attitudes among undecided voters might lead them to express a given preference at Time 1 and then to later report a consistent voting behaviour. Therefore, the forced verbal expression of a preference may artificially increase the consistency between explicit attitudes at Time 1 and the vote at Time 2. Thus far, in the present



research we opted for less intrusive explicit attitude measurements, but planned future research will also include a more detailed investigation of undecided voters' explicit attitudes.

A final and related concern has to do with the unique role of implicit measures - like the IAT - in the attempt to grasp the future voting behaviours of undecided voters. We are not claiming that implicit attitude measures represent the only way to improve our predictive ability, and subtle questionnaire measures may well provide additional useful information. The goal for the future is therefore to combine implicit attitudes measures and paper and pencil measures that tap political preferences in an indirect way with the final objective to better understand the psychological processes that characterize undecided voters. The present work moves in this direction and suggests that the undecided voter is probably a less mysterious and inscrutable object than it has been considered so far.

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Table 1.

Trial blocks used in the IAT task (Study 1)

Block	Type of judgment	Left key	Right Key	Number of trials
1 Learning block	Attribute categorization	Negative	Positive	12
2 Learning block	Concept categorization	Rutelli	Berlusconi	18
3 Critical block	Combined categorization	Negative or Rutelli	Positive or Berlusconi	66
4 Learning block	Revised concept categorization	Berlusconi	Rutelli	18
5 Critical block	Revised combined categorization	Negative or Berlusconi	Positive or Rutelli	66

NOTE: The order of the critical blocks 3 and 5, and accordingly of the learning tasks 1 and 4, was counterbalanced between participants.

Table 2.

Trial blocks used in the IAT task (Study 2)

Block	Type of judgment	Left key	Right Key	Number of trials
1 Learning block	Concept Categorization	Negative	Positive	12
2 Learning block	Attribute Categorization	Galan	Carraro	18
3 Critical block	Combined categorization	Galan or Negative	Carraro or Positive	66
4 Learning block	Revised concept categorization	Carraro	Galan	18
5 Critical block	Revised combined categorization	Carraro or Negative	Galan or Positive	66

NOTE: The order of the critical blocks 3 and 5, and accordingly of the learning tasks 1 and 4, was counterbalanced between participants.

Figure Caption

Figure 1: Mean Diat index depending on the voting choice for Galan, Carraro or neither of them (Study 2). More positive values indicate a higher preference for the left-wing candidate (Carraro), more negative values indicate a higher preference for the right-wing candidate (Galan).

Figure 1

