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Abstract. This article proposes an extended model of how "media priming effects" come about, distinguishing between several mediators and moderators of priming. The model is tested using data from an experiment on Swiss foreign policy in which undergraduate students were provided with different types of biased information about the relationships between Switzerland and the European Union. The empirical analysis suggests that cross-sectional and cross-temporal effects are facilitated by quite different moderators, and that very few variables moderate priming according to both perspectives. In that respect, political knowledge, the level of recall of the experimental message, and awareness of the persuasive intent of the message appear central to the priming mechanism.

Keywords: • Experiment • Foreign policy • Moderators • Priming effects • Switzerland

Introduction

The study of political information and of its effects on voters has been on the scholarly agenda for several decades now. However, especially since the 1970s, there has been an accelerating development of research methods in communication science and a striking expansion in the scope and variety of mass media effects which have progressively been taken into account (see Kinder, 1998). In this article, I shall deal with just *one* aspect of political information, namely, the so-called *priming effects* of the mass media. The priming theory argues that the media provide voters with the "issues of the day," and thus influence the criteria by which they will judge the performance, personality, capacities, and other attributes of candidates. In other words, "by calling attention to some matters while ignoring others, [political news] influences the standards by which governments, presidents, and candidates for public office are judged" (Iyengar and Kinder, 1987: 63). Any type of information can, under proper circumstances, permeate the considerations

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that citizens bring to bear on their attitudes and, sometimes, on their behavior. Likewise, although the priming theory was developed primarily to study political attitudes and behavior in the context of elections, it can be equally applied to the context of direct democratic issues (for example, De Vreese, 2004).

My task in this article will be to explore whether experimental stimuli have the potency to prime evaluations of the possibility of Switzerland joining the European Union (EU). More broadly, my purpose is threefold. First, by investigating the basic priming hypothesis using experimental data, I wish to perform a stringent test of some central, but largely unexamined, assumptions of the priming theory. For example, does the assumed "hydraulic pattern" of priming (whereby stressed issues gain prominence to the detriment of ignored ones) hold when more than two issues are considered? A second purpose of my study is to determine whether priming is a mediated process. More specifically, I shall attempt to determine *which individual-level variables matter in the priming process*. I thus want to identify which "filter variables," or moderators, assume a role in enhancing or inhibiting priming effects. Third, I wish to clarify some methodological issues associated with the study of priming effects. Most notably, it may be instructive to pit the cross-temporal method against the cross-sectional method, and to ascertain whether both methods can be combined into a single design which may prove more efficient for the detection of presumably modest effects. This article will address these and related questions using experimental data collected at five Swiss universities in April and May 2005.

The second section of this article is devoted to the presentation of my theoretical model. I shall distinguish between the various mechanisms (or "mediators") implied in the priming process, as well as between the main independent variables (or "moderators") which have been shown or can be thought to come into play in that process. In Section 3, I familiarize the reader with the empirical data; issues related to the research design, to data collection, and to variable measurement will be addressed in detail. Section 4 then takes up the task of applying my model to the data at hand, showing that priming indeed occurred, but only under the most "favorable" conditions. Next, a concluding section discusses some ambiguous or unexplored aspects of my analysis, and sums up the main results of the article.

The Model

Mediators of Priming

In part, political attitudes are *structurally* determined. Swiss attitudes toward the question of EU accession are no exception in this regard (for example, Christin and Trechsel, 2002; Sciarini and Listhaug, 1997). Yet, however important this structural component may be, a substantial part of the variance in evaluations of Swiss EU membership has *contingent* causes, depending on which issues are tackled by the mass media, by referendum campaigns on European matters, or by friends and relatives, and depending on how deeply these issues are highlighted. In that respect, the priming theory points to how issues and arguments leave an imprint on citizens' minds, and how they can determine preferences toward EU membership. As we shall see, the theory is extremely fertile, but it is also complex to operationalize, not least because the very concept of "priming" is polysemic and there exist several understandings of what priming really means. Originally, the concept was introduced in biology, medicine, and engineering, from where

it was borrowed by social and cognitive psychology. The common idea of most psychological definitions is that mental constructs once activated (or "*primes*") remain temporarily accessible and applicable to the interpretation of stimuli encountered in the present ("*the priming effect*").[1] Solicitation of a primed category renders this category immediately available for making sense of a new piece of information, which is then encoded in memory together or *closely associated with the prime*. Thus, information will be evaluated in close proximity with the prime (for example, positively or negatively, depending on the affective value of the prime) at some later time (for a review, see Fiske and Taylor, 1991: 257–66; Wyer and Srull, 1989: Ch. 6).

Later on, the concept was adopted by communication and political scientists, who have made somewhat simplified use of it. In their conception, priming is essentially a "retrieval bias," whereby frequently or recently activated memories tend to outweigh less salient or less easy-to-use information in the making of judgments about political objects; the assimilation and biased-encoding features of the priming process are generally neglected. However, because of its focus on the *retrieval* step of the process, this priming theory is not sufficient, in my opinion, to account for the full effect of those variables mediating the *encoding* step. At the same time, introducing new variables sets out new concerns, because some of them yield opposite effects from one step of the process to the next (Iyengar and Kinder, 1987: 95–6; Miller and Krosnick, 2000: 303–4). On occasion, these countervailing effects may cancel one another, producing a seemingly absent or trivial net impact on priming.

What we need, then, is a more encompassing picture of the successive steps a piece of information must take in order to become an ingredient of some political judgment. My reasoning is that the whole process is roughly similar to the stochastic chain of psychological mechanisms outlined by specialists in the field of attitude-change research, but *with differential emphasis on some mediating steps*. Briefly described, "information-processing" models (for example, McGuire, 1985; Zaller, 1992) posit that the path to attitude change is punctuated by a series of "mediators," *each of which is conditional on the fulfillment of that preceding it.* Accordingly, extensive efforts to persuade individuals to accept or reject EU membership can be ruined by the failure to overcome a single step, because a possessive information "is like a chain. It cannot be stronger than its weakest link" (Alcalay and Bell, 2000: 18).

Elsewhere (Marquis and Gilland Lutz, 2004), we have developed a fuller account of the causal chain of mediators, distinguishing seven main steps from exposure to evaluation. Now, from the standpoint of *priming* theory, the importance of some mediators is reduced in comparison with more standard *persuasive* settings, while others deserve more careful consideration. To begin with, I share McGuire's (1985: 286) concern that attitude research has focused too exclusively on the *yielding* mediator. There is reason to believe that a person can retain pieces of information which she takes to be incompatible with her own values, predispositions, or knowledge (for example, Eagly et al., 2000). Moreover, although getting such "unconvincing" information is hardly relevant for the modification of core attitudes toward an object, it does contribute to the *activation* of pre-existing memories and thus to "refreshing" one's attitudes. This occurs because of the assumed *associative structure of human memory* (for example, Anderson, 1983) and because "spreading activation" between related concepts in the memory network reinforces the utilized associative pathways (McGuire, 1960).[2]

Another reason for stressing the activation step is that accessible mental constructs play a role in the interpretation and *encoding* of new stimuli, as I argued earlier. For instance, people use schemata and other mental concepts for assimilating new information, so far as these concepts have been primed with sufficient frequency or recency (for example, Fiske and Taylor, 1991: Ch. 7; Ottati and Wyer, 1990). Priming can thus be seen as a non-recursive, biased process in which the provision of new information and individual attributes jointly determine the saliency of mental constructs, which in turn guide the acquisition and activation of further beliefs.

Salient constructs also play a paramount role in the *recall* step, as they are most easily remembered or serve as *retrieval cues* to search for less accessible beliefs. For example, accessible schemata or attitudes are considered to bias the recall of stored information (for example, Eagly and Chaiken, 1993: 599–604; Lodge and McGraw, 1991). As a consequence, beliefs that happen to possess numerous, strong, and fluid links with top-of-the-head constructs have a greater likelihood of being recalled than less accessible beliefs. Next, if the interpretation of information, and especially of *ambiguous* stimuli, is prejudiced by the meaning of salient memory elements, then this mechanism may also apply to the *evaluation* mechanism (that is, the providing of evaluative responses about any type of attitude object).[3] Of course, *experimental* studies can achieve a more reliable picture of the underlying factors of evaluations by making priming unobtrusive and by controlling with some precision the nature and quantity of incoming information. This is impossible for either survey researchers or for political actors vying to impose "their" issues on the agendas of both the media and voters. Nevertheless, electoral campaigns are most likely "organized with priming in mind" (Kinder, 1998: 182).

To sum up, we may distinguish *seven essential steps* in the priming process. First, *exposure* to new information must take place for any of the next steps to occur. Second, effective *reception* of an argument depends, among other things, on a person paying sufficient attention to it and comprehending it. Third, *yielding* to the persuasive content of an argument may occur, in which case it modifies related attitudes. To do so, however, requires, fourth, that accepted information undergoes *encoding* in memory. Fifth, a stored belief may experience an *activation* process through the reception of directly or indirectly related material, which reinforces its links with other constructs and heightens the likelihood of it being recalled at some later time. Sixth, the *retrieval* step occurs when information is recovered from long-term memory and deposited into working memory. Finally, *evaluation* represents a conceptually distinct step (though empirically difficult to separate) from retrieval, as people combine retrieved ideas with elements of the response context to produce evaluative responses.

Moderators of Priming

According to the information-processing approach, the effect of some particular moderator variable on attitudes and opinions follows from its multiplicative impact on each successive step in the information-processing chain. I believe that identifying the relevant moderators is a theoretical as much as an empirical matter. If one conceives of priming effects as a "satisficing bias," whereby a person restricts the basis of her thoughts or actions to just the few considerations that come most easily to mind, variables such as issue knowledge and personal salience may well play the primary role. However, research has shown that phenomena

affected by priming effects range far beyond evaluation or decision-making situations. In short, moderators of priming effects are probably not limited to the variables shown to influence the mix of considerations used for expressing opinions or making decisions.

As a matter of fact, empirical analyses of priming vary in both the dependent and independent variables under study.[4] In this article, I will restrict my discussion to one category of independent variables, namely, to *political issues*. However, that does not make things much easier. Depending on which primes and which target objects are highlighted by the empirical context or investigated by researchers, moderators of priming effects may well differ from one situation to the next.

First, political information focusing on well-identified, divisive issues imbued with strong partisan undertones tends to put a premium on partisanship and other *predispositions*. Thus it is that some studies have identified priming as a "highly partisan phenomenon" (Ansolabehere and Iyengar, 1995: 88). A party that "owns" an issue is often successful in priming evaluations or votes through this issue among its supporters, but usually fails to distract voters with other ideological leanings from their own concerns (Iyengar and Kinder, 1987: 93).

By contrast, political *knowledge* may come to play a more important role with respect to issues which are of less salience, and whose ideological implications are less easily identifiable. This is expected because knowledge has a facilitating role in the reception step (more knowledgeable people tend to have better perception, understanding, and interest in the political messages they receive, in particular, when these messages are low-key), but also in the encoding and retrieval steps.[5] Primes will thus be better assimilated into the cognitive structure of knowledgeable people, and their activation effect on related beliefs will be more enduring, enhancing the likelihood that they will influence later evaluations. However, *when issues are simple or familiar* or when they give way to abundant information, virtually everybody is able to perceive and interpret media messages; accordingly, political knowledge plays a lesser role in the reception step. However, because novices have more to learn about "simple" issues, the ratio of newly acquired primes to pre-existing considerations will tend to be larger for novices, and the overall effect of knowledge will be to swamp the impact of any new encoded information (Holbrook et al., 2001; Lodge et al., 1995; Zaller, 1992).[6]

In sum, *variations in the context of political communication* may well explain why knowledge tends to increase priming in some cases (for example, Krosnick and Brannon, 1993; Miller and Krosnick, 2000) and tends to decrease priming or yields no effect in other cases (for example, Iyengar and Kinder, 1987; Iyengar et al., 1984; Krosnick and Kinder, 1990). One would expect the same varying pattern of effects with respect to the *personal salience* of issues. By "personal salience" I mean the interest and personal significance attributed to an object. Salience has been related to the *depth* of processing and to alternative *modes* of processing (for example, Ajzen and Sexton, 1999; Petty and Cacioppo, 1986). An issue of personal relevance to a person will tend to foster a more "elaborate" or "systematic" processing of information related to this issue. By contrast, more "peripheral" or "heuristic" styles of processing are devoted to affectively less engaging information. As a result, information acquired under conditions of low involvement has been found to be more unstable, more susceptible to counterargumentation, and less predictive of behavior than information encoded under high involvement. In the short run, the difference between motivated and unmotivated citizens may well

be trivial. But this is less likely when some delay between exposure to primes and evaluation enhances the importance of stable, high-involvement mental constructs.[7] In the end, given the lack of evidence about the role of personal salience in the priming process, this role remains essentially an empirical question.[8]

Many empirical studies have been unable (or unwilling) to discriminate between sheer exposure to a message and attention to it (that is, a component of the reception step). Therefore, *attention* has rarely been studied in its own right. Furthermore, the *general* level of attention paid to potential primes varies greatly between situations. For example, although attention seems to be an important prerequisite for a variety of priming effects to take place, neuropsychological research on basic priming tasks has shown that even subconscious primes can trigger cognitive processes (for example, Dehaene et al., 2002; Squire and Kandel, 1999: Ch. 8).[9] However, research on more obtrusive issues has yielded inconsistent results, depending on the salience, inherent attractiveness, or ambiguity of such issues. Therefore, the overall effect of the "attention" moderator is pretty difficult to judge.

More often than not, ambiguous or uncertain situations tend to *enhance* reliance on the media (Blumler and Gurevitch, 1996). Therefore, the level of *media exposure* has been shown to facilitate the priming of issues at stake in elections, referendums, or other political events. Indeed, exceptions have been reported where media exposure has tended to prime candidates' features, but not *issues* (for example, Gidengil et al., 2002; Mendelsohn, 1996); where experimental messages have maximized priming effects already at moderate exposure levels (Iyengar et al., 1984); and where the media have had only short-lived effects on evaluations or no effect whatsoever (for example, Iyengar and Kinder, 1987; Zaller, 1998). Still other studies do not measure media exposure directly, but rather infer it from differences in the standards of evaluations that people make before and after some key event. Finally, Krosnick and Brannon (1993) observed that media exposure *decreases* priming when tested in a multivariate analysis along with knowledge and interest. This may be because those people with a high level of exposure to the media absorb many additional stories and are also attentive to domains which are peripheral to the main prime – in other words, the impact of the "big message" is diluted.

To sum up, I have outlined five potential moderators of priming effects that have been focused on in the literature: political knowledge, predispositions, personal salience, attentiveness to information, and media exposure. Table 1 (p. 193) provides hypotheses as to the *mediators* in which these five variables are likely to be involved. In particular, one should note that *political knowledge* is assumed to facilitate priming by regulating the reception, yielding, encoding, activation, retrieval, and evaluation steps. Although knowledge might have opposite effects at different steps, its pervasive impact throughout most information-processing stages may produce the biggest effect of all the moderators examined.

An Extension to Classical Models of Priming Effects

Recently, several empirical studies have focused on the interactive effects of different *moderators*, suggesting at the same time the importance of distinguishing between *mediators* of priming. However, my effort in this article will not be directed toward the identification of interactions between moderators. Rather, I will attempt

to broaden the base of potential moderators of priming, drawing on some recent work in the priming literature and on research outside the field. Beyond the five moderators stressed above, no less than 15 other variables will be examined in this section and tested in the empirical section.

Trust in the Media

In Miller and Krosnick's (2000) account of the priming of presidential evaluations, political knowledge promoted priming only among people who trusted the media. However, the general allocation of trust to media sources may have a more direct effect on priming, by enhancing the likelihood of information being properly received, accepted, encoded in memory, and later activated by further encounters with mass media information.

Recall of Information

The role of retrieval from memory in the priming process is still largely unknown. Although most studies *assume* that retrieval is important, none has systematically checked whether information recall mediates priming. Neurophysiological research (for example, Donaldson et al., 2001) has established that the performance at basic priming tasks is dissociated from the performance in explicit memory retrieval. However, priming through more complex stimuli, as are common in political communication, might require a more active role for explicit memory systems. To the extent that different features of recalled information may be dealt with using distinct retrieval mechanisms, I propose to distinguish between the *content* of information, the *sources* of information, and *peripheral aspects* (such as length, illustrations, or titles). The underlying hypothesis is that better performance in all types of recall will promote priming, at least as far as information is difficult to recall in the first place.

Learning from, and Reactions to, Information

According to the "cognitive response" theory (for example, Greenwald, 1968; Petty and Cacioppo, 1979), part of the persuasive effect of a message is not due to information itself, but to how people react to information and generate their own considerations about the issues at stake. "Self-generated attitude change" (Tesser, 1978) might also be relevant to priming. I hypothesize that the more people react to, and learn from, information, the stronger will be the memory trace of that information and the priming effects.

Awareness of Persuasion

As has long been known by attitude researchers (for example, McGuire and Papageorgis, 1962), the awareness of a source's intent to persuade can fuel resistance to its messages. Similarly, people who are aware of the influence of primes tend to *correct for this influence*, rather than "assimilate" it (DeCoster and Claypool, 2004). This might hold especially when the abundance or one-sidedness of information arouse the suspicion of the possibility of being "manipulated."

Bias and Liking of Information

When priming information is about divisive issues (such as with many political issues and European policy in Switzerland in particular), it cannot be taken for granted that the position advocated is irrelevant to priming. In other words, there is no reason to expect information stressing positive or negative aspects of an issue to have equal and symmetrical priming effects. In part, this is because the *match between the information bias and a person's own position* on an issue is likely to influence her susceptibility to priming. As uncongenial information elicits counterarguing, it is sometimes processed more deeply and is no less memorable than congenial information (Eagly et al., 2000). Therefore, one might expect uncongenial information to yield stronger priming effects than congenial information. Further, the degree to which people *like* the information they are provided with may also moderate the priming process, by facilitating the reception, acceptance, encoding, and retrieval of information.

Timing of Procedures

Moderators of priming effects may also be contingent on the *scope and methods of analysis* defined by researchers. Specifically, the delay between the *acquisition* and the *operation* of primes is variable in empirical research, yielding different and sometimes contradictory results. Typically, experimental studies allow for only a brief delay between exposure to priming information and evaluation. By contrast, survey research implies longer periods of time. In general, priming effects decrease in magnitude as a function of the amount of time between prime and stimulus (see DeCoster and Claypool, 2004; Wyer and Srull, 1989: 124–5).[10] But when the delay between measurements can be controlled experimentally, its influence on priming should be assessed directly. Further, in the context of this study, a related variable was taken into consideration: the experiment's temporal proximity to the vote on the Schengen–Dublin agreements (June 5, 2005). Because this vote gave rise to a heated campaign and provided subjects with numerous arguments, and because the vote took place only two weeks after the last two-week wave of the experiment, participants in the last waves may prove less affected by the experiment's priming information. Thus, the "Schengen" moderator ensured that I controlled for the "natural competition" of the ballot campaign in priming overall EU evaluations.

Question Order

Recent research has underlined the role played by the accessibility and "applicability" of primes (for example, DeCoster and Claypool, 2004; Todorov, 2000). I will not directly investigate whether accessibility does mediate priming (see Miller and Krosnick, 2000; Valentino et al., 2002). However, by varying the order of questions posed to subjects, it is possible to manipulate to some extent the *salience of primes*. In one version of the questionnaire, issue-specific evaluations were requested *before* overall evaluations; hence, subjects under this condition should find it easier to incorporate issue-specific considerations into their evaluations of EU membership. When asked first about their issue-specific evaluations,

individuals might be induced to "think" more deeply about the implications of particular issues.[11] At the same time, though, this *question-related* priming is likely to *decrease* the magnitude of *information-related* priming. Because subjects who were asked about specific evaluations prior to overall evaluations were anyway reminded of the relevance of particular issues, there may be less leeway for information to manipulate issue relevance between the first and second experimental sessions.

Table 1 lists all moderators discussed in this section, together with the mediators in which they may be involved. I deliberately neglected other possible moderators in the process, such as the role of interpersonal communications (see Gidengil et al., 2002; Mendelsohn, 1996), which proved impossible or difficult to gauge with experimental procedures. On the other hand, to complement understanding of the role of political knowledge in priming, I distinguish between two types of such knowledge: *chronic* (or general) knowledge and *issue-specific* (that is, foreign policy) knowledge. This distinction is warranted because chronic and issue-specific knowledge can be very differently distributed in the population and have been shown to have quite different consequences for the way people process political information (for example, Alvarez and Brehm, 2002; Delli Carpini and Keeter, 1996; Gilens, 2001; McGraw and Pinney, 1990).

TABLE 1. *Hypothesized Moderators of Priming*

Moderator	Possible mediators
Classical measures	
1. Chronic knowledge	Reception, yielding, encoding, activation, retrieval, evaluation
2. Specific knowledge	Reception, yielding, activation, evaluation
3. Personal salience	Reception, yielding, encoding, evaluation
4. Left–right self-placement	Yielding, encoding, activation, evaluation
5. Chronic media exposure	Encoding, activation
6. Attention to the message	Reception, encoding
Additional measures	
7. Trust in the media	Reception, yielding, encoding, activation
8. Recall of the content	Retrieval, evaluation
9. Recall of cues	Retrieval, evaluation
10. Recall of peripheral aspects	Retrieval, evaluation
11. Total recall (average of 8 to 10)	Retrieval, evaluation
12. Message learning	Encoding, retrieval
13. Emotional reactions	Encoding, retrieval
14. Awareness of persuasive attempt	Yielding, encoding, retrieval, evaluation
15. Bias of the message	Reception, yielding, encoding
16. Congeniality of the message	Reception, yielding, encoding
17. Liking of the message	Reception, yielding, encoding, retrieval
Experimental parameters	
18. Delay T0–T1	Activation, retrieval
19. Temporal proximity to voting day	Encoding, activation, retrieval
20. Order of questions	Encoding, evaluation

Operationalization

Experimental Procedures

Subjects

The data were gathered during April and May 2005 in the context of an experimental study conducted at the five Swiss universities of Bern, Zürich, Fribourg, Lausanne, and Geneva. The experiment consisted of two sessions, separated by a three-day to 11-day time-span. The time-span was left to the discretion of subjects who had participated in the first session, and who were asked to come back on any day of the following week. At the end of the second session, subjects were paid SFr20 (about €13) for their participation.[12] Given the requirements of the experimental design (see below), my objective was to recruit at least 30 participants for each condition. This goal was attained, as my research team managed to get 505 students who participated in both sessions.[13]

Experimental Design

The present study is aptly described as an "experiment" because it unobtrusively and randomly assigned participants to different treatment groups and because the stimulus information was varied across groups. Apart from controls, 14 experimental conditions were defined to account for the main hypothesized differences in message effectiveness. Table 2 provides a description of how four major variables combine in my experimental design: (1) the *directional bias* of the message (pro-EU versus anti-EU); (2) the "*length*" of the message, that is, the num-ber and relative proportions of pro- and anti-arguments (long two-sided versus short two-sided versus long one-sided); (3) the *type of questionnaire* (see below); and (4) the *type of sources* attributed to the various arguments, which will not be taken into account in this study.[14]

Experimental Message

As sketched above, participants received the experimental message after completing the first questionnaire. These four-page to seven-page texts were presented

TABLE 2. *Definition of Experimental Conditions (Total N = 505)*

Message length	Source assignment	Type of questionnaire	Directional bias of the message	
			Pro-EU	Anti-EU
Short, 2-sided	Type 1	OS	1 ($N = 32$)	2 ($N = 31$)
Long, 1-sided	Type 1	OS	3 ($N = 31$)	4 ($N = 31$)
	Type 1	SO	5 ($N = 32$)	6 ($N = 32$)
Long, 2-sided	Type 1	OS	7 ($N = 31$)	8 ($N = 31$)
	Type 1	SO	9 ($N = 32$)	10 ($N = 31$)
	Type 2	OS	11 ($N = 32$)	12 ($N = 32$)
	Type 3	OS	13 ($N = 32$)	14 ($N = 33$)
No message	None	OS	15 ($N = 31$)	
	None	SO	16 ($N = 31$)	

Notes: OS indicates "Overall then Specific" questionnaires and SO "Specific then Overall" questionnaires.

as a magazine article about the "future of relationships between Switzerland and its European neighbors." Actually, the texts (hereafter referred to as the "experimental message") were produced by the research team on the basis of *real* arguments and facts found in newspapers and Internet sources, and their content was varied according to the different experimental conditions.[15]

Six issues were chosen to be addressed in the message (see Table 3): neutrality, economic growth, the free movement of people and jobs, direct democracy (that is, referendums and popular initiatives), monetary policy (for example, introduction of the euro), and bank secrecy. The issues were selected to be as different as possible on two dimensions: familiarity and obtrusiveness.[16] In addition to the six issues just presented, two further issues were considered: criminality as well as education and research. These issues were not addressed in the message, but subjects were asked about them in the questionnaire. Although overall evaluations of EU membership may well depend on the subjects' attitudes toward criminality and education, the relevance of such attitudes is unrelated to the experimental treatments. Therefore, these issues served as "control issues" in assessing the validity of my findings.

As can be seen from Table 3, issues were assigned to three categories. Type-one issues (neutrality, direct democracy, and economic growth) were arguably more familiar to the subjects than type-two issues (bank secrecy, the free movement of people, and monetary policy). Therefore, a difference in priming effects between these two types of issue might be due to their difference in terms of prior familiarity. Finally, type-three issues consist of the "control issues." The usefulness of these issues is that they also allow for the "hydraulic" or "zero-sum game" hypothesis of priming to be tested (for example, McCombs and Zhu, 1995; Rogers and Dearing, 1988; Zhu et al., 1993). If this hypothesis is true, then the relevance of type-three issues should *decrease* over time, while the relevance of other issues should increase.

In the pro-EU conditions, the message was biased toward positive information about the consequences of EU membership in the six mentioned policy domains; in the anti-EU conditions, the message content was predominantly negative. For both pro- and anti-messages, I further manipulated the number of issues covered and the proportion of pro and anti arguments. In the *short, two-sided version*, only the three type-one issues were treated, and for each issue three arguments (either pro- or anti-EU) were provided along with a single counterargument. In the *long, two-sided version*, all six issues were treated, and for each issue the proportion of arguments to counterarguments was also 3:1. Last, the *long, one-sided version*

TABLE 3. *Nature of the Issues Covered by the Issue-Specific Evaluation Questions*

Type-1 issues	Type-2 issues	Type-3 issues
1. Neutrality (F/UO)	4. Bank secrecy (UF/UO)	Criminality (F/UO)
2. Economic growth (UF/UO)	5. Free movement of people and jobs (RF/O)	Education and research (F/O)
3. Direct democracy (F/O)	6. Monetary policy, euro (RF/UO)	–

Notes: Familiar (F), relatively familiar (RF), unfamiliar (UF), obtrusive (O), and unobtrusive (UO). The numbering refers to the order in which issues appeared in the experimental message.

covered all six issues, but with only two arguments and no counterargument for each issue.

Questionnaires

The questionnaires contained an experimental treatment for inducing subjects to "think" more or less deeply about the issues before making their general evaluations of EU membership. In the "Overall then Specific" (OS) questionnaire, handed out to 69 percent of participants, subjects were first asked about their overall evaluations, and next about their issue-specific evaluations. Conversely, in the "Specific then Overall" (SO) questionnaire, handed out to 31 percent of subjects, specific questions preceded the general question. Thus, when subjects were asked for their overall evaluation of EU membership, they had *already* thought about some possible underlying causes of their evaluation. To avoid inflating the required number of cases, the SO condition was introduced only for the long-message conditions. However, in order to assess the impact of thinking independently from the impact of the message, the SO questionnaire was also assigned to one-half of control subjects (see Table 2, condition 16).

Most questions were identical in the first and second questionnaires, that is, at the first and second experimental sessions. However, at the end of the first session, after reading the message, subjects were requested to give their opinions about the message itself. Responses to these questions were used to measure some of the moderator variables (for example, message learning). Another difference between the two sessions was that the first questionnaire contained several questions regarding political knowledge, while the second one contained several questions to measure the degree of message recall. Finally, the second questionnaire asked subjects whether they had been exposed to any information (from media or interpersonal sources) about each of the eight issues taken into consideration. This additional information is of crucial importance in determining the *total* degree of exposure to issue-specific information.

Measurement

Dependent Variable

The *overall evaluations* of EU membership were measured by the question: "On the whole, are you in favor or against Switzerland joining the EU?" An 11-point scale was supplied to judge the issue, on which zero meant "definitely against it" and 10 "definitely for it." Subjects who failed to provide a valid answer at T0 or at T1 (only at T1 for the cross-sectional analysis) were excluded from the analysis, as were subjects who failed to provide a valid answer on any of the issue-specific evaluations. This procedure led me to remove up to 173 subjects. Up to 42 further subjects were also removed because overall evaluations at T0 or T1 were obviously mistaken.[17] After leaving these cases out of the analysis, 290 cases were left in the cross-temporal sample and 406 cases remained in the cross-sectional sample.

Independent Variables

Issue-specific evaluations were tapped by the question: "How would you gauge the consequences of Switzerland joining the EU for [name of the issue]?" On a nine-point scale, zero stood for "only bad consequences," four for "as many good as

bad consequences," and eight for "only positive consequences." The alternative option "no consequence at all" was recoded as four. The appraisal of one type of issue was then measured as the mean of all relevant evaluations.

An analysis of variance was conducted to ascertain that overall and issue-specific evaluations were independent of the experimental parameters (length, bias, and question order) at the first session, that is, prior to any experimental treatment. None of the overall or issue-specific evaluations at T0 exhibited any significant between-group differences.

For each type of issue, *exposure* can be expressed as a linear function of the length of the experimental message received and of the amount of additional information received between the two experimental sessions: Exposure = Length + Addinfo, where length can take the value zero (for controls, for type-three issues, and for short messages in the case of type-two issues), two (for one-sided messages), or three (for two-sided messages); Addinfo is zero when no issue is mentioned, one for one issue, and two for two or more issues. The resulting exposure measures are a six-point scale for type-one and type-two issues and a three-point scale for a type-three issue.[18]

A detailed description of all *moderator variables* is to be found in the Appendix. Finally, to implement the effect of *time*, the data were stacked, that is, measures for each subject were duplicated so as to allow for quantifying differences between the T0 and T1 effects of issue-specific evaluations on overall evaluations. Time is a dummy variable indicating which measures are considered (0 = T0 and 1 = T1). Hence, for instance, a positive coefficient for $T \times A_1$ would mean that the influence of type-one issues on overall judgments was stronger after the experimental procedure than before, leading us to conclude that the experiment enhanced the relevance of these issues for evaluating the EU-membership question.

Conceptualizing Priming Effects

There are two common strategies to determine whether priming effects were operating among subjects. First, one can follow the T0–T1 changes in the issue-specific ingredients of overall evaluations, and observe if these changes fit the predicted pattern – an increase in the importance of "tested issues" and a decline in the importance of "ignored issues." The *baseline cross-temporal model* (that is, without moderator variables) can be specified as:

$$\text{EUeval} = B_0 + B_{11}(T) + \sum_{i=1}^{n} \{B_{2i}(A_i) + B_{3i}(T \times A_i)\}$$

and the *moderator model* can be expressed as:

$$\text{EUeval} = B_0 + B_{11}(M) + B_{12}(T) + B_{13}(M \times T) + \sum_{i=1}^{n} \{B_{2i}(A_i) + B_{3i}(M \times A_i) + B_{4i}(T \times A_i) + B_{5i}(M \times T \times A_i)\}$$

where M = moderator, T = time, A_i = appraisal (that is, evaluation) of a type-i issue, and $n = 3$ (that is, there are three types of issue being considered). In total, the baseline model includes eight coefficients (seven variables and one constant), whereas the moderator model includes 16 coefficients (15 variables and one constant). The coefficient for $T \times A_i$ should be positive for tested issues

and negative for ignored ones. The influence of a moderator is established by a significant $M \times T \times A_i$ interaction. However, in order to make sure that a given moderator has a direct and robust influence on priming, a number of control variables, in the form of other moderators, will be entered as main effects in the model. Chronic knowledge, personal salience, and left–right self-placement have been selected for their considerable theoretical relevance, since they are assumed to play a role in several mediators of priming, as well as for their strong and significant relationships with *all* types of EU evaluation.

Second, one can compare experimental groups at T1, and examine whether and how issue-specific evaluations interact with exposure measures in determining the overall evaluation of EU membership. The *baseline cross-sectional model* (that is, without moderator variables) can be specified as:

$$\text{EUeval} = B_0 + \sum_{i=1}^{n} \{B_{2i}(E_i) + B_{3i}(A_i) + B_{4i}(E_i \times A_i)\}$$

and the *moderator model* can be specified as:

$$\begin{aligned}\text{EUeval} = {} & B_0 + B_{11}(M) + \sum_{i=1}^{n} \{B_{2i}(E_i) + B_{3i}(A_i) + B_{4i}(E_i \times A_i) + B_{5i}(M \times E_i) \\ & + B_{6i}(M \times A_i) + B_{7i}(M \times E_i \times A_i)\}\end{aligned}$$

where M = moderator, E_i = exposure to a type-*i* issue, A_i = appraisal of a type-*i* issue, and $n = 3$ issues. In total, the baseline model includes 10 coefficients, while the moderator model includes 20 coefficients. The coefficient for $E_i \times A_i$ is expected to be positive in all cases, and the effect of some moderator is established by a significant $M \times E_i \times A_i$ interaction. However, similar to the cross-temporal analysis, a number of control variables have been included to ascertain this influence (that is, chronic knowledge, personal salience, and left–right self-placement).

The cross-sectional design has both advantages and disadvantages. On the one hand, by using a more fine-grained measure of exposure, including "uncontrolled" information received between the two experimental sessions, I hope to be able to show whether priming increases monotonically as a function of *total* exposure, as is suggested by the "dosage hypothesis" (see Miller and Krosnick, 1996). Thus, the cross-sectional perspective sets the focus on *between-subject* variance. On the other hand, it is unable to assess temporal, *within-subject* variance. This diagnostic, of course, is reversed in the case of the cross-temporal design.

Unfortunately, whatever the particular merits of the two methods, neither can claim to tell more than one part of the story (see also Section 4.3 below). The logical conclusion of this line of reasoning is to combine both into a single model. This can be done without excessive difficulty. Drawing on previous models, the *full model* can be specified as:

$$\begin{aligned}\text{EUeval} = {} & B_0 + B_{11}(T) + B_{12}(M) + B_{13}(T \times M) + \sum_{i=1}^{n} \{B_{2i}(E_i) + B_{3i}(A_i) \\ & + B_{4i}(E_i \times A_i) + B_{5i}(M \times E_i) + B_{6i}(M \times A_i) \\ & + B_{7i}(M \times E_i \times A_i) B_{8i}(T \times E_i) + B_{9i}(T \times A_i) + B_{10i}(T \times E_i \times A_i) \\ & + B_{11i}(T \times M \times E_i) + B_{12i}(T \times M \times A_i) + B_{13i}(T \times M \times E_i \times A_i)\}\end{aligned}$$

where M = moderator, T = time, E_i = exposure to a type-*i* issue, A_i = appraisal of a type-*i* issue, and $n = 3$ issues. In total, the full model includes 40 coefficients. Priming effects are denoted by significant positive coefficients for the $T \times E_i \times A_i$ interaction terms, and priming is mediated by a moderator when the four-way interaction terms yield significant effects. Further, the $T \times A_i$ coefficient allows for determining whether only cross-temporal effects are present, while the $E_i \times A_i$ coefficient does the same with respect to mere cross-sectional effects. Thus, the model allows one to assess the general way in which the relevance of issues changes as a function of time and exposure. Unlike previous models, though, I give up including control variables in this model because effects are expected to be, at best, quite modest, not only judging from the results of simpler models, but also given the multilayered structure of effects and the great number of variables taken into account. Therefore, predictors that were shown to have a powerful influence on overall evaluations of EU membership would certainly shut down the effect of complex interaction terms of the sort analyzed here.

Empirical Results

Longitudinal Evidence

In this section, I shall analyze changes in the evaluation criteria of EU membership using a within-subject perspective and focusing on the interaction of time and issue-specific evaluations. Testing the baseline model provides the following results:

$$\begin{aligned} \text{EUeval} = {} & 6.76{**} + .001(\text{T}) + .78{**}(\text{A}_1) + .51{**}(\text{A}_2) + .67{**}(\text{A}_3) \\ & + .04(\text{T} \times \text{A}_1) + .18(\text{T} \times \text{A}_2) - .26{*}(\text{T} \times \text{A}_3) \end{aligned}$$

where ** indicates that $p < .001$, * indicates that $p < .05$, $N = 502$ (without control groups), and adjusted $R^2 = .65$.

Although issue-specific evaluations have a great influence on overall evaluations at T0, there is very little evidence that this influence increases over time for the issues tested. On the other hand, the results suggest that *non*-tested issues decline in importance between the two sessions. In other words, it seems that the experimental message was not successful in enhancing the relevance of the specific issues it addressed, but that it *was* successful in diverting attention from the issues that it did not address, although these ignored issues had a quite strong influence on evaluations of the EU at the time the experiment took place.

However, two fundamental specifications have yet to be considered. First, it cannot be taken for granted that priming effects were constant across experimental conditions. The length and directional bias of the experimental message, as well as the order of issue-specific and overall evaluation questions, may affect the magnitude of priming. Second, as stressed in the theoretical section, a number of moderator variables could be involved in the priming mechanism, and entirely different conclusions may hold for different categories of subjects.

Influence of Experimental Conditions

Considering first the issue of experimental conditions, Table 4 provides the results of the basic model distinguishing between the "length," "bias," and "question order"

parameters and between the various conditions resulting from the combination of these features. Looking first at the T0 impact of issue-specific evaluations (the third to fifth rows in each model in Table 4), significant differences occur between conditions. Yet while some of these differences were expected, others were not. On the one hand, it was to be expected that the "thinking" condition would facilitate the influence of tested issues to the detriment of ignored issues. As a matter of fact, the coefficients for issues one and two are almost systematically lower in the OS groups than in the SO groups, while the opposite holds for issue three. This pattern is partially confirmed by a comparison of the two control groups, in which the influence of type-two issues is boosted by "thinking," but that of type-one issues is not. However, this result is similar to the results obtained for the other groups, namely, that less familiar, type-two issues profited most from having been made salient by previous questions.

On the other hand, major T0 differences between groups receiving long and shorter messages or between groups receiving pro-EU and anti-EU messages are unexpected, since they cannot be explained by the influence of messages subjects had *not* received yet. Thus, while small differences between the T0 influence of issue-specific evaluations are certainly unavoidable, some of the larger differences that can be observed in Table 4 cannot be easily explained and may have consequences for the detection of priming effects per se.[19]

Turning now to the T0–T1 difference in the impact of issue-specific evaluations (the last three rows in each model in Table 4), three main patterns emerge from the results. First, some groups exhibit similar results, namely, the groups given pro-EU or long, two-sided messages, as well as those handed out OS questionnaires. In fact, these three characteristics have *additive* effects on priming. As emphasized by the italicized coefficients in Table 4, in any two-way or three-way combination of them, the importance of type-two issues increased, while the impact of type-three issues declined and that of type-one issues remained essentially the same. Thus, although unable to increase the relevance of (supposedly) familiar issues, some experimental treatments apparently succeeded in enhancing the impact of less well-known issues and in downplaying the importance of the issues that were ignored in the message.

Second, the effects of alternative conditions (that is, anti-EU and one-sided messages, as well as SO questionnaires) are less straightforward. Subjects given an anti-EU message exhibited no change at all in the influence of their issue-specific evaluations. Subjects provided with one-sided messages were less likely in the second session to base their overall evaluations on type-three issues. As for subjects who were given an SO questionnaire, they recorded no change at all in the ingredients of their EU evaluations, suggesting that, by and large, "question-related" priming inhibited "message-related" priming.

Finally, neither subjects in the control groups nor subjects under the short-message conditions exhibited any significant T0–T1 change. While this inertial pattern fits theoretical expectations for the control groups, an increase in the importance of type-one issues was expected among subjects exposed to the short message. However, results for other conditions suggest that priming of overall EU evaluations through an enhancement of type-one issues is rather unlikely, and may occur only in particular conditions (that is, one-sided messages coupled with an anti-EU endorsement or "thinking" inducement). In contrast, both enhancing type-two issues and lessening the importance of ignored (but initially salient)

TABLE 4. *Baseline Cross-Temporal Model of Priming Effects (OLS Regression), Distinguishing Message Bias, Message Length, and Question Order*

	Pro-EU	Anti-EU	Control	Two-sided, long	One-sided, long	Two-sided, short	OS order	SO order
Constant	6.64**	6.90**	6.57**	6.74**	6.74**	6.77**	6.82**	6.41**
	(.15)	(.13)	(.28)	(.13)	(.18)	(.33)	(.11)	(.18)
Time	.02	.00	.02	.06	.01	.14	–.02	.17
	(.21)	(.19)	(.40)	(.18)	(.26)	(.48)	(.15)	(.25)
Type-1 issues	.97**	.65**	.68*	.86**	.39*	1.68**	.71**	.80**
	(.17)	(.14)	(.27)	(.14)	(.21)	(.49)	(.12)	(.18)
Type-2 issues	.38**	.67**	.63**	.43**	.74**	.21	.37**	.89**
	(.13)	(.12)	(.23)	(.11)	(.16)	(.34)	(.10)	(.16)
Type-3 issues	.82**	.52**	.80**	.74**	.68**	.61*	.83**	.46*
	(.13)	(.11)	(.27)	(.11)	(.17)	(.25)	(.09)	(.18)
Type-1 issues × time	*–.12*	.13	–.02	*–.16*	.50†	–.30	*.03*	.06
	(.26)	(.23)	(.42)	*(.21)*	(.33)	(.69)	*(.18)*	(.31)
Type-2 issues × time	*.29†*	.08	.11	*.41**	–.15	–.10	*.26**	.01
	(.20)	(.20)	(.36)	*(.19)*	(.24)	(.53)	*(.15)*	(.26)
Type-3 issues × time	*–.46**	–.04	–.19	*–.28**	–.39*	–.10	–.27*	–.32
	(.19)	(.17)	(.39)	*(.17)*	(.23)	(.39)	*(.14)*	(.25)
Adj. R^2 (*N*)	.62	.69	.64	.68	.63	.53	.67	.65
	(260)	(242)	(78)	(302)	(140)	(60)	(398)	(182)

(TABLE 4 continued)

	Pro-EU × two-sided, long	Pro-EU × one-sided, long	Anti-EU × two-sided, long	Anti-EU × one-sided, long	Pro-EU × OS	Pro-EU × SO	Anti-EU × OS	Anti-EU × SO	Two-sided, long × OS	One-sided, long × OS	Two-sided, long × SO	One-sided, long × SO
Constant	6.61**	6.52**	6.88**	6.90**	6.78**	6.29**	7.01**	6.55**	6.80**	7.14**	6.38**	6.34**
	(.20)	(.29)	(.16)	(.23)	(.17)	(.28)	(.16)	(.21)	(.15)	(.23)	(.25)	(.25)
Time	.14	.20	–.03	–.09	–.14	.47	.02	–.18	.07	–.22	.10	.38
	(.28)	(.41)	(.23)	(.33)	(.25)	(.41)	(.23)	(.30)	(.21)	(.33)	(.35)	(.37)
Type-1 issues	.98**	.73*	.79**	.18	.84**	1.23**	.61**	.57*	.75**	.20	1.18**	.57*
	(.21)	(.36)	(.18)	(.25)	(.20)	(.33)	(.17)	(.23)	(.16)	(.24)	(.26)	(.33)
Type-2 issues	.30*	.69**	.55**	.81**	.19	.65**	.59**	1.01**	.33*	.35*	.61**	1.13**
	(.18)	(.23)	(.15)	(.22)	(.15)	(.24)	(.15)	(.20)	(.13)	(.19)	(.23)	(.23)
Type-3 issues	.85**	.69*	.59**	.73**	1.05**	.10	.52**	.67**	.90**	.83**	.01	.84**
	(.16)	(.30)	(.15)	(.21)	(.14)	(.30)	(.14)	(.20)	(.12)	(.22)	(.26)	(.25)
Type-1 issues × time	*–.28*	–.06	–.10	.87*	*–.01*	–.23	.16	–.19	*–.05*	.47†	–.66†	.73
	(.33)	(.53)	(.27)	(.45)	*(.30)*	(.53)	(.27)	(.48)	*(.25)*	(.35)	(.44)	(.63)
Type-2 issues × time	*.66**	–.02	.18	–.19	*.44**	.10	.05	.37	*.45**	.01	.54†	–.45
	(.28)	(.37)	(.24)	(.34)	*(.23)*	(.39)	(.24)	(.40)	*(.21)*	(.29)	(.40)	(.40)
Type-3 issues × time	*–.59**	–.48	.05	–.46†	*–.59***	–.07	.06	–.53*	*–.41**	–.27	.27	–.90*
	(.25)	(.39)	(.22)	(.32)	*(.21)*	(.43)	(.21)	(.28)	*(.19)*	(.28)	(.36)	(.35)
Adj. R^2 (*N*)	.64	.51	.72	.71	.63	.63	.67	.80	.67	.63	.72	.69
	(154)	(72)	(148)	(68)	(180)	(80)	(172)	(70)	(224)	(68)	(78)	(72)

	Pro-EU, two-sided, long, OS	Pro-EU, two-sided, long, SO	Pro-EU, one-sided, long, OS	Pro-EU, one-sided, long, SO	Pro-EU, two-sided, short, OS	Anti-EU, two-sided, long, OS	Anti-EU, two-sided, long, SO	Anti-EU, one-sided, long, OS	Anti-EU, one-sided, long, SO	Anti-EU, two-sided, short, OS	Control, OS order	Control, SO order
Constant	6.67**	6.49**	7.22**	6.06**	6.80**	6.99**	6.41**	7.17**	6.62**	6.62**	6.47**	6.60**
	(.22)	(.41)	(.37)	(.40)	(.36)	(.20)	(.32)	(.33)	(.31)	(.60)	(.24)	(.69)
Time	.12	.12	–.25	.98†	–.17	–.05	–.07	–.16	–.21	.51	.13	.11
	(.33)	(.59)	(.57)	(.60)	(.55)	(.29)	(.45)	(.46)	(.44)	(.89)	(.34)	(.94)
Type-1 issues	.91**	1.41**	.24	1.00†	1.95**	.74**	.84*	.05	.42	.40	.81**	.52
	(.25)	(.41)	(.40)	(.63)	(.68)	(.22)	(.37)	(.35)	(.33)	(.89)	(.29)	(.48)
Type-2 issues	.20	.60*	.19	.97*	–.22	.47**	.82*	.62*	1.14**	1.63*	.35*	1.46*
	(.21)	(.35)	(.25)	(.39)	(.35)	(.17)	(.34)	(.34)	(.27)	(.75)	(.21)	(.75)
Type-3 issues	1.05**	–.55	.90*	.75*	.88*	.65**	.42†	.75*	.93**	–.17	.94**	.97†
	(.17)	(.49)	(.41)	(.42)	(.36)	(.19)	(.31)	(.28)	(.28)	(.46)	(.24)	(.71)
Type-1 issues × time	*–.22*	–.80	–.02	.58	–.64	–.07	–.60	.81†	.53	.02	–.51	.45
	(.40)	(.67)	(.60)	(.99)	(.83)	(.32)	(.70)	(.56)	(.91)	(2.01)	(.42)	(.82)
Type-2 issues × time	*.76**	.43	.41	–.55	.14	.17	.65	–.36	.02	–.08	.40†	–.51
	(.33)	(.56)	(.42)	(.61)	(.51)	(.27)	(.65)	(.48)	(.56)	(1.66)	(.30)	(1.08)
Type-3 issues × time	*–.79***	.85	–.54	–.92†	–.05	.13	–.20	–.19	–1.01*	.47	–.11	–.70
	(.27)	(.69)	(.49)	(.58)	(.52)	(.28)	(.41)	(.44)	(.42)	(.66)	(.33)	(1.05)
Adj. R^2 (*N*)	.64	.65	.33	.60	.69	.71	.77	.69	.80	.39	.84	.30
	(116)	(38)	(30)	(42)	(34)	(108)	(40)	(38)	(30)	(26)	(46)	(32)

Notes: Unstandardized regression coefficients. Dependent = overall EU evaluation. ** indicates $p < .01$; * $p < .10$; † $p < .20$. "Overall then Specific" (OS) questionnaires and "Specific then Overall" (SO) questionnaires.

The table avoids redundant information; for instance, the two-way combination of "pro-EU" and "short two-sided" appears in the bottom panel of the table, because question order is invariant. The data was stacked over time (real *N* is one-half the indicated *N*).

type-three issues seem less difficult to bring about, since this can be achieved under independent, additive conditions.

Influence of Moderators

By now introducing moderator variables, I hope to be able to identify these (relatively rare) categories of individuals who are susceptible to priming in an experimental, but "real," situation. The results of my moderator analysis are summed up in Table 5. The left-hand side of the table is devoted to the present study of cross-temporal effects, while the right-hand side deals with cross-sectional effects (see below). Only coefficients of the type $M \times T \times A_i$ are displayed in the table – the table indicates which moderators enhance or inhibit T0–T1 changes in the importance of issue-specific evaluations for overall evaluations. My discussion of the results in Table 5 will be relatively brief and superficial, since I am mainly interested in *comparing* the outcome of the cross-temporal and cross-sectional methods. A more thorough interpretation will be made on the basis of the results of the full model.

As Table 5 shows, moderator influences on priming through tested issues are very rare indeed. Beginning with my two measures of knowledge, it appears that, contrary to theoretical expectations, they do not exert a robust mediating influence on priming; only in the case of one-sided messages does there appear to be some marginal effect of chronic knowledge. With respect to the salience moderator, finding that EU membership is an important question makes it more likely that type-two issues become more relevant for overall evaluations, at least with respect to long, two-sided messages. As for the effects of the "thinking" condition (SO question order) and of message bias, they merely replicate and quantify the between-group differences obtained previously in Table 4.

All other significant effects point to three variables: attention, message recall, and message "congeniality." As shown in Table 5, priming effects were found to be larger among subjects who reported having paid little attention to the message, at least to its long, two-sided version. Recall of the content and of peripheral aspects of the message yields similar effects, whereby the importance of type-two issues increased more clearly and the importance of ignored issues decreased more clearly among subjects whose memory of the message was poor. Finally, among subjects who were given a *short and "congenial" message* (that is, whose general bias happened to be consistent with their own EU attitude), the importance of type-one issues increased less than among subjects who were provided with an uncongenial message; conversely, the importance of (ignored) type-two issues decreased less dramatically.

Cross-Sectional Evidence

Influence of Total Exposure

Switching from the cross-temporal to the cross-sectional approach implies that I substitute the exposure measure for the time variable, and that I base my analysis exclusively on T1 data. A test of the baseline model yields unpromising results. None of the "exposure × issue evaluation" interactions approach significance (all *p*s > .32). When distinguishing between "pro-EU," "anti-EU," and control groups, results are hardly more comforting (see Table 6). Among subjects given a pro-EU message, all E × A interactions are positive, but nonsignificant. Among subjects

Table 5. Moderator Influence on Cross-Temporal and Cross-Sectional Effects (OLS Regression Models)

	Cross-temporal analysis														Cross-sectional analysis								
	Type-1 issues					Type-2 issues				Type-3 issues					Type-1 issues			Type-2 issues			Type-3 issues		
Moderator	2-sided long	1-sided long	2-sided short	Control		2-sided long	1-sided long	2-sided short	Control	2-sided long	1-sided long	2-sided short	Control		Positive bias	Negative bias	Control	Positive bias	Negative bias	Control	Positive bias	Negative bias	Control
Main effect[a]		+ **				+ **				– *	– **										+	– *	
Chronic knowledge	–	+(***)					– (**)				(–)							(+)					–
Specific knowledge									–		(– *)								– *(*)				
Personal salience	–					+ **			+	–			–		+ **								+ *
Left–right self-placement																		+					
Delay between sessions																					– **		
Proximity to voting day	(+)					(–)										– **							
Attention to the message						– *				+ **								– (*)					
Recall of the content						– *													– **				
Recall of the source	–														+ (*)			(– *)			+ *		
Recall of peripheral aspects										+ *						+		+			(+)		
Total recall						(–)				+		(+)							– **		+ *		
Trust in the media				–														–		– *(*)			
Time to inform oneself										(–)						–	– *	+ **			– (*)		
Order of questions (SO)	–									+ *	(–)					+ (*)				+ **		–	
Message bias (negative)		+ *								+ **													
Liking of the message																(+)							
Awareness of persuasion																– *			– ***			(+ **)	
Congeniality of the message		–	(– *)					(+)										– **	+ ***			(– *)	
Message learning																(–)						+	
Emotional reactions								+							+ (**)							(+)	

Notes: Dependent = overall EU evaluation.

[a]For the cross-temporal analysis, "main effect" refers to the "time × evaluation" interactions; for the cross-sectional analysis, it refers to the "exposure × evaluation" interactions. By default, + and – symbols denote effects significant at the .20 level. Higher significance levels are indicated as follows: *** $p < .01$; ** $p < .05$; * $p < .10$. SO indicates "Specific then Overall." Entries in parantheses denote effects that are suppressed or p-values that are increased when control variables are introduced in the model.

TABLE 6. *Baseline Cross-Sectional Model of Priming Effects (OLS Regression)*

	Pro-EU messages	Anti-EU messages	Control
Constant	4.07*** (.43)	5.01*** (.53)	3.65* (1.86)
Issues type 1	.60*** (.14)	.74*** (.16)	.34 (.79)
Issues type 2	.46*** (.11)	.70*** (.14)	.68 (.65)
Issues type 3	.39*** (.10)	.33*** (.11)	.51* (.29)
Exposure type 1	.26 (.63)	.05 (.71)	–1.93 (2.02)
Exposure type 2	–.58† (.40)	–.41 (.49)	–.23 (2.14)
Exposure type 3	.15 (.86)	–.05 (.91)	1.06 (2.50)
Exposure × issues 1	.63 (.53)	–.22 (.62)	–.45 (1.47)
Exposure × issues 2	.04 (.27)	–.07 (.43)	.01 (1.60)
Exposure × issues 3	.64 (.64)	–1.25* (.64)	1.71 (2.00)
Left–right self-placement	–.25*** (.06)	–.08† (.06)	–.02 (.15)
Chronic knowledge	–.18*** (.07)	.00 (.07)	.13 (.18)
Personal salience	.36*** (.06)	.23*** (.07)	.23† (.16)
	Adj. R^2 = .71 (N = 181)	Adj. R^2 = .69 (N = 173)	Adj. R^2 = .52 (N = 52)

Notes: Unstandardized regression coefficients. Dependent = overall EU evaluation. ***$p < .01$; * $p < .10$; †$p < .20$.

exposed to anti-EU information, all interactions are *unexpectedly negative*, and the $E_3 \times A_3$ coefficient is marginally significant.

Influence of Moderators

Because the odds are quite low that substantial priming effects can be detected in the present situation, as explained above, it may be particularly beneficial to take priming *moderators* into account. The right-hand side of Table 5 displays the results of my moderator analysis with respect to cross-sectional priming effects. Only coefficients of the type $M \times E_i \times A_i$ are presented in the table, that is, Table 5 indicates which moderators enhance or inhibit differences between exposure levels in the importance of issue-specific evaluations for overall evaluations.

As can be seen from Table 5, subjects receiving a "pro-EU" message are in sharp contrast with subjects receiving an "anti-EU" message. On the whole, taking moderators into account was more instrumental in explaining the EU evaluations of subjects provided with *negative* information. Four moderators are shown to yield effects exclusively on "anti-EU" groups. To begin with, issue-specific knowledge and recall of the message content appear to inhibit priming effects with respect to type-two issues. Next, the proximity to voting day (that is, the number of days remaining before the Schengen–Dublin vote) decreased sensitivity to type-one issues. Finally, when suspecting that the source of the message was trying to "manipulate" them, subjects were less reactive to an increase in exposure to type-one and type-two issues.

Few moderators had any influence on subjects who were given positive information about EU membership. The time spent informing oneself is one of these, as individuals devoting more time to political news were more prone to adjusting their overall EU evaluations with increasing exposure to type-two issues. The personal salience of the EU issue also enhanced exposure effects with respect to

type-one issues. Interestingly, two moderators did have an impact on subjects under the positive bias conditions, but only in regulating the influence of *unaddressed*, type-three issues. First, it appears that the degree of exposure to type-three issues mattered more when the delay between experimental sessions was relatively brief.[20] Second, better recall of the *source of arguments* presented in the experimental message also promoted the effect of exposure to type-three issues.

Simultaneous Estimation of Cross-Temporal and Cross-Sectional Effects

Beyond the particular contribution of each moderator, one striking feature of my investigation thus far becomes evident from a comparison between the results of the cross-temporal and cross-sectional analyses. With very few exceptions (that is, recall of the message content and attention paid to the message with respect to type-two issues), none of the moderators shown to play a role in regulating *exposure* effects is likewise involved in moderating *temporal* effects. This asymmetry might have at least three different causes. The first one has to do with the difficulty of comparing both types of result, most notably since they are based on different subsets of the experimental groups. Hence, the mismatch between cross-temporal and cross-sectional effects may be due, in part, to noncomparable data. The second possible cause is that effects are indeed present when looked at from both perspectives, but their low magnitude makes them impossible to detect systematically with rather crude observation methods. Third, as argued above, there may be something *intrinsically* different about cross-temporal and cross-sectional effects. When a cross-temporal perspective is adopted, observed change in the weight of issue-specific evaluations can be taken as the best evidence for priming effects; however, the change may be unrelated to the experimental procedure, in particular if all subjects change in similar ways.[21] When a cross-sectional perspective is taken, observed variation along exposure levels may also seem to point to the existence of priming effects; however, one cannot rule out the possibility that the variation was already present (by chance) before the experimental procedure.

In a nutshell, my argument here is that different methods applied to the same data can yield different results. Although this is hardly news for researchers, the implications of this obvious fact for the study of priming effects are less trivial or, at least, have been less readily recognized by practitioners. Therefore, I have suggested building a model which is able to cope *simultaneously* with the cross-temporal and cross-sectional effects of moderators on priming.

This "full model" was tested with respect to all moderator variables. However, the "message bias" variable was used as a breakdown variable to account for the striking differences between "pro-EU" and "anti-EU" groups that appeared for some moderator variables. Similarly, the "congeniality" of the message was used as a breakdown variable, to check whether the position advocated in the message or, rather, the *match between the message position and a subject's initial position* toward EU membership is relevant to regulating priming. The results of my analysis are summed up in Table 7, in which only the four-way interactions between evaluations, exposure, time, and moderators are reported.

Table 7 provides strong confirmation of the "cognitive hypothesis" underlying some theories of priming effects, at least with respect to familiar issues. To begin with, chronic knowledge has a constraining influence on the priming of overall evaluations through type-one issues, as more knowledgeable subjects were less

TABLE 7. *Moderator Influence on the "Full Model" of Priming Effects (OLS Regression Models)*

	Type-1 issues					Type-2 issues			Type-3 issues		
Moderator	Positive bias	Negative bias	Congenial	Uncongenial	All	Positive bias	Negative bias	All	Positive bias	Negative bias	All
Chronic knowledge		– *		– **	– **			+ *			
Specific knowledge											
Personal salience		–					+				
Left–right self-placement											
Delay between sessions				+ **							
Proximity to voting day											
Attention to the message											
Recall of the content	– **	–		– ***	– **						
Recall of the source	–	–		–	– *						
Recall of peripheral aspects	– *				–					+ *	
Total recall	– **	– *		– **	– **						
Trust in the media											
Time to inform oneself				– *	–				– *		–
Order of questions (SO)											
Liking of the message											
Awareness of persuasion										+ *	
Message learning											–
Emotional reactions						– *				+ *	

Notes: Dependent = overall EU evaluation. By default, + and – symbols denote effects significant at the .20 level. Higher significance levels are indicated as follows: ***$p < .01$; **$p < .05$; *$p < .10$.

likely than poorly informed subjects to polarize their evaluations over time as a function of issue-specific attitudes and exposure. Similarly, the more subjects were able to recall message features (content, the source of arguments, and, to a lesser extent, peripheral aspects), the less overall evaluations varied as a function of time, specific evaluations, and exposure. Further, among subjects who received uncongenial information, priming through type-one issues was reduced by higher levels of chronic media exposure. Finally, in the same subset of individuals, longer delays between the first and second sessions promoted priming through type-one issues, meaning that potential forgetting of the message arguments actually enhanced the importance of already familiar issues. Also noteworthy is that *none* of the "cognitive effects" just considered were shown to occur among subjects provided with congenial information (see further discussion on this point in the concluding section).

Evidence that moderators regulate priming effects through type-two issues is extremely scarce. But the fact that chronic knowledge does enhance such effects again lends support to the basic cognitive hypothesis. It seems that a good a priori knowledge of political issues (to use Converse's [1964: 212–13] words, knowledge of "what goes with what") is necessary for relatively unfamiliar issues to become more relevant. On the other hand, the voicing of emotional reactions to the message may have been detrimental to priming through unfamiliar issues, at least when the message was in favor of EU membership.

Moderator influence on the decreasing importance of type-three issues is also rather limited. As was the case for familiar issues, subjects who reported being usually attentive to political information were more likely to display this expected "de-priming" pattern, at least under pro-EU conditions. Conversely, some variables appear to offset this predominant pattern for subjects confronted with anti-EU information. First, the relevance of ignored issues decreased less among subjects who were aware of the persuasive intent of the message. Second, subjects who had a good "photographic memory" of the message (that is, greater recall of its peripheral aspects) or felt emotions reading it were less likely to disregard type-three issues. These last results are puzzling at first sight, but they may be related to how moderator variables are interrelated in anti-EU groups. As depicted in Figure 1, in anti-EU groups, awareness of persuasion exerts an influence on most measures of recall, while it has no effect whatsoever on recall in pro-EU groups. Next, the relationships between chronic knowledge, awareness of persuasion, and emotional reactions are clearly stronger in anti-EU groups. Hence, the antecedents and *substantive meaning* of emotions and peripheral recall may be quite different in the two groups. For subjects provided with an anti-EU message, these two variables were partly a matter of political awareness, including awareness of the source's intent to manipulate them. Thus, among emotionally involved and high-recall subjects the less steeply decreasing importance of type-three issues may be regarded as the outcome of a defensive mechanism against striking and potentially disturbing information.[22]

Tables 8 and 9 now allow us to take a closer look at the *overall* effect of moderators from both the cross-temporal and cross-sectional perspectives. In Table 8, the influence of five moderators is examined: specific and chronic knowledge, question order, recall of the message content, and personal salience. Although some of these variables were not shown to yield *both* cross-temporal and cross-sectional effects, they are nonetheless interesting because they allow for a better

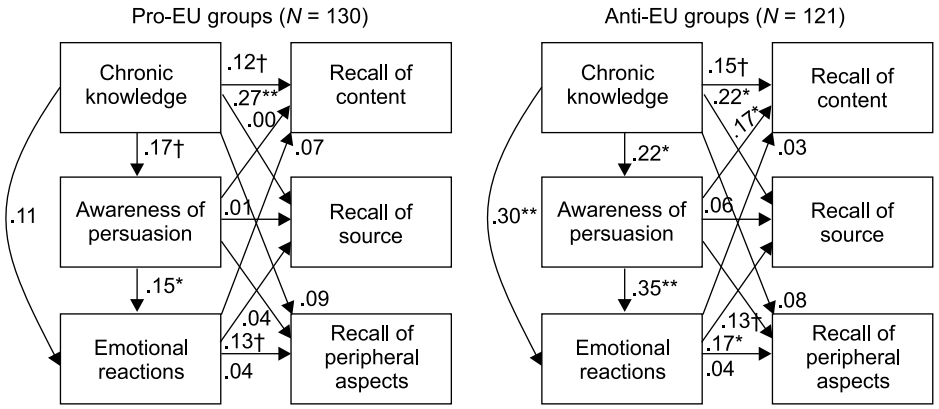

FIGURE 1. *Bivariate Relationships Between Six Moderator Variables*

Notes: Indicated coefficients are: logistic regression B coefficients for knowledge–awareness and knowledge–emotion relationships; Phi for awareness–emotion; Pearson's correlations for knowledge–recall; and Eta for awareness–recall and emotion–recall. ** $p < .01$; *$p < .10$; †$p < .20$.

understanding of the in-depth mechanisms of priming. Note also that Table 8 does not distinguish between pro-EU and anti-EU groups. Significant effects, therefore, denote moderators that have a pervasive influence on priming.

First, comparing chronic and specific knowledge shows that they have quite the same effect, but that only chronic knowledge was able to make significant differences in the importance of type-one and type-two issues between exposure levels *and* measurement occasions. Second, how recall moderates priming is best illustrated by the role of recall of the message content. Already at the first session (that is, when there was nothing to recall yet) subjects with greater encoding and retrieval *capabilities* were less prone to basing their overall evaluations on type-one issue evaluations, and instead drew on the issues of the day (that is, on type three). At the second session, among subjects who had been greatly exposed to type-one issues, those who could remember much of the message content were even less likely to rely on these issues than subjects who had largely forgotten about the message.

Although the order of questions in the questionnaire does not moderate priming directly, the results suggest that this variable should not be overlooked when investigating the antecedents of evaluations. When given more opportunities to think about the possible foundations of their EU attitudes, subjects were more likely to base their overall evaluations on the less familiar, type-two issues and less likely to rely on the salient type-three issues of criminality and education. No difference was obtained between the first and second sessions, however. Next, contrary to expectations, the personal salience of European matters does not interact with issue exposure, but some cross-temporal evidence is present. Personally involved subjects were initially less likely than uninvolved subjects to have their overall EU evaluation depend on unfamiliar issues. However, some days after reading the message, the opposite pattern is obtained, as involved subjects appeared more likely to take type-two issues into account. Finally, Table 8 makes clear that the influence of type-three issues is hardly mediated by any moderator, at least when pro-EU and anti-EU conditions are not distinguished. Rather, the

TABLE 8. *"Full Model" of Priming Effects, with the Influence of Five Moderators (OLS Regression Models)*

	Specific knowledge			Chronic knowledge			Recall of content			Personal salience			Question order (specific evaluation *precedes* overall evaluation)		
	Issues 1	Issues 2	Issues 3	Issues 1	Issues 2	Issues 3	Issues 1	Issues 2	Issues 3	Issues 1	Issues 2	Issues 3	Issues 1	Issues 2	Issues 3
Constant	6.75***			6.74***			6.81***			6.74***			6.68***		
Evaluation (eval)	.93***	.78***	1.05***	.92***	.75***	1.02***	.91***	.79***	.97***	.82***	.69***	.91***	.85***	.77***	1.02***
Exposure (exp)	.01	–.05	–.11	.07	–.11	–.16*	–.11	–.02	–.09	.00	–.02	–.15†	.01	–.03	–.14†
Eval × exp	.03	–.16†	.04	.03	–.18†	.02	.10	–.17	.08	.05	–.14†	.09	.06	–.18†	.11
Moderator (mod)	–.34***			–.25**			–.08			.47***			–.19*		
Eval × mod	–.11	.05	.04	–.17	.15	.11	–.32**	–.17	.20*	.10	–.24**	.10	.04	.37***	–.22*
Exp × mod	–.14	.19†	.14	–.18†	.14	.16†	.19†	.10	–.12	.05	.02	.04	–.02	–.08	.06
Eval × exp × mod	.07	–.02	.04	.11	–.11	.18*	.21†	.14	.16†	.08	–.15†	.01	–.01	.02	–.02
Time	–.02			–.03			.02			.02			.01		
Time × eval	.04	.24	–.45***	.09	.20	–.43**	–.04	.14	–.41**	.05	.25†	–.41**	.01	.26†	–.44***
Time × exp	.02	.06	.09	–.04	.12	.13	.08	–.05	.03	.04	–.02	.10	–.07	.07	.10
Time × eval × exp	.06	.20	–.03	.12	.19	–.04	.25	.19	–.07	.04	.11	–.08	–.04	.23†	–.10
Time × mod	.29*			.25*			–.03			.07			.04		
Time × eval × mod	.02	–.16	.03	.10	–.24	–.02	.34†	–.17	.03	–.26†	.39**	–.21	–.03	–.18	–.03
Time × exp × mod	.04	–.11	–.08	.15	–.24†	–.10	–.05	.06	.09	–.11	.01	.10	–.11	.07	–.09
Time × eval × exp × mod	–.18	.08	–.08	–.36**	.27*	–.15	–.51**	–.10	–.08	–.13	.04	.03	–.09	.09	.07
Adj. R^2 (*N*)	.65 (*N* = 578)			.65 (*N* = 578)			.66 (*N* = 500)			.68 (*N* = 578)			.65 (*N* = 578)		

Notes: Unstandardized regression coefficient. Dependent = overall EU evaluation. ***$p < .01$; **$p < .05$; *$p < .10$; †$p < .20$. The data was stacked over time (real *N* is one-half the indicated *N*). Evaluation, exposure and moderator variables standardized to have a mean of 0 and standard deviation of 1.

TABLE 9. *"Full Model" of Priming Effects, with the Influence of the Subjects' "Awareness of Persuasion" (OLS Regression Models)*

	Only positive messages			Only negative messages			Only positive, congenial messages			Only negative, uncongenial messages		
	Issues 1	Issues 2	Issues 3	Issues 1	Issues 2	Issues 3	Issues 1	Issues 2	Issues 3	Issues 1	Issues 2	Issues 3
Constant	6.78***			6.90***			7.67***			7.55***		
Evaluation (eval)	.97***	.41**	1.08***	.85***	.94***	.63***	.60***	.13	.54***	.41**	.65***	.41**
Exposure (exp)	–.21	–.14	–.05	.20	–.08	–.07	.14	–.05	–.15	.38†	–.01	–.27*
eval × exp	.02	.12	.35*	.20	–.29†	–.22†	.01	.06	.31†	.00	–.26	.03
Aware of persuasion (aware)	–.32*			–.11			–.13			.16		
Eval × aware	.55**	–.13	.11	–.28†	.35*	.05	.42*	–.36**	.15	–.38**	.22	–.11
Exp × aware	.38*	.20	–.01	–.11	.39**	–.10	.25	.07	.01	–.17	–.11	.10
Eval × exp × aware	–.28†	.11	–.18	.05	–.25	.07	–.15	.22	–.08	.21	.12	.14
Time	.01			.04			.04			–.21		
Time × eval	–.10	.50†	–.77***	.18	.01	–.19	–.22	.45*	–.58**	.23	–.03	–.15
Time × exp	.18	.10	.08	–.08	–.28	–.01	.01	.17	.17	–.33	–.19	.16
Time × eval × exp	.12	.08	–.18	–.04	.25	–.13	.23	–.07	–.16	.14	.38	–.29
Time × aware	.04			.19			.10			–.05		
Time × eval × aware	–.06	.11	–.22	.25	–.10	.22	–.10	.26	–.27	.49†	.03	.31
Time × exp × aware	–.34	.03	.10	.12	–.14	–.07	–.14	.31	.09	.40	.22	–.06
Time × eval × exp × aware	.26	–.16	.16	–.17	–.25	.36*	–.10	–.42†	.07	–.73*	–.68*	.13
Adj. R^2 (*N*)	.61 (*N* = 258)			.71 (*N* = 242)			.21 (*N* = 196)			.37 (*N* = 188)		

Notes: Unstandardized regression coefficient. Dependent = overall EU evaluation. ***$p < .01$; **$p < .05$; *$p < .10$; †$p < .20$. The data was stacked over time (real *N* is one-half the indicated *N*). Evaluation, exposure and moderator variables stadardized to have a mean of 0 and standard deviation of 1.

"time × evaluation" coefficient confirms and even strengthens the results of the first model tested in this article, whereby the importance of ignored issues decreases over time.

Turning now to Table 9, I focus on the role of subjects' awareness of persuasion. The relevance of this moderator might be questioned, as it was shown to regulate only variations in the importance of type-three issues in anti-EU groups (see Table 7), and Table 9 further testifies to this effect. However, more importantly, it shows that the awareness of persuasion is not only conditional on the message bias, but also on message *congeniality*. When subjects are distinguished according to both dimensions, other relationships become apparent.[23] Among subjects who were given a pro-EU message and shared its views, the analysis reveals that, on the whole, the importance of unfamiliar, type-two issues was enhanced over time. However, this effect was possibly reduced ($p < .15$) when subjects were greatly exposed to these issues and aware of the persuasive intent of the message. In the reverse (anti-EU × uncongenial) condition, a decrease in the importance of type-one and type-two issues occurs among suspicious and greatly exposed subjects. By and large, however, all results in Table 9 point to the same conclusion: untrustworthy, discredited information is less relied upon when making overall EU evaluations, and this increases dependence on other, ignored issues.

General Discussion and Conclusion

When testing priming effects with "real-world" issues, one difficulty is that the relevance of these issues is predetermined. For example, neutrality and direct democratic rights are cornerstones of the Swiss state and have been internalized for more than 150 years in the value systems of Swiss citizens as part of the national identity. Hence, these prominent and accessible issues require only very few incentives to be mobilized and come to bear on attitudes toward the EU. However, for subjects with a high level of *political knowledge* the odds are that other, less familiar issues will also be made more accessible, leading to a relative decrease in the importance of familiar issues. I argue that this effect comes about because knowledgeable individuals are better able to understand and integrate new, less familiar information into their pre-existing cognitive structures.

Next, results for the role of *message recall* square well with the idea that priming is a largely unconscious process that can occur outside of awareness (for example, Dehaene et al., 2002), although some minimal attention seems to be required in many situations (for example, Kiefer and Brendel, 2006). The more subjects were exposed to familiar issues and the less they could remember about the message, the more their evaluations were primed by these issues. It may be that forgetting about the message prevented subjects from "correcting" for its influence or from "rationalizing" their responses.

As regards *personal salience*, I found that subjects who were personally involved in the issues were initially less likely than uninvolved subjects to base their overall evaluations on unfamiliar, type-two issues, but that the reverse pattern held after exposure to the message. Different mechanisms may be responsible for this result. First, salience might decrease the attention threshold that is required for an issue to be taken into consideration.[24] Alternatively, given that type-two issues appear later in the message, it might be that salience works to increase attentiveness to less emphasized issues and, hence, to compensate for fatigue effects or for the "primacy effects" which hinder the consideration of these issues.

The study controlled for whether subjects were *aware of the persuasive intent* of the message. By and large, the results demonstrate that being aware of persuasion reduced priming. Besides, as might be expected from the usual "hydraulic pattern" of priming effects, suspicious subjects were more sensitive than unsuspicious subjects to whatever type-three information they received between the two experimental sessions. This suggests that salient information accessible from other sources is perceived as having less strong "manipulative" undertones and thus provides a means to "correct" for the influence of discredited information.

The distinction between "congenial" and "uncongenial" messages speaks more directly to the role of *counterarguing* in the priming process. When confronted with contradicting information, subjects might feel threatened in their beliefs and might counterargue to defend those opinions which are held with greater security – those which I labeled "familiar." While detracting attention from the message's own arguments, counterarguing would increase the accessibility of the beliefs being defended, to the detriment of considerations related to other issues.[25] The results suggest that unfamiliar or ignored issues remain more accessible when subjects are provided with reinforcing, pro-attitudinal information; conversely, familiar issues are made more relevant by counter-attitudinal information.[26]

Finally, the study draws attention to various possible "artificial" causes of the occurrence or absence of priming effects. First, as time drew closer to the ballot on the Schengen agreements, the relevance of type-one issues was reduced. This is probably because the referendum campaign grew more intense and various anti-European arguments (beyond the traditional arguments on neutrality and popular rights) were being voiced ever more loudly in the Swiss media.[27] As a result, priming through experimental procedures may have been counteracted by priming through real-world cues. Similarly, one may suspect that, in general, more unambiguous results would have been obtained with shorter delays between the T0 and T1 measurements. However, I deliberately made the experiment more relevant to real-world situations, where mid- or long-term priming is of interest. Thus, procedures were chosen to enhance the external validity and generalizability of findings.

Similarly, manipulating the question order resulted in enhancing type-two issues and in lessening the relevance of ignored issues when issue-specific evaluations *preceded* overall evaluations. Although alternative explanations may be considered (for example, rationalization), this effect is likely due to what I called "question-related priming" (other studies have dubbed it "framing"). More importantly, the question-order effect was not stronger after exposure to the message than before. This reminds us that some moderator variables have an *immediate* impact on the salience of evaluation ingredients; accordingly, their impact may be undetectable with cross-temporal methods.

The other way round, my measurement of "exposure levels" is admittedly suboptimal. Although it does try to address the problem of uncontrolled exposure to between-session information, it does not allow for a conclusive evaluation of the "dosage hypothesis." As a matter of fact, the experiment was not specifically designed to capture priming effects, but was intended to address other research questions as well. But I believe that my attempt to capture both cross-temporal and cross-sectional effects has virtues that are absent from many more rigorous cross-sectional studies.

Appendix

Description of Moderator Variables

Chronic knowledge was determined on the basis of two scales:

1. *Knowledge of national politicians.* Subjects were asked: "To which party do the following politicians belong?" A list of six politicians was provided; the choice was between the four main national parties (Social Democratic Party, Christian Democratic Party, Free Democratic Party, and Swiss People's Party).
2. *Knowledge of institutions.* Subjects were asked (1) to identify popular initiative as the device that "allows revision of the Constitution through the collection of 100,000 signatures"; (2) to identify federalism as the "principle according to which political power is also exercised in each Swiss canton, and not only at the federal level"; and (3) to identify the national parliament as the institution which is responsible for electing the Federal Council.

Both scales were then standardized and summed.

Specific knowledge was determined on the basis of three scales:

1. *Knowledge of Bilateral Agreements II.* Subjects were asked to pick the issues that were part of the agreements out of a list of five issues. Four issues (the free movement of people, fiscal policy, asylum policy, and transformed farm products) were actually part of the agreements, whereas one issue (military cooperation) was not.
2. *Knowledge of Swiss participation in international organizations.* Subjects were asked to pick the organizations in which Switzerland participates. Three organizations (the United Nations, Organization for Security and Cooperation in Europe, and the International Monetary Fund) were correct answers, whereas two organizations (the European Parliament and the North Atlantic Treaty Organization) were wrong answers.
3. *Knowledge of EU members.* Subjects were asked to give the number of EU members. Four categories were computed from the difference between the correct answer (25) and the answer given: zero for very different or did not know; one for quite different (six to 10); two for slightly different (one to five); and three for correct.

The first two scales were given a 2.5 weighting (that is, they vary between zero and 2.5), against a 1.0 weighting for knowledge of EU members (that is, the scale varied between zero and 1.0); the three scales were then summed.

Content recall was determined on the basis of eight items. Each item was a piece of contextual information (for example, "In the last ten years the unemployment rate in Switzerland was 11 percent lower than the EU average"). Subjects were asked to recall whether each statement had been part of the message. Depending on experimental conditions, a number of statements were actually part of the message; other statements were not included, while yet other statements were "ambiguous" in the sense that they belonged to the message, but the base-rate information was false (for example, "Two-thirds of ballots held in Switzerland in the last ten years could not have taken place if our country had been an EU member," when the statement in the message had claimed it was one-third). Recall

of a "correct" statement scored higher than recall of an ambiguous statement, which itself scored higher than recall of a "false" statement. The eight items were then summed.

Source recall was determined on the basis of four items. Each item was a statement (for example, "Through its bank secrecy Switzerland fosters terrorism, slavery, and drug trafficking"); subjects were asked to recall who the source of the statement was among five possible sources. The four items were then summed.

Peripheral recall was created on the basis of three items:

1. *Recall of a pictured person.* Each version of the experimental message contained the picture of one interviewed person. Subjects were asked to recall which person was portrayed among a list of eight people.
2. *Recall of the number of pages.* Subjects were asked to recall how many pages the message contained. Five response options were provided.
3. *Recall of titles.* Subjects were asked to recall which titles were included in the message. Two titles were actually part of the message, while two were not.

The three items were standardized and averaged.

Personal salience is the response to the question: "All in all, what personal importance does the issue of EU membership have for you?" Response categories were scaled from zero (no importance at all) to 10 (very great importance).

Left–right self-placement is the subject's positioning on a traditional zero to 10 scale.

Chronic media exposure is the response to the question: "On the average day, how much time do you spend keeping yourself informed of national and international news?" Responses were scaled between zero (less than 15 minutes) and four (more than two hours).

Attention to the message is the response to the question: "How much attention would you say you paid to the text you have just read?" Responses were scaled between zero (no attention at all) and 10 (extremely attentive).

Trust in the media is the response to the question: "For each of the following actors, please tell us how much you trust them as regards European integration (regardless of how much you trust them in other domains)." Response categories were scaled from zero (no trust at all) to three (very large degree of trust).

Message learning is the number of "ideas (arguments, reactions)" which subjects retained from the message immediately after reading it. Subjects could provide up to five ideas; therefore, the variable ranges between zero and five.

Emotional reactions were measured through the question: "Do you remember having reactions or feeling emotions when reading the message? If yes, could you tell which one(s), and in relation to what?" A dummy variable compiled all valid answers, as compared to no answer.

Awareness of persuasion is a dummy variable constructed on the basis of two kinds of questions. First, a closed-ended question recorded whether subjects deemed the message to be "tendentious" (see *liking of the message*). Second, I searched for indications that subjects were aware of the persuasive intent of the message in all open-ended questions about the message (message learning, emotional reactions, as well as general comments about the message). Any evidence that a subject was aware of persuasion was recoded as one.

Congeniality of the message is determined as follows. Subjects who initially evaluated EU membership between zero and five received a "congenial" message when it was anti-EU and an "uncongenial" message when it was pro-EU. Conversely, subjects who evaluated EU membership between six and 10 received a congenial message when it was pro-EU and an uncongenial message when it was anti-EU.

Liking of the message is the difference between the number of positively valenced adjectives (pleasant to read, impartial, entertaining, clear/understandable, and detailed/complete) and the number of negatively valenced adjectives (complicated, monotonous, tendentious, reader unfriendly, and boring) which subjects picked from a list. This can, theoretically, vary between –5 and +5.

Delay between sessions and *temporal proximity to voting day* are the number of days between session one and session two and between session one and the vote on the Schengen agreements (June 5, 2005), respectively. This last measure was recoded so that higher values express greater proximity.

Notes

1. Primes may rely mainly, but not exclusively, on *explicit semantic memory*. For instance, Schacter and Buckner (1998: 187) draw a fundamental distinction between "perceptual" and "conceptual" priming, and argue that the first phenomenon is totally dissociated from explicit memory.
2. Conversely, neglected links and memories continue to lie dormant and decay over time. Following "selectionist" models of the human brain, the synaptic links allowing for the activation of beliefs (or neurons themselves) disappear if they are not "excited" over a long period of time or if they suffer "interferences" from newly acquired experiences (Edelman and Tononi, 2000; Schacter, 1996).
3. Contrary to the usual portrayal of interviewees thoroughly searching their memory for ready-to-use responses, a "reactive" (and maybe defensive) attitude to survey or experimental questions is probably prevalent. Evaluations are largely a *constructive process*, not a mere "revealing" of ready-to-tell attitudes (for example, Zaller and Feldman, 1992). In fact, many respondents have a hard time just trying to make sense of the questions posed to them, and struggle to "construct sensible answers" on the spot or use "satisficing" devices (for example, Krosnick and Alwin, 1987). It is no surprise, then, that various elements of the response context, including the questions themselves, concur in priming the ingredients of evaluations. "Sampling" and "editing" processes, or tendencies such as "acquiescence," "social desirability," and other types of response bias, have long been documented (for a review, see Tourangeau et al., 2000).
4. As concerns the *dependent* variable (that is, the "primed" concept), it is striking that the vast majority of empirical studies have focused on the evaluation of *political leaders* in the context of *US elections*. However, since the 1990s, an increasing number of studies have been conducted in other countries as well, and the priming theory has been successfully applied to the evaluation of political *groups* (for example, McGraw and Ling, 2003), specific public *policies* (for example, Pollock, 1994), and particular *issues* (for example, Domke et al., 1998). Next, regarding the *independent* variables (that is, the "primes"), one may distinguish between issues, leaders, and parties (Gidengil et al., 2002). In the context of political races, voters' evaluations might be influenced by three dimensions of *issues*: their salience (emphasized through media agenda-setting), their valence (defined as negative versus positive media spin), and the attribution of responsibility for "success" or "failure" in the handling of issues (for example, De Vreese, 2004; Iyengar, 1991; Miller and Krosnick, 2000). Next, the media can tap at least five characteristics of a political *candidate* that might be consequential for voters' evaluations: the candidate's trustworthiness, her competence, her electoral viability, her ideological position, and her job performance (for example, Bartels, 1988; Mendelsohn, 1996;

Miller and Krosnick, 1996). To some extent, the same dimensions also apply to the media treatment of *parties*, thereby enhancing the role of partisanship in political judgments.

5. Indeed, political "experts" tend to be more "schematic" than "novices," and they possess larger stores of pre-existing beliefs that facilitate the interpretation of ambiguous information and that help the anchoring *and* recall of new memories (for example, Conover and Feldman, 1984; Krosnick and Brannon, 1993; Ottati and Wyer, 1990).
6. Furthermore, this *inertial effect* of knowledge may interact with predispositions to release a *resistance effect*. Other things equal, knowledge should thus increase the accessibility and recall of "ideologically congenial" primes.
7. However, it is unclear whether involvement may not intervene directly in the evaluation step as well. For instance, people who feel unconcerned about the issues are certainly more prone to "satisficing": they may not take into account all they know about these issues when making evaluations, but only the arguments made most accessible by recent information. This would precisely *enhance* priming, provided that such uninvolved people have been sufficiently exposed. Alternatively, if uninvolved people are simultaneously *inattentive* to new information, their salient considerations might have little to do with the issues that have been emphasized.
8. Actually, there is some evidence about the impact of political interest, of political participation, and of the general interest in issues (for example, De Vreese, 2004; Iyengar and Kinder, 1987; Krosnick and Brannon, 1993; Miller and Krosnick, 2000). However, none of these studies addressed the specific question of the *personal salience* of issues, as it is conceived in this article.
9. More accessible to conscious experience are phenomena implying diffuse exposure, and often inadvertent attention, to cumulative media information about grand social and cultural themes. Media coverage of issues such as criminality or AIDS has been shown to prime evaluations of these issues (Bushman and Huesmann, 2001; Pollock, 1994). Still more obtrusive is the way in which the mass media prime the ingredients of judgments about political leaders, parties, or issues. But typical electoral contexts (that is, the subject of most priming studies) cannot be directly compared with less structured situations such as referendums, political scandals, or involvement in foreign conflicts (for example, De Vreese, 2004; Iyengar and Simon, 1993; Stoker, 1993; Zaller, 1998).
10. Hence, factors that contribute to sustaining the accessibility of primes should minimize the decaying of priming effects. One such factor is political knowledge, possibly explaining why experts tend to exhibit smaller effects than novices in experimental settings, but greater effects in field settings (Miller and Krosnick, 1996).
11. Alternatively, it is a well-known phenomenon that people's answers can be driven by their *own* responses about related topics, but in a quite "automatic" way, without thinking much about the issues themselves (Todorov, 2000; Tourangeau et al., 1989). Such "carryover effects" might come about for different reasons. First, the preceding answers to issue-specific questions might influence later overall evaluations because of their perceived "diagnosticity," that is, their helpfulness in identifying how a subsequent question should be answered (Feldman and Lynch, 1988). Second, subjects may *consciously* use preceding answers to *rationalize* their EU attitude, in an effort to appear consistent. Depending on how a person has answered previous questions on issue-specific evaluations, she may be driven to *retrieve* an evaluatively congruent overall evaluation of EU membership. Regarding "biased retrieval" and "rationalization," see Hastie and Park (1986) and Rahn et al. (1994).
12. With rare exceptions, subjects were undergraduate students. They were recruited through posters displayed in the university halls, through emails, and through announcements in lectures. No distinctions were made as regards the discipline studied or nationality; however, at the University of Geneva a filter was applied to ensure that the ratio of foreign students would not exceed 20 percent of all participants.

13. The drop-out rate between the first and second sessions was surprisingly low (3.3 percent), which is probably due to the financial retribution and to the intrinsic interest that the experiment evoked among the subjects. Interestingly, just prior to being paid, 85 percent of subjects indicated that they wanted to be kept informed of the results of the experiment.
14. Three types of sources were distinguished and assigned in different combinations to the issues: (1) prominent political leaders; (2) less prominent, but rather "trustworthy," actors (for example, high-level officials); and (3) less prominent and quite "untrustworthy" actors (for example, business managers). For present purposes, the source variable was not expected to play a key role in priming. Rather, manipulating which issue was taken up by a particular type of speaker should bear more strongly on *issue-specific evaluations* as the dependent variable.
15. As a matter of fact, only one subject expressed doubts as to the real source of the message, which lends credence to the fact that the manipulation was relatively unobtrusive.
16. Thus, I tried to control for the possibility that message effectiveness is contingent on the particular issues which are treated. Issues were considered familiar (F) as far as students were supposed to know a good deal about them; they were deemed relatively familiar (RF) when the knowledge level was supposed to be intermediate; otherwise, issues were considered unfamiliar (UF). Issues were considered obtrusive (O) to the extent that subjects presumably have unmediated or direct experience with them; issues that cannot be cognized directly, but rather through the media or other indirect sources, were considered unobtrusive (UO).
17. Prior to the overall evaluation, two questions were asked separately about the positive and about the negative consequences of EU membership (zero indicating "very unimportant" and 10 indicating "very important"). Subjects who provided "incoherent" responses (for example, who evaluated the EU to have more positive than negative consequences, yet gave a negative overall evaluation) were defined as missing.
18. Note that the exposure measures for type-one and type-two issues correlate quite strongly with one another ($r = .59$), but not with exposure to type-three issues ($r < .14$). However, distinguishing between "pro-EU," "anti-EU," and control conditions, all correlations are lower ($.06 < r < .39$).
19. For example, overall evaluations were (unexpectedly) most correlated with type-two issues among subjects receiving a one-sided message, while they were (as expected) least correlated with such issues among subjects receiving two-sided messages. In general, very large effects of issue-specific evaluations at T0 will make a detectable increase in their importance unlikely, and thus I cannot rule out the possibility that priming is actually *underestimated*.
20. This is probably because in such cases, all other things equal, information acquired over the weekend is likely to be still very salient in the subject's mind during the second session. As a matter of fact, additional information about type-three issues was essentially acquired on the weekend. Subjects taking part in the second session on Monday indicated getting information on 0.61 issues (out of two possible issues) on average, while for subjects coming back later in the second week, the number of mentioned issues always comprised between 0.90 and 0.94 on average. Although Monday participants had received a bit less information about crime and education, it was supposedly more salient and influential for EU evaluations. However, it is unclear why a similar pattern does not hold for subjects under anti-EU conditions – unless additional information was predominantly positive, and thus "inconsistent" with experimental information, which might have reduced its influence.
21. In the present case, it may be that mere exposure to and responding to the questionnaire (and not exposure to the message) is the real cause of shifts in the importance of evaluations.

22. Alternatively, since many "speakers" featured in the experimental message were also taking part in the ongoing debate about the Schengen agreements, it may be that subjects who paid a lot of attention to the message's "peripheral cues" had their attention directed to type-three issues. This phenomenon can be attributed to "spreading activation" between closely related constructs (for example, Valentino et al., 2002).
23. The results for "pro-EU × uncongenial" and "anti-EU × congenial" conditions are not displayed in Table 9 because they are based on very few cases ($N = 62$ and $N = 54$, respectively).
24. Thus, getting any information about type-two issues, no matter whether shorter or longer, or simply being asked about them in the questionnaire might be enough to prompt learning or concern about them. This would also explain why salience does not interact with issue exposure: because it somehow inhibits "dosage effects" brought about by varying exposure levels.
25. Although speculative, this interpretation of the results is consistent with some empirical evidence. On the basis of the total sample ($N = 502$), it appears that uncongenial messages led to a slightly lower degree of "message learning" ($F = 2.76$, $p < .10$) and to a lesser ability to recall the message features ($F = 17.52$, $p < .001$), but also to a greater likelihood of expressing emotional reactions (phi = .16, $p < .001$) and to a greater perceived bias of the message according to the closed-ended question ($F = 12.14$, $p < .001$).
26. As a matter of fact, a test of the full model (without moderator variables, but using message bias and congeniality as breakdown variables) shows that the importance of type-one issues grew over time only for anti-EU, uncongenial messages ($p < .17$); conversely, the importance of type-two issues increased and that of type-three issues decreased for pro-EU, congenial messages (ps $< .08$).
27. My research team coded *all European-related information* that was released in the newspapers and on TV channels which were most accessible to the subjects (results available upon request to the author). As a matter of fact, the total amount of European stories increased over time. However, the relative importance of type-one and type-two issues increased less sharply than the importance of type-three issues, which gained considerable ground along with other issues such as the ratification of the EU Constitution.

References

Ajzen, Icek and Sexton, James (1999). "Depth of Processing, Belief Congruence, and Attitude-Behavior Correspondence," in Shelly Chaiken and Yaacov Trope (eds), *Dual-Process Theories in Social Psychology*. New York: Guilford Press.

Alcalay, Rina and Bell, Robert A. (2000). *Promoting Nutrition and Physical Activity Through Social Marketing: Current Practices and Recommendations*. Center for Advanced Studies in Nutrition and Social Marketing, University of California at Davis.

Alvarez, R. Michael and Brehm, John (2002). *Hard Choices, Easy Answers: Values, Information, and American Public Opinion*. Princeton, NJ: Princeton University Press.

Anderson, John R. (1983). *The Architecture of Cognition*. Cambridge, MA: Harvard University Press.

Ansolabehere, Stephen and Iyengar, Shanto (1995). *Going Negative: How Political Advertisements Shrink and Polarize the Electorate*. New York: Free Press.

Bartels, Larry M. (1988). *Presidential Primaries and the Dynamics of Public Choice*. Princeton, NJ: Princeton University Press.

Blumler, Jay G. and Gurevitch, Michael (1996). "Media Change and Social Change: Linkages and Junctures," in James Curran and Michael Gurevitch (eds), *Mass Media and Society*. London: Arnold.

Bushman, Brad J. and Huesmann, L. Rowell (2001). "Effects of Televised Violence on Aggression," in D. Singer and J. Singer (eds), *Handbook of Children and the Media*. Thousand Oaks, CA: Sage.

Christin, Thomas and Trechsel, Alexander H. (2002). "Joining the EU? Explaining Public Opinion in Switzerland," *European Union Politics* 3(4): 415–43.
Conover, Pamela Johnston and Feldman, Stanley (1984). "How People Organize the Political World: A Schematic Model," *American Journal of Political Science* 28(1): 95–126.
Converse, Philip E. (1964). "The Nature of Belief Systems in Mass Publics," in David Apter (ed.), *Ideology and Discontent*. New York: Free Press.
DeCoster, Jamie and Claypool, Heather M. (2004). "A Meta-Analysis of Priming Effects on Impression Formation Supporting a General Model of Informational Biases," *Personality and Social Psychology Review* 8(1): 2–27.
Dehaene, Stanislas et al. (2002). "Imaging Unconscious Semantic Priming," in John Cacioppo et al. (eds), *Foundations in Social Neuroscience*. Cambridge, MA: MIT Press.
Delli Carpini, Michael X. and Keeter, Scott (1996). *What Americans Know about Politics and Why It Matters*. New Haven, CT and London: Yale University Press.
De Vreese, Claes H. (2004). "Primed by the Euro: The Impact of a Referendum Campaign on Public Opinion and Evaluations of Government and Political Leaders," *Scandinavian Political Studies* 27(1): 45–64.
Domke, David, Shah, Dhavan V., and Wackman, Daniel B. (1998). "Media Priming Effects: Accessibility, Association, and Activation," *International Journal of Public Opinion Research* 10(1): 51–74.
Donaldson, D.I., Petersen, S.E., and Buckner, R.L. (2001). "Dissociating Memory Retrieval Processes Using fMRI: Evidence that Priming Does Not Support Recognition Memory," *Neuron* 31: 1047–59.
Eagly, Alice H. and Chaiken, Shelly (1993). *The Psychology of Attitudes*. Fort Worth, TX: Harcourt Brace Jovanovich.
Eagly, Alice H. et al. (2000). "Why Counterattitudinal Messages are as Memorable as Proattitudinal Messages: The Importance of Active Defense Against Attack," *Personality and Social Psychology Bulletin* 26(11): 1392–408.
Edelman, Gerald M. and Tononi, Giulio (2000). *A Universe of Consciousness: How Matter Becomes Imagination*. New York: Basic Books.
Feldman, Jack M. and Lynch, John G., Jr (1988). "Self-Generated Validity and Other Effects of Measurement on Belief, Attitude, Intention, and Behavior," *Journal of Applied Psychology* 73(3): 421–35.
Fiske, Susan T. and Taylor, Shelley E. (1991). *Social Cognition*. New York: McGraw-Hill.
Gidengil, Elisabeth et al. (2002). "Priming and Campaign Context. Evidence from Recent Canadian Elections," in David Farrell and Rüdiger Schmitt-Beck (eds), *Do Political Campaigns Matter? Campaign Effects in Elections and Referendums*. London and New York: Routledge.
Gilens, Martin (2001). "Political Ignorance and Collective Policy Preferences," *American Political Science Review* 95(2): 379–96.
Greenwald, Anthony G. (1968). "Cognitive Learning, Cognitive Response to Persuasion, and Attitude Change," in A. Greenwald, T. Brock and T. Ostrom (eds), *Psychological Foundations of Attitudes*. New York and London: Academic Press.
Hastie, Reid and Park, Bernadette (1986). "The Relationship Between Memory and Judgment Depends on Whether the Judgment Task is Memory-Based or On-Line," *Psychological Review* 93(3): 258–68.
Holbrook, Allyson L. et al. (2001). "Attitudes Toward Presidential Candidates and Political Parties: Initial Optimism, Inertial First Impressions, and a Focus on Flaws," *American Journal of Political Science* 45(4): 930–50.
Iyengar, Shanto (1991). *Is Anyone Responsible? How Television Frames Political Issues*. Chicago, IL: University of Chicago Press.
Iyengar, Shanto and Kinder, Donald R. (1987). *News that Matters: Television and American Opinion*. Chicago, IL and London: University of Chicago Press.
Iyengar, Shanto and Simon, Adam (1993). "News Coverage of the Gulf Crisis and Public Opinion. A study of Agenda-Setting, Priming, and Framing," *Communication Research* 20(3): 365–83.

Iyengar, Shanto et al. (1984). "The Evening News and Presidential Evaluations," *Journal of Personality and Social Psychology* 46(4): 778–87.
Kiefer, Markus and Brendel, Doreen (2006). "Attentional Modulation of Unconscious 'Automatic' Processes: Evidence from Event-Related Potentials in a Masked Priming Paradigm," *Journal of Cognitive Neuroscience* 18(2): 184–98.
Kinder, Donald R. (1998). "Communication and Opinion," *Annual Review of Political Science* 1: 167–97.
Krosnick, Jon A. and Alwin, Duane F. (1987). "An Evaluation of a Cognitive Theory of Response-Order Effects in Survey Measurement," *Public Opinion Quarterly* 51(2): 201–19.
Krosnick, Jon A. and Brannon, Laura A. (1993). "The Impact of the Gulf War on the Ingredients of Presidential Evaluations: Multidimensional Effects of Political Involvement," *American Political Science Review* 87(4): 963–75.
Krosnick, Jon A. and Kinder, Donald R. (1990). "Altering the Foundations of Support for the President through Priming," *American Political Science Review* 84(2): 497–512.
Lodge, Milton and McGraw, Kathleen M. (1991). "Where is the Schema? Critiques," *American Political Science Review* 85(4): 1357–64.
Lodge, Milton, Steenbergen, Marco R., and Brau, Shawn (1995). "The Responsive Voter: Campaign Information and the Dynamics of Candidate Evaluation," *American Political Science Review* 89(2): 309–26.
McCombs, Maxwell and Zhu, Jian-Hua (1995). "Capacity, Diversity, and Volatility of the Public Agenda: Trends From 1954 to 1994," *Public Opinion Quarterly* 59(4): 495–525.
McGraw, Kathleen M. and Ling, Cristina (2003). "Media Priming of Presidential and Group Evaluations," *Political Communication* 20(1): 23–40.
McGraw, Kathleen M. and Pinney, Neil (1990). "The Effects of General and Domain-Specific Expertise on Political Memory and Judgment," *Social Cognition* 8(1): 9–30.
McGuire, William J. (1960). "A Syllogistic Analysis of Cognitive Relationships," in C. Hovland and M. Rosenberg (eds), *Attitude Organization and Change: An Analysis of Consistency Among Attitude Components*. New Haven, CT: Yale University Press.
McGuire, William J. (1985). "Attitudes and Attitude Change," in G. Lindzey and E. Aronson (eds), *The Handbook of Social Psychology, Vol. 2*. New York: Random House.
McGuire, William J. and Papageorgis, Demetrios (1962). "Effectiveness of Forewarning in Developing Resistance to Persuasion," *Public Opinion Quarterly* 26(1): 24–34.
Marquis, Lionel and Gilland Lutz, Karin (2004). *Thinking About and Voting on Swiss Foreign Policy: Does Affective and Cognitive Involvement Play a Role?* Sussex European Institute, EPERN Working Paper No. 18, URL (consulted June 2005): http://www.sussex.ac.uk/sei/documents/wp83.pdf.
Mendelsohn, Matthew (1996). "The Media and Interpersonal Communications: The Priming of Issues, Leaders, and Party Identification," *Journal of Politics* 58(1): 112–25.
Miller, Joanne M. and Krosnick, Jon A. (1996). "News Media Impact on the Ingredients of Presidential Evaluations: A Program of Research on the Priming Hypothesis," in D. Mutz, P. Sniderman, and R. Brody (eds), *Political Persuasion and Attitude Change*. Ann Arbor: University of Michigan Press.
Miller, Joanne M. and Krosnick, Jon A. (2000). "News Media Impact on the Ingredients of Presidential Evaluations: Politically Knowledgeable Citizens are Guided by a Trusted Source," *American Journal of Political Science* 44(2): 301–15.
Ottati, Victor C. and Wyer, Robert S. (1990). "The Cognitive Mediators of Political Choice: Toward a Comprehensive Model of Political Information Processing," in J. Ferejohn and J. Kuklinski (eds), *Information and Democratic Processes*. Urbana and Chicago: University of Illinois Press.
Petty, Richard E. and Cacioppo, John T. (1979). "Issue Involvement Can Increase or Decrease Persuasion by Enhancing Message-Relevant Cognitive Responses," *Journal of Personality and Social Psychology* 37(10): 1915–26.

Petty, Richard E. and Cacioppo, John T. (1986). *Communication and Persuasion: Central and Peripheral Routes to Attitude Change*. New York: Springer-Verlag.
Pollock, Philip H., III (1994). "Issues, Values, and Critical Moments: Did 'Magic' Johnson Transform Public Opinion on AIDS?" *American Journal of Political Science* 38(2): 426–46.
Rahn, Wendy M., Krosnick, Jon A., and Breuning, Marijke (1994). "Rationalization and Derivation Processes in Survey Studies of Political Candidate Evaluation," *American Journal of Political Science* 38(3): 582–600.
Rogers, Everett M. and Dearing, James W. (1988). "Agenda-Setting Research: Where Has It Been, Where Is It Going?" in J. Anderson (ed.), *Communication Yearbook 11*. Newbury Park, CA: Sage.
Schacter, Daniel L. (1996). *Searching for Memory: The Brain, the Mind, and the Past*. New York: Basic Books.
Schacter, Daniel L. and Buckner, Randy L. (1998). "Priming and the Brain," *Neuron* 20: 185–95.
Sciarini, Pascal and Listhaug, Ola (1997). "Single Cases or a Unique Pair? The Swiss and Norwegian 'No' to Europe," *Journal of Common Market Studies* 35(3): 407–38.
Squire, Larry R. and Kandel, Eric R. (1999). *Memory: From Mind to Molecules*. New York: Scientific American Library.
Stoker, Laura (1993). "Judging Presidential Character: The Demise of Gary Hart," *Political Behavior* 15(2): 193–223.
Tesser, Abraham (1978). "Self-Generated Attitude Change," in L. Berkowitz (ed.), *Advances in Experimental Social Psychology (Vol. 11)*. New York: Academic Press.
Todorov, Alexander (2000). "The Accessibility and Applicability of Knowledge. Predicting Context Effects in National Surveys," *Public Opinion Quarterly* 64(4): 429–51.
Tourangeau, Roger, Rips, Lance J., and Rasinski, Kenneth (2000). *The Psychology of Survey Response*. Cambridge: Cambridge University Press.
Tourangeau, Roger et al. (1989). "Carryover Effects in Attitude Surveys," *Public Opinion Quarterly* 53(4): 495–524.
Valentino, Nicholas A., Hutchings, Vincent L. and White, Ismail K. (2002). "Cues that Matter: How Political Ads Prime Racial Attitudes During Campaigns," *American Political Science Review* 96(1): 75–90.
Verplanken, Bas, Hofstee, Godelieve, and Janssen, Heidi J. (1998). "Accessibility of Affective Versus Cognitive Components of Attitudes," *European Journal of Social Psychology* 28(1): 23–35.
Wyer, Robert S. and Srull, Thomas K. (1989). *Memory and Cognition in its Social Context*. Hillsdale, NJ: Lawrence Erlbaum Associates.
Zaller, John R. (1992). *The Nature and Origins of Mass Opinion*. Cambridge: Cambridge University Press.
Zaller, John R. (1998). "Monica Lewinsky's Contribution to Political Science," *PS: Political Science and Politics* 31(2): 182–9.
Zaller, John R. and Feldman, Stanley (1992). "A Simple Theory of the Survey Response: Answering Questions Versus Revealing Preferences," *American Journal of Political Science* 36(3): 579–616.
Zhu, Jian-Hua et al. (1993). "Public Issue Priority Formation: Media Agenda-Setting and Social Interaction," *Journal of Communication* 43(1): 8–29.

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