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# AN IMPRESSION-DRIVEN MODEL OF CANDIDATE EVALUATION

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**W**e describe and test two process models of candidate evaluation. The memory-based model holds that evaluations are dependent on the mix of pro and con information retrieved from memory. The impression-driven model holds that evaluations are formed and updated "on-line" as information is encountered. The results provide evidence for the existence of stereotyping and projection biases that render the mix of evidence available in memory a nonveridical representation of the information to which subjects were exposed. People do not rely on the specific candidate information available in memory. Rather, consistent with the logic of the impression-driven processing model, an "on-line" judgment formed when the information was encountered best predicts candidate evaluation. The results raise both methodological and substantive challenges to how political scientists measure and model the candidate evaluation process.

**O**ur primary aim is to develop and test two competitive models of the candidate evaluation process. We focus on information, our general perspective being the information-processing approach identified with Herbert Simon (1981, 1985; Newell and Simon 1972). All contemporary political science models of vote choice are *information-processing* models in that candidate evaluation is treated as a function of the mix of information (e.g., Brody and Page 1972; Campbell et al. 1960; Enelow and Hinich 1985; Kelley 1983; Kelley and Mirer 1974; Lazarsfeld, Berelson, and Gaudet 1944). However, none of them provide an accounting of the memory processes involved in candidate evaluation. Yet memory processes are critical to understanding candidate evaluation,

because citizens are exposed to information (be it party affiliation, character, or policy stances) over an extended period of time, and some of that information must be stored in, and retrieved from, long-term memory when an evaluation or vote is necessary.

Despite the lack of explicit attention to memory in contemporary voting models, they appear to share the common implicit assumption that the direction and strength of candidate evaluation is in large part determined by the "evidence" available in memory. For example, Kelley and Mirer (1974) state the case for a memory-based model of vote choice: "The voter canvasses his likes and dislikes of the leading candidates and major parties involved in an election. Weighing each like and dislike equally, he votes for the

candidate toward whom he has the greatest number of net favorable attitudes" (p. 574).

This memory-based model of evaluation makes two critical assumptions about human information processing. First, the information recalled by respondents is thought either to be a more or less veridical representation of the information they were actually exposed to (Kelley 1983) or—more reasonably—to reflect the salient information they were exposed to plus what they "reasonably" inferred about the candidates (Conover and Feldman 1986; Granberg 1985). Second—and from our perspective most critically—the model assumes that citizens base their evaluation on the evidence retrieved from memory. Moreover, the methodologies used to assess the validity of candidate evaluation models also reflect the importance of memory. The reliance on responses to the Survey Research Center (SRC) open-ended like-dislike questions and candidate issue proximity scales reflects assumptions that (1) the citizen is willing and able to conduct a search for relevant information in memory, (2) this search will generate a veridical or (more plausibly) a representative sample of the information to which the citizen was exposed, and (3) this available information is then used to inform an evaluation and vote choice.

We test the validity of these assumptions by examining two important aspects of the memory-judgment relationship as applied to the process of candidate evaluation. The first aspect deals with memory retrieval processes: How much of what kind of candidate information do citizens retrieve from memory? The key question being, Is the "configuration" of evidence represented in long-term memory a veridical mapping or (more plausibly) a representative sample of information to which the citizen was exposed, or is memory for a political candidate subject to systematic biases? One class of

problems found to undermine seriously the "veridical" and "representative" memory models relates to *cognitive constraints* in the processing of information; that is, memory often reflects one's prior expectations, with the bulk of the empirical evidence strongly implicating the impact of prior beliefs on attention and memory processes (Fiske and Taylor 1984). A second issue we consider focuses on *evaluative constraints* in the processing of new information. Is the evidence culled from memory a reflection of rationalization processes that serve to "fit" the evidence to "match" one's current evaluation of the candidate? Again, the empirical evidence documents an evaluative bias in information processing, the basic finding being that people are prone to recall evidence that is consistent with current attitudes (Chaiken and Stangor 1987).

In addition to problems related to memory per se, we are concerned with the judgment process itself: How do citizens use whatever information is available in memory to inform an evaluation? To examine memory processes as they apply to candidate evaluation, we consider two competing information-processing models: the *memory-based* model of the judgment process and the "on-line," or *impression-driven*, model (Hastie and Park 1986; Lichtenstein and Srull 1987).

*Memory-based processing.* The memory-based model of candidate evaluation aligns with common sense in positing a positive relationship between memory and judgment. When a person is called on to make an evaluation, whether at the ballot box or in reply to an interviewer's request, it is reasonable to assume that the overall evaluation is based upon the actual mix of pro and con evidence available in memory. Common sense, unfortunately, is a fallible guide. A great deal of research indicates that there is typically little or no relationship between the blend of pro and con information available in

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memory and the direction or strength of evaluation (see Hastie and Park 1986 for a review). Apparently, memory-based evaluation is too cognitively taxing, relying on the effortful retrieval of specific information from long-term memory, the weighing of evidence, and then the computation of a summary evaluation, all common complaints leveled against rational choice models in general and issue voting models in particular (Herstein 1981).

*Impression-driven processing.* Given the failure to find unequivocal support for memory-based processing, a second class of models has been proposed. Impression-driven, or "on-line," processing occurs when a judgment is made as relevant information is encountered. A key concept in understanding the on-line model of evaluation is the notion of an "evaluation counter" or "judgment tally"—what Hastie and Park (1986) call a "judgment operator," and Wyer and Srull (1986) term an information "integrator." It is conceived as a counter in working memory that integrates new information into a "running tally" of one's current impression. What makes on-line processing so psychologically compelling is that unlike the memory-based models of the judgmental process, on-line processing does not tax the cognitive limits of the human information processing system unduly. When exposed to new information, people can operate naturally as "cognitive misers" by simply retrieving the evaluation counter from memory, updating this summary tally, storing the new value in long-term memory, and then in the name of cognitive economy "forgetting" the actual pieces of evidence that contributed to the evaluation. Thus it is that people can often tell you how much they like or dislike a book, movie, candidate, or policy but not be able to recount the specific whys and wherefores for their overall evaluation—a partial explanation, per-

haps, for the paucity of specifics in the SRC open-ended like-dislike questions (Gant and Davis 1984).

For the memory-based model of evaluation, a summary judgment is thought to be "computed" from the specific memory traces recalled at the time the assessment is called for. To the extent that this represents an accurate portrayal of the evaluation process, it is arduous, time-consuming, and unreliable, requiring more effort and attentional resources than all but Downsian man could or would be willing to expend. On the other hand, the on-line model of the judgment process is psychologically realistic in proposing that when asked to voice an opinion, people typically retrieve their summary evaluation from memory, only dredging up specific memory traces when pressed to give reasons why they favor or oppose a candidate or issue. On-line processing appears to be more cognitively efficacious than memory-based evaluation, in that the individual is forming the judgment "on the fly" as evidence is encountered and updating the on-line evaluation immediately, without having to first store each piece of evidence in long-term memory and then later laboriously compute a summary evaluation from whatever memory traces are still available.

Clearly, people sometimes rely on their memory of likes and dislikes to inform an opinion, while at other times they can simply retrieve their on-line judgments. What conditions produce impression-driven or memory-based information processing? The critical mediating variable appears to be the individual's processing objective or "goal" when information is initially encountered. If, as is commonplace, the person acquires information with the explicit or implicit objective of forming an impression or making an evaluative judgment, impression-driven processing occurs. If, on the other hand, one's goal were to remember as much information as possible (as is typical of

laboratory tasks but thought to be relatively rare in real world situations)—or, perhaps more likely, if one were exposed to information with no specific objective in mind and only later asked to render an evaluation of the target—then memory-based processing occurs: one's evaluation would be based on whatever bits and pieces of information are still available in memory.

At stake is how we model and interpret the correlates and pathways of candidate evaluation. When, as here, the citizen is conceived as a bounded rationalist, it is incumbent on us to construct models of candidate evaluation that do not require more capacity and processing skills than human beings are known to possess. To the extent that the evaluation of political figures is much the same as the evaluation of ordinary people by psychologists, our discipline's interpretations of the hows and whys of candidate evaluation and vote choice appear to demand too much of the voter, and our technique of asking respondents for their recollection of likes and dislikes (as well as their recollection of the candidates' position on the issue scales used to develop proximity scores) may well be misdirected.

In line with contemporary thinking in the cognitive sciences, we focus on the actual processes involved in decision making. From the cognitive perspective, a psychologically informed model of candidate evaluation must satisfy the constraints of "bounded rationality," the most important being that (1) the information in memory available for recall is rarely a veridical representation of what the citizen was exposed to but, rather, is cognitively constrained by inferences drawn from the stereotypic default values of one's representation; (2) the interpretation and recollection of new information is also constrained evaluatively, as people are prone to rationalize new information to make it better conform to their current evaluation; and (3) the relationship be-

tween what is available in memory and judgment is dependent upon the citizen's processing objective when information is encountered.

### Experiment Overview

We set as our task an examination of the relationship between a person's memory for a candidate and his or her evaluation of that candidate. First, we examine the content of memory and its impact on the candidate evaluation, asking, What kind of information do people remember about a candidate under different processing conditions? What relationship exists between the mix of information available from memory and candidate evaluation? Next we turn to tests of the memory-based versus the impression-driven model of candidate evaluation. In line with a dynamic information-processing perspective, we incorporate some of the most important factors known to underlie the evaluation of political candidates. An implicit assumption of on-line processing is that "first impressions" (that is, the initial input into the judgment counter) should be a particularly powerful determinant of judgments. Within the electoral context, the political candidate's party affiliation is certainly a critical "first impression" factor and is accordingly incorporated into the information stream. Next, given the importance of "character" on the evaluation of political candidates, we systematically manipulated the second piece of information our subjects' were exposed to with an endorsement appraising them of the candidate's competence and integrity. Finally, we examine the impact of a candidate's policy statements on the evaluation process. Presumably, the voter's on-line integration of the candidate's issue positions will serve as a better explanation of the candidate evaluation process than will the information that the voter can later remember about the candidate.

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### Experimental Design and Method

A nonprobability sample of 422 non-student adults from Long Island, New York were interviewed by trained college students in partial fulfillment of a class project in the spring of 1987. Fifty-two percent of the subjects were male and 88% were white. The median family income was \$40 thousand. The sample was well educated, with 68% reporting some college or a college degree. While the respondents in this sample were better educated and enjoyed more income than the average U.S. voter, they also expressed—more important for our purposes—similar levels of political interest and correspondingly low levels of political activity beyond voting. In terms of party affiliation, 29% of subjects reported being Republican, 35% Democrat, and the remainder Independent or of no party affiliation. The experiment proceeded in six stages, as summarized in Table 1.

*Stage 1. Campaign brochure.* The subjects were recruited to participate in a study that had as its ostensible aim the evalua-

tion of a campaign brochure of a congressman seeking reelection. They first read the five-page campaign brochure, which described a Congressman Williams of Troy, New York as a long-time Republican who worked actively in the Republican party since the 1950s, had defeated the incumbent Democratic representative in 1980, and who had held the congressional seat since then. (Williams is a fictitious person; the subjects were not aware of this). Following this one-paragraph biography (which mentioned his Republican affiliation four times), the brochure cited 40 policy positions attributed to the congressman, each of them a declarative statement of the type, Congressman Williams "favors major cuts in federal spending on social programs." All 40 policy statements were in fact selected from the Lodge and Hamill (1986) inventory of policy statements. Thirty had been evaluated earlier as Republican items by a similar sample of New Yorkers, while the remaining 10 were policies characteristic of the Democratic party. Thus Congressman Williams's overall policy posture in the campaign booklet was 75% consistent

**Table 1. Experimental Design**

Stages and Tasks	Experimental Conditions			
	Memory-based	Impression-driven		
		Positive	Neutral	Negative
Campaign brochure				
Republican congressman	yes	yes	yes	yes
Endorsement by civic organization	no	yes (+)	no	yes(-)
Dimension for statements rating	readable/not	like/dislike	like/dislike	like/dislike
Distractor word test	yes	yes	yes	yes
Congressman evaluation	yes	yes	yes	yes
Policy position recall	yes	yes	yes	yes
Policy recognition	yes	yes	yes	yes
Final questionnaire				
Republican-Democratic rating of 60 policies	yes	yes	yes	yes
Like-dislike ratings of remaining statements (no. cases)	60	20	20	20
Partisan knowledge, political interest, party ID, ideology, demographics	yes	yes	yes	yes

and 25% inconsistent with his Republican affiliation.

For the experimental treatment we systematically varied the subjects' information-processing goal in reading the campaign brochure. Approximately one-quarter of the subjects ( $N = 100$ ) were randomly assigned to the *memory-based* condition in which they first read the short biography describing Congressman Williams as a Republican and then read the 40 policy statements attributed to the congressman. To thwart the subjects in this condition from forming an impression of the candidate, they were told to rate each policy statement in terms of readability—how “easy or hard” the statement [was] to understand” on a five-point scale. The stated rationale for this rating task was that the congressman's campaign staff wanted to know “whether the average American voter would be able to read and understand the campaign brochure.”

The remaining 322 subjects were randomly assigned to one of three *impression-driven* conditions: a *positive endorsement* condition, in which the congressman was described by the “Troy Civic Association” as a hardworking, “in-touch,” honest representative; a *negative endorsement* condition, where it was said Congressman Williams had a poor attendance and voting record and was “out of touch” with his constituency; or a *control* condition in which no endorsement by the Troy Civic Association was provided.<sup>1</sup> The subjects in these three conditions then read the same 40 policy statements in the campaign booklet as did those in the memory-based condition but evaluated the statements in terms of how much (on a five-point scale) they personally liked or disliked the congressman's policy position. The subjects in these three impression-driven conditions were also instructed to try to form an overall impression of the candidate while rating the issues (“Try to reach a judgment of how much you like

or dislike the Congressman”). Our purpose here was to mimic the real world situation in which people are thought to integrate new information spontaneously into an evaluation (Hastie and Park 1986).

In short, in the three impression-driven conditions we attempt to trigger the impression formation process explicitly while also providing some subjects with information (civic association endorsement) designed to bias their initial impression in a positive or negative direction. We expect the impression formation process to guide subsequent memory and evaluation processes—hence the designation *impression-driven*. Conversely, the subjects who evaluate the policy statements at the syntactic level (in terms of readability) are not expected to form an impression and will, we expect, be forced to rely on information available in memory when called on to evaluate the congressman—hence the designation *memory-based*. Whether the set of 40 policy statements in the campaign brochure represents more than or less than a normal dose of exposure about a candidate is a moot question here. What is clear is that while the amount of information presented here about the congressman is well within the bounds of long-term memory, it is *well beyond the limits of short-term working memory*. Given this all-too-familiar predicament, people are expected to act “reasonably”—albeit not by the dictates of unbounded rationality. They take shortcuts, use heuristics, make guesses, and otherwise compensate for the fact that they must make do with less than all the information they were exposed to.

*Stage 2. Distractor task.* After having read and rated the statements in the campaign booklet, we had all subjects complete a 44-item *Readers' Digest* vocabulary test. This distractor test was designed to purge from short-term memory the policy statements made in the campaign bro-

chure and simulate the more natural course of events where nonrelevant information intercedes between exposure and evaluation. Respondents were allowed five minutes to complete the multiple choice test. Verbal test scores did not contribute either substantively or statistically to the models of evaluation and are therefore dropped from further discussion.

*Stage 3. Evaluation of the congressman.*<sup>2</sup> Following the distractor test, two types of candidate evaluation were obtained. A global evaluation question asked subjects for an "overall impression" of the congressman on a five-point scale that ranged from "extremely favorable" to "extremely unfavorable." Subjects were also asked to rate Congressman Williams on the 24 trait adjectives used in recent SRC National Election Surveys. Two trait dimensions—competence (e.g., *hardworking, not qualified*) and integrity (e.g., *compassionate, dishonest*)—were evident from factor analyses and consistent with data obtained in prior research (e.g., Kinder 1986; Kinder and Abelson 1981; Markus 1982). Because the dimensionality of political character is not directly relevant to our concerns here and because the 24-item character index and global evaluation measure were highly correlated ( $r = .73$ ), we combined the two into a single, equally weighted measure of candidate evaluation. Also included in this section were three checks on the endorsement manipulation. Examination of the response to these manipulation checks indicated that this information was attended to by the two groups receiving the endorsements.

*Stage 4. The recall of policy statements.* In a surprise recall test, the subjects were called on to recall "as accurately as possible" the actual policy statements that appeared in the campaign brochure.

*Stage 5. The recognition of policy statements.* Our major test of the processing

models relies on the recognition data. Forty policy statements were presented in serial fashion, each followed by a five-point scale ranging from (1) "Yes, Congressman Williams definitely said this" to (5) "No, he definitely did *not* say this." Twenty of the policy statements were "old" items, that is, policies that actually appeared word for word in the campaign booklet and 20 were "new" policies, policy statements which the congressman never made. Half of the old and half the new statements were consistent with Congressman Williams' Republican party affiliation (policies judged characteristic of the Republican party) and half were inconsistent policies (identified with the Democratic party).

*Stage 6. Final questionnaire.* Following the recognition task, subjects were asked to characterize all 60 policy statements (the 40 from the brochure as well as the 20 new recognition test policies) on a five-point scale as characteristic of either the Republican or Democratic party. These ratings allow us to confirm the partisan direction of the policy statements. Following these partisan ratings, subjects in the memory-based condition were asked to rate all 60 policy statements on the like-dislike scale, while subjects in the impression-driven conditions, having evaluated the 40 statements earlier in stage 1, now rated just the 20 new policies.

As a measure of political knowledge all subjects were also asked to identify the party affiliation of contemporary political leaders and groups. The responses to the leaders-and-groups questions were combined with the partisan ratings of the 60 policy statements to form an additive index of partisan knowledge. Each correct response (defined by sample consensus opinion, which also corresponded to the authors' "expert" opinion) added a point to the knowledge score, whereas each incorrect response resulted in the loss of a point. *Don't know* or a missing response was scored as zero.



The final series of questions tapped political interest, party identification, ideological persuasion, conventional political activities, and demographics, all using the standard SRC formats.

### Analytic Plan

We address two distinct questions in our empirical analyses. The first is concerned solely with memory: How much of what kind of information is available in memory? The second is concerned with the relationship between memory and judgment: How is the information available in memory used in candidate evaluation?

The analysis of the recognition data will allow us to determine the content of available memory.<sup>3</sup> The most stringent criterion would be a *veridical* representation—a “snapshot”—in which all 40 policy positions endorsed by the candidate were correctly recognized. After eliminating this unrealistic possibility, we turn to examine in depth whether the information available in memory is a *representative* subset of the candidate’s message or whether it reflects a systematically distorted version of his positions. Two manifestations of biased memory are of interest to us here. The first is the extent to which voters create a *stereotyped* representation of the candidate. Looking at all 40 policies (those consistent with his Republican label and those inconsistent), is there evidence of a stereotyping bias in memory such that subjects correctly remember—and perhaps erroneously impute—more consistent (Republican) than inconsistent (Democrat) policies to the candidate? The second line of questioning examines the impact of the individuals’ own policy preferences on memory for the candidate’s policies in a direct test of *projection* bias (Brody and Page 1972; Conover and Feldman 1986; Markus and Converse 1979). Under what conditions are subjects likely to remember policy

positions that they personally prefer accurately? Do subjects erroneously impute (“project”) preferred issue stances onto the candidate?

Next, having determined the content of available memory, we move to incorporate memory variables into a process model of candidate appraisal. In keeping with this dynamic perspective on human information processing, we manipulate or measure “impression” variables at different points in time. The manipulated “first impression” variables consist of the candidate’s partisanship and the positive, negative, or no *endorsement* of the candidate made by the fictitious Troy Civic Association in the brochure. Moreover, the subjects’ ratings of their personal liking for the candidate’s issue stances (under the impression formation instruction) forces them to revise their assessment continuously, presumably through the activation of the evaluation counter. The summary measure of the liking for the 40 campaign policies is used as an indicator of this updated impression (hereafter referred to as the *on-line evaluation*). Finally, the dependent measure is *candidate evaluation* (derived from the trait ratings and the “overall” impression question).

### What Is Available in Memory?

We begin with the question, “How much of what kind of information from the campaign brochure leaves a recognizable trace in memory? Keep in mind that to measure available memory 40 policy statements were presented in the recognition task, 20 of them old items (a sample of statements that had actually been presented in the campaign brochure) and 20 of them new policies (statements that had not appeared in the brochure). Of the old and new items 10 of each type of statement were Republican, and 10 were Democratic policies. Subjects were required to indicate whether Congressman Williams

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**Table 2. Recognition Task Responses As a Function of Experimental Condition and Partisan Knowledge**

Issues	Experimental Condition		F(1,418)	Partisan Knowledge			F(2,418)
	Memory-based	Impression-driven		Low	Medium	High	
Republican							
Old (in brochure)							
Hits <sup>a</sup>	.55	.69	40.22***	.62	.64	.71	7.97***
Misses	.23	.21	ns	.23	.22	.20	ns
New (not in brochure)							
False alarms <sup>a</sup>	.26	.30	4.91*	.27	.28	.30	ns
Correct rejections	.45	.52	6.30**	.47	.49	.56	6.88***
Democratic							
Old (in brochure)							
Hits	.64	.55	ns	.67	.63	.63	ns
Misses <sup>a</sup>	.18	.26	17.03***	.20	.24	.28	8.53***
New (not in brochure)							
False alarms	.15	.20	8.25**	.20	.19	.17	ns
Correct rejections <sup>a</sup>	.52	.60	5.47*	.51	.55	.68	17.33***

*Note:* The values are the proportion of responses of each type, calculated separately for type of issue (Republican or Democrat). Within each group of nonindependent responses (e.g., hits and misses) the data do not sum to 1.0 because *don't know* responses are not included. The values in the *F* columns are the main effect *F*-statistics and significance levels (ns = not significant).

<sup>a</sup>These responses are the components of the measure of stereotyping.

\**p* < .05.

\*\**p* < .01.

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

had or had not endorsed the policy in his campaign brochure.

Four types of responses are possible when analyzing recognition memory (Murdock 1982). There are two types of correct responses. A *hit* occurs when a subject responds, "Yes, he said that" to an old policy statement. A *correct rejection* occurs when a subject says *no* to a statement that had not appeared in the brochure. Similarly, there are two types of errors. A *miss* occurs when a subject responds "No, he didn't say that" to a statement that was actually presented in the brochure, and a *false alarm* occurs when a subject errs by responding "Yes, he said that" to a new item. For the present data, we tally the responses for the Republican and Democratic policy statements sepa-

ately. The results are summarized in Table 2.

Table 2 reports the mean percentage of each type of response as a function of experimental condition—because there were no recognition differences among the three impression conditions, those data are combined—and level of partisan knowledge. The results clearly eliminate the implausible standard that recognition memory is a veridical mapping of the information in the campaign brochure: approximately 40% of all responses are errors or *don't know* answers.

Our primary concern is with how one's information-processing goal (memory-based versus impression-driven) affects memory for campaign information. As expected, recognition varied as a function

of experimental condition. On three of the four correct response indicators (hits and correct rejections), subjects in the impression-driven conditions outperformed subjects in the memory-based condition. Particularly striking are the differences in hits for the party-consistent items (55% as opposed to 69%). This pattern is consistent with a large body of research showing that the simple act of forming an impression facilitates memory for information (Fiske and Taylor 1984). Recognition also varied as a function of level of sophistication. Consistent with prior research (Lodge and Hamill 1986), those with higher levels of partisan knowledge tended to be more accurate (in terms of hits and correct rejections) than those with lower knowledge levels.<sup>4</sup>

In sum, it is clear that the amount of policy information represented in memory differs significantly from that presented in the campaign booklet. Memory varies as a function of the processing goal adopted when originally exposed to the information, as well as the level of partisan knowledge. For those who treated the policy statements in the campaign brochure as mortar for constructing an overall impression of the candidate, the pattern of remembrances is significantly different from subjects in the memory-based conditions, who were restrained from forming an initial impression. The simple (and, we believe, natural) act of integrating the policy positions into an on-line candidate evaluation influences memory processes.

At this juncture—still focusing on the information available in working memory—let us explore the more provocative issue of whether what is available in memory is a representative sample of the encountered information or whether there is evidence of systematic distortions of reality. Two manifestations of biased memory can be examined systematically within this experimental design: stereotyping and projection.

*Stereotyping.* One heuristic device that individuals can use to deal with complex information in the social world is through the use of stereotypes (Hamilton 1981; Lippmann 1922; Taylor and Crocker 1981). *Stereotype* refers to an abstract knowledge structure representing beliefs about the members of social groups (Hamilton 1981). Once categorized, the individual “inherits” the representative characteristics of that group. The stereotypical cue evoked in the present study is *Republican*, as all subjects were told that the candidate was a Republican congressman.

The stereotype measure is based on the recognition responses that reflect the extent to which the congressman was perceived to be a prototypical Republican. Specifically, the measure consists of four independent components (as indicated in Table 2).

1. *hits* to old consistent items (correct recognition of Republican policies from the brochure)
2. *misses* of old inconsistent items (failure to recognize Democratic statements from the brochure)
3. *false alarms* for new consistent items (incorrect attribution to new Republican issues)
4. *correct rejection* of new inconsistent items (correct rejection of Democratic policies not in the brochure).

The stereotype measure was created by summing up the number of each of these four responses. The higher the score on this measure, the stronger the representation in memory of the congressman as a prototypical Republican.

The results of the 4 (processing conditions) × 3 (partisan knowledge) analysis of variance of the stereotype measure indicate that stereotyping was significantly more likely in the impression-driven conditions (average  $M = 17.67$ ) than in the memory-based condition ( $M = 14.49$ ,

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$F[3,410] = 14.90, p < .001$ ). In addition, highly knowledgeable individuals engaged in more stereotyping ( $M = 18.88$ ) than did those with moderate or low amounts of partisan knowledge ( $M_s = 16.42$  and  $15.34$ , respectively,  $F[2,410] = 25.77, p < .001$ ). The processing condition and knowledge variables did not interact. Analyses of the two separate dimensions of the stereotype measure—accurate responses and errors—yielded identical results. Thus, the highly significant stereotyping differences observed here are not due to either enhanced accuracy or to misperceptions alone but to both.

The most direct explanation for these differences in stereotyping is that individuals who see their information-processing goal as forming an impression of the candidate must integrate a large number of separate pieces of information—in this study 40 issues plus a few pieces of personal information—into a coherent whole. For these subjects *Republican* provides an initial cue on which to build this impression. Apparently, individuals with higher levels of knowledge have developed a partisan knowledge structure that is readily available for organizing this new information. In the process of forming an impression, some of the incoming information will nicely fit this schema—a Republican candidate espousing Republican policies—and be retained in memory (resulting in hits), while other pieces of information—Democratic policies—will not fit. These incongruent policies are more likely to be discarded because of their lack of match to expectations (resulting in the misses). Moreover, because stereotypes contain expected values (Taylor and Crocker 1981), when faced with the uncertain task of teasing out old from new issue statements, individuals rely on these “default” values to guide their judgmental process, thereby yielding a high false alarm rate to the new Republican issues and the high probability of rejecting new Democratic issues.

*Projection.* In addition to stereotyping (a bias based on expectancies derived from group membership cues), we also examine the extent to which our subjects’ memories are biased by projection of personally preferred issues onto the candidate (see Krosnick 1988a for a review and critique of the projection literature). Evidence for projection typically rests on proximity scores (the difference between self-placement and candidate placement on issue preference scales). In contrast to this proximity approach, we are interested in the impact of personal preferences on the attribution of issue positions to the candidate (as evident from “Yes, he said that” responses in the recognition task). Given experimental control over the content of the campaign message and direct tests of memory accuracy, our projection measures are considerably different from previous operationalizations.

In order to assess projection, two ratio measures were computed for each subject: (1) the number of “liked”—or positively evaluated—statements attributed to the congressman in the recognition test, divided by the total number of policies the subject liked (labeled *positive memory*); and (2) the number of “disliked”—or negatively evaluated—policy statements attributed to the congressman, divided by the total number of disliked policies (*negative memory*). These two variables range from 0 to 1.00, with higher values reflecting a greater likelihood of retrieving each item type. The use of the ratios controls for initial differences in evaluations of the policies, resulting in greater precision in tests of memory biases.<sup>5</sup> Differentiating between positive and negative memory allows us to examine whether a projection asymmetry is evident in memory, specifically, whether positive projection (or assimilation) is more common and more powerful than negative projection (or contrast). In other words, the subjects should be more likely to retrieve from memory policies they personally

**Table 3. Projection As a Function of Experimental Condition and Partisan Knowledge**

Partisan Knowledge	Experimental Condition			
	Positive Memory		Negative Memory	
	Memory-based	Impression-driven	Memory-based	Impression-driven
Low	.42	.57	.36	.46
Medium	.40	.54	.37	.43
High	.43	.57	.40	.43

*Note:* The values are the proportion of positively and negatively evaluated issues attributed to the candidate in the recognition task. Higher values reflect a greater probability of attributing each issue type to the candidate.

prefer than policies they dislike, and, more importantly, the positive memory projection bias should be more strongly related to measures of candidate evaluation than negative memory projection bias (Krosnick 1988a).

Positive and negative memory were first analyzed by a 2 (processing condition) × 3 (partisan knowledge) × 2 (memory measure: positive or negative) analysis of variance, with repeated measures on the last factor. The results of that analysis are summarized in Table 3. Across all subjects, positively evaluated policies were more likely to be attributed to the congressman ( $M = .48$ ) than were negatively evaluated policies ( $M = .41$ , main effect for memory measure  $F[1,416] = 30.20, p < .001$ ). In addition, a main effect for processing condition indicates that the impression-driven subjects attributed a higher percentage of both positive and negative policies than did the memory-based subjects ( $F[1,416] = 39.19, p < .001$ ). However, this main effect is qualified by a condition by memory measure interaction ( $F[1,416] = 6.16, p < .01$ ), which indicates that the two processing groups differ more on the positive memory measure than the negative memory measure. Finally, partisan knowledge was not significantly related to the memory measures either as a main effect or in interaction with processing condition.

The increased likelihood of retrieving

personally preferred issues provides preliminary evidence for a projection bias in memory. However, projection entails more than the individual's own issue preferences: affective orientations toward the candidate are also important (Brody and Page 1972; Markus and Converse 1979). In the present context, subjects who like the candidate should retrieve more positive policies and fewer negative policies than do subjects who dislike the candidate. In order to examine this relationship between biased memory and candidate evaluation, correlations between the appropriate measures were computed and summarized in Table 4.

Note that three different measures related to "candidate evaluation" are analyzed: the manipulated endorsement (coded 1, 0, and -1), the on-line evaluation of all policy statements, and the final candidate evaluation. In general, the results conform to expectations. In the case of the positive memory ratio, the more positive the on-line and the candidate evaluations, the greater the likelihood of retrieving personally preferred policies and attributing them to the candidate. Conversely, those with more positive evaluations (stemming from the endorsement, on-line evaluation, and candidate evaluation) were less likely to retrieve negatively evaluated policies. Finally, as would be predicted from the asymmetry hypothesis, the magnitude of the

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**Table 4. Relationships between Evaluation and Projection Measures**

Evaluation	Memory Availability	
	Positive Memory	Negative Memory
Endorsement	.04	-.10*
On-line	.33***	-.10*
Candidate	.22***	-.10*

*Note:* Entries are correlation coefficients. The evaluation measures are coded so that positive values reflect the positive endorsement condition and more positive evaluations. Higher values on the memory measures reflect a greater probability of attributing positively and negatively evaluated issues to the candidate. Only subjects in the impression-driven conditions are included.

\* $p < .05$ .

\*\* $p < .01$ .

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

relationship between candidate evaluation and memory is stronger for positive memory projection than for negative memory projection for two of the three measures (the exception being the weaker endorsement variable).

To sum up the results of the analyses of available memory, we find clear evidence that the information retrieved from memory is neither a veridical nor even a representative sample of the candidate's issues positions. Rather, the memory representation of the candidate's issue positions is systematically biased. The tendency to create a stereotypical memory representation is particularly pronounced for those in the impression-driven conditions, especially so for political sophisticates. Finally, to close the circle, individuals' own policy preferences also bias memory, as subjects are more likely to attribute issues they personally liked to a positively evaluated candidate.<sup>6</sup>

### Candidate Evaluation: The Memory-Judgment Link

At this point we shift focus from memory per se to the candidate evaluation process itself. First, the memory-based and impression-driven models are com-

pared to examine the conditions under which the mix of liked and disliked issues in memory predicts the direction and strength of candidate evaluation. We then proceed to develop and estimate a model of the candidate appraisal process.

*The memory-judgment relationship.* Recall that the crucial distinction between the two models in terms of understanding the memory-judgment relationship concerns the activation of the evaluation counter. When, as is typically the case (Hastie and Park 1986), an individual acquires information with the goal of forming an impression (our impression-driven conditions), the judgment counter is thought to be activated immediately, and the on-line summary evaluation is stored separately from the specific information used as its inputs. Under these conditions, there is no reason to expect a correlation between the specific facts retrieved from memory and either the strength or direction of judgment. On the other hand, if the information is acquired without the objective of forming an impression (our memory-based condition), the evaluation counter is not activated, and no summary evaluation is stored in memory. When later asked to make an evaluative judgment, the individual is forced to go into long-term memory to retrieve previously acquired information and then use what-

**Table 5. Predicting Candidate Evaluation:  
A Comparison of Available Memory and On-Line Evaluation**

Variable	Experimental Condition			
	Memory-based	Impression-driven		
		Positive	Negative	Neutral
Available memory	.20*	.13	-.01	-.01
On-line evaluation	.26**	.54***	.46***	.51***

*Note:* Entries are standardized regression coefficients. The variables are coded so that positive values reflect greater proportions of positively evaluated issues available in memory, more positive on-line evaluations, and more positive candidate evaluations.

\* $p < .05$ .

\*\* $p < .01$ .

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

ever memory traces are presently available for computing the evaluation. Under this difficult condition, there should be a positive relation between candidate evaluation and the evaluative mix of information retrieved from memory.

To compare the two processing models optimally, a summary measure of the evaluation counter as well as a measure of the information available in memory is needed. We use the on-line evaluation (the sum of the likes [1] and dislikes [-1] for all 40 of the candidate's issue stances) as an indicator of the tally in the counter, as this score best represents the subjects' overall impression of the candidate after their exposure to all of the policies. The available memory measure is a ratio: the number of positively evaluated policies attributed to the congressman in the recognition test, divided by the total number of positive and negative policies attributed in the recognition test (Hastie and Park 1986). A ratio of .50 corresponds to an equal number of liked and disliked policies available in memory, a score greater than .50 indicates a greater proportion of liked policies, and a score less than .50 reflects a greater proportion of disliked policies.<sup>7</sup> These two measures were used to predict candidate evaluation. The regression analyses are summarized in Table 5.

The results are straightforward. As predicted, a significant relationship between available memory and candidate evaluation was obtained only in the memory-based condition. This result complements the findings in nonpolitical domains (Hastie and Park 1986; Lichtenstein and Srull 1987) demonstrating that the relationship between memory and judgment depends on processing objectives. Moreover, the on-line evaluation counter proves to be a much stronger predictor of candidate evaluation in the impression-driven conditions. Finally, the significant (albeit weaker) relationship between on-line evaluation and candidate evaluation in the memory-based condition suggests that we may have not been entirely successful in inhibiting the impression formation process among those subjects. (See Hastie and Park 1986 for a discussion of the difficulty in creating tasks that inhibit spontaneous impression formation).

*Candidate evaluation.* Our model of the candidate evaluation process includes the mainstay variables of party identification, ideology, and partisan knowledge, as well as the endorsement by the civic association (which was experimentally manipulated to have three values—positive, negative, and neutral—coded 1, -1, and

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**Table 6. Estimates of the Candidate Appraisal Model**

Variable	Maximum Likelihood Beta	Standard Error	t-Value	Standard Beta
<b>On-line evaluation</b>				
Endorsement	1.28	.92	1.39	.07
Party identification	3.07	.84	3.66	.20***
Ideology	5.91	.87	6.79	.37***
<b>"Old" issue memory</b>				
Endorsement	.01	.01	1.53	.07
Party identification	-.00	.01	-.24	-.01
Partisan knowledge	-.01	.00	-2.87	-.13**
Ideology	-.02	.01	-1.62	-.09
On-line evaluation	.01	.00	11.35	.60***
<b>"New" issue memory</b>				
Endorsement	.04	.02	1.45	.08
Party identification	-.05	.02	-2.11	-.13**
Partisan knowledge	-.01	.00	-3.40	-.19***
Ideology	-.01	.03	-.54	-.04
On-line evaluation	.01	.00	4.18	.26***
<b>Candidate Evaluation</b>				
Endorsement	.29	.04	6.63	.30***
Party identification	-.03	.04	-.64	-.03
Ideology	.13	.04	2.89	.15**
On-line evaluation	.02	.00	6.59	.41***
"Old" issue memory	.21	.27	.76	.04
"New" issue memory	.16	.10	1.64	.08*

Note: Chi-squared (3 df) = 4.98,  $p = .173$ ; goodness-of-fit index = .996; adjusted goodness-of-fit index = .953; root mean squared residual = 4.079.

\* $p < .05$ .

\*\* $p < .01$ .

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

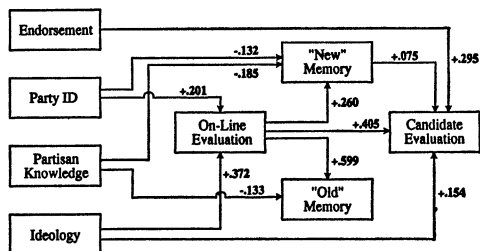
0). These exogenous variables are expected to be related to three components of the candidate evaluation process. The first is the on-line evaluation, which we assume is the key variable influencing subsequent memory and judgments. The second is the ratio measure reflecting the mix of positive and negative policies available in memory (as in Table 5). However, here we distinguish between old issues (the proportion of liked policies attributed to the candidate from those that actually appeared in the campaign brochure) and new issues (the proportion of liked policies attributed to the candidate that he never advocated, that is, false attributions of his policy stances). Finally,

all of these variables are used to predict the dependent measure, candidate evaluation.<sup>8</sup>

The rationale for the model is straightforward. Party identification and ideology should be related to the endogenous variables because the candidate and his issues were portrayed as Republican. Partisan knowledge is included in the model because, as reported earlier, it reliably influences the representation of the candidate in memory. Most important, according to the dynamic processing logic underlying the impression-driven model, impressions formed early in the process guide both the subsequent encoding and retrieval of information, as well as evalu-



Figure 1. The Candidate Evaluation Model



Note: Entries are standardized regression coefficients. Only significant paths are shown.

ations. Therefore, we expect that the manipulated endorsement will be positively related to subsequent judgment and memory processes. The same logic applies to the effects of the on-line evaluation (where a positive relationship between the on-line counter and the subsequent memory and evaluation measures is expected). Although the two variables representing the information available in memory are not expected to be significantly related to candidate evaluation in the impression-driven processing conditions, particularly in comparison to the impact of the on-line evaluation (as seen in Table 5), we estimate those links in order to determine whether the old and new (i.e., false) memory measures differentially predict candidate evaluation.

The parameters obtained from the full information maximum likelihood estimation of the recursive model are reported in Table 6. The model itself is displayed in Figure 1, which includes all path coefficients that are significant at the  $p < .05$  level (according to either one- or two-tailed significance tests, as dictated by the logic of the processes). Consider first the effects involving party identification, ideology, and partisan knowledge. As expected, both party identification and ideology exert significant effects on the on-line evaluation. Republicans and con-

servatives feel more positive about the candidate's issue positions than do Democrats and liberals. Also, ideological persuasion has a significant direct influence on candidate evaluation.

Partisan knowledge is inversely related to both memory variables. Individuals with high levels of partisan knowledge were less likely to retrieve a high proportion of old issues that they personally liked, and also less likely to falsely project their preferred new issues onto the candidate than were individuals with lower levels of partisan knowledge. The intriguing relationships that exist between partisan knowledge and the various memory measures are worth noting. Whereas stereotyping (an expectancy-based, non-affective bias) occurs more frequently among those with high levels of partisan knowledge (Table 3), personal policy preferences have a stronger impact on memory among the less-knowledgeable. This pattern of results is consistent with recent findings indicating that those with high levels of political expertise are more likely to draw on partisan schemata when making political inferences (Conover and Feldman 1986; Hamill, Lodge, and Blake 1985). The overall effect is an increased likelihood of creating a stereotypical representation of the candidate. On the other hand, those with low levels of political expertise are more likely to rely on personal preferences, resulting here in a greater likelihood of projecting their policy preferences onto the candidate.

The pathways depicted in Figure 1 confirm our expectations about impression-driven processing. First, the endorsement had a direct and highly significant impact on candidate evaluations and is also associated with more positive on-line evaluations (although this link does not reach an acceptable level of significance).

Consider now the relationship between the memory and judgment variables. Note the critical result: the highly significant direct link between on-line evalua-

tion and candidate evaluation (a replication of the simple regression effects provided in Table 5 within the context of the complete appraisal model). Moreover—as predicted—no link exists between preferences for the candidate’s actual issue stances that are available in memory (old issue memory) and candidate evaluation. There is, however, a modest but reliable link between evaluation and “memory” for the issues *falsely* attributed to the candidate. In other words, whereas memory for the candidate’s actual policy positions has no discernible effect on candidate evaluation, the false belief that the candidate voiced personally preferred stands is directly linked to evaluation. We interpret this linkage as evidence of projection bias in the candidate evaluation process. Nevertheless, it should be noted that the magnitude of this relationship is relatively weak, consistent with such effects as reported by Markus and Converse (1979).

According to the observed chi-squared statistic ( $\chi^2$  [3 df,  $N = 319$ ] = 4.98,  $p = .173$ ), the model provides a reasonably good fit to the data. The adjusted goodness-of-fit index coefficient is .953, indicating that the majority of the variance and covariance is accounted for by the model. A comparison of the estimated model to an alternative provides a stronger method for assessing model validity (Anderson and Gerbing 1988). To test directly our assumption that on-line evaluation is the critical component of the candidate appraisal process, we reestimated the model after eliminating the on-line evaluation–candidate evaluation link. The difference between the chi-squareds obtained from the full and “nested” models was significant (chi-squared difference [1 df,  $N = 319$ ] = 40.77,  $p < .001$ ; adjusted goodness-of-fit index of the alternate model = .70), indicating that the model is significantly improved by considering the path between the on-line tally and candidate evaluation.

## General Discussion

Because citizens are exposed to political information over extended periods of time but are only periodically called on to voice an opinion or cast a ballot, a psychologically realistic model of candidate evaluation must be able to account for what information the citizen has available in memory as well as how the mix of evidence in memory contributes to evaluation. In this study we examine the validity of the assumption of a direct memory–judgment relationship underlying contemporary models of candidate evaluation and (finding it wanting) propose an alternative method of the candidate evaluation process. The results raise both methodological and substantive challenges to how we measure and model the candidate evaluation process.

Focusing first on memory—on what information about the candidate is stored in memory and ostensibly available for making an evaluation—two findings emerge. First, people whose goal is to form an impression of the candidate tend to constrain their memory representation cognitively by attributing to the candidate policy positions consistent with their own stereotypical preconceptions. Second, people tend to constrain the evidence in memory evaluatively by attributing to favored candidates policy positions they personally like. The effect of both biases is to render the mix of evidence in memory a nonveridical representation of the information subjects were actually exposed to.

The primary thrust of this research was directed toward the evaluation process itself: how information is integrated into a summary evaluation. The major findings of this study challenge the assumption of a direct relationship between memory for a candidate’s policy statements and evaluation of that candidate. We find—in direct contrast to the common sense as-

sumption underlying political science models of candidate evaluation—that when called on to form a general impression of the candidate, people do not rely on the specific issues available in memory. Rather, the evidence suggests that the “judgment counter,” activated when information was initially encountered, is retrieved and used to render an evaluation.

The results may appear paradoxical on two levels. First, although two theoretically meaningful memory biases (stereotyping and projection) were identified, neither is a strong predictor of candidate evaluation. There was no evidence that stereotyping is related to evaluation,<sup>9</sup> and the impact of projection is relatively weak (in comparison to the magnitude of the relationships between candidate evaluation and the on-line evaluation, endorsement, and ideology). However, this pattern is indeed consistent with the logic of the impression-driven processing model: the on-line tally should be—and is—a stronger determinant of evaluation than memory variables. We are not concluding that issues involving the encoding, representation, and retrieval of political information are unimportant. Rather, we would like to make the case for greater precision in specifying the conditions under which a strong relationship between memory biases and candidate evaluation is likely to occur.

More important, these results are in strong contrast to the majority of studies, which find a strong positive relation between a respondent’s specific likes and dislikes about a candidate and evaluation (e.g., Kelley 1983; Kelley and Mirer 1974; Lau 1986; Miller, Wattenberg, and Malanchuk 1986). The numerous methodological differences between this study and investigations that rely on the NES like-dislike measures compel caution. A tentative resolution of these disparate results requires a consideration of the nature of the like-dislike survey responses. A substantial proportion of the responses

to the open-ended probes are *not* specific personal or policy attributes but rather “diffuse evaluative judgments” (Stokes and Miller 1962; see also Gant and Davis 1984), corresponding to our notion of retrieval of the on-line tally from memory. Moreover, strong partisans (who, we suppose, are most likely to be chronic impression-driven processors because of their interest in politics) are more likely to respond to the open-ended probes with non-specific and generally affective expressions, whereas those with but weak partisan feelings are more likely to provide explicit, detailed responses (Gant and Davis 1984). In addition, Kelley and Mirer (1974) report that the predictive accuracy of the like-dislike index actually *declines* as the number of specific likes and dislikes reported by the voter increases, a finding that is consistent with our contention that specific memory traces are not related to evaluation.

In sum, what we see as our contribution to this literature is the idea that voters do not typically rely on their memory for specific issues to inform their evaluation but instead call up their summary tally when asked for an evaluation. This on-line processing is, at least in its broad strokes, psychologically realistic in placing minimal information-processing demands on voters. Indeed, the model suggests an even simpler decision rule than that thought to guide “the simple of act of voting” (Kelley and Mirer 1974), namely, *retrieve the on-line tally*. To the extent that this is an accurate portrayal of the actual evaluation process, it challenges the logic of asking respondents their likes and dislikes as indicators of the reasons underlying their vote choice. While political scientists have long been aware that voters often forget and fabricate their past partisanship, attitudes, and voting behavior, this concern should be extended to the information voters report as underlying evaluations of political candidates.

It is increasingly evident that citizens

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## Candidate Evaluation

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are not well informed and cannot engage in the computations required by most theories of voter rationality. We add to this the caveat that candidate memory is distorted by systematic biases that stem directly from impression-driven processing. However, from a cognitive perspective, these consequences of impression-driven evaluation are a natural and (dare we say) "reasonable" way to compensate for the severe limitations on human information processing that render models of unbounded rationality psychologically unrealistic.

### Notes

An earlier version of this paper was presented at the 1987 Annual Meeting of the American Political Science Association, Washington. We thank Stanley Feldman, Shanto Iyengar, Jon Krosnick, Rick Lau, and Bernadette Park for helpful comments.

1. Note that the absence of an endorsement means that the control-condition subjects received the same information about the candidate as did the subjects in the memory-based condition. Those two conditions differ only in processing objective.

2. At this juncture in the experiment we included a task order manipulation. Half the subjects (regardless of processing condition) were asked for their evaluation of Congressman Williams immediately after the five-minute distractor task, followed by the recall and recognition tasks (as outlined in the text and Table 1). This group probably best represents the normal course of events, where the citizen is first exposed to information and later called on to make an evaluation. The other half of the subjects completed the two memory tasks before giving their evaluation. However, because preliminary analyses did not reveal any reliable differences due to the task order manipulation, all reported analyses collapse the data across this factor.

3. Use of the recognition data is necessary to consider the first issue of memory accuracy. For the sake of consistency and brevity we rely on the recognition data, rather than the recall data or some combination of recognition and recall, for all subsequent analyses. The analyses reported in Tables 3-6 were also done substituting comparable measures derived from the recall data for the recognition-based measures. The conclusions drawn from all the recall-based analyses correspond to those reported in this paper. A complete summary of the recall analyses is available from us on request.

4. Signal detection theory provides a summary

measure of recognition accuracy,  $d'$ , which assesses memory "strength" as a function of the ratio of hits to false alarms (Murdock 1982). Analyses of  $d'$  for these data (conducted after dichotomizing the five-point recognition responses and considering the Republican and Democratic issues separately) confirm our conclusions. The impression-driven subjects were significantly more accurate than the memory-based subjects ( $F_s [3, 418] = 10.74$  with  $p < .001$  and  $2.54$  with  $p < .05$ , for the Republican and Democratic issues, respectively). Similarly, subjects high in partisan knowledge were significantly more accurate than subjects with low or moderate amounts of partisan knowledge ( $F_s [2, 419] = 12.39$  with  $p < .001$  and  $4.73$  with  $p < .01$ ).

5. The stereotyping and projection bias measures are independent ( $r = .04$  for stereotyping and positive projection memory,  $r = .15$  for stereotyping and negative projection memory).

6. We do not mean to imply that stereotyping and projection are the only biases that have an impact on political candidate memory. At least two other biases could be contrasted with the "veridical memory" model. First, we suspect that more salient or important issues have an advantage in memory over less important issues (Krosnick 1988b). In addition, the order in which information is received typically has an impact on memory such that more recent information has an advantage over older information (Anderson and Hubert 1963; Drebien, Fiske, and Hastie 1979). We are not able to examine the impact of salience and order in the context of this experimental design. See, however, McGraw, Lodge, and Stroh 1988 for an extension of the present work examining salience and order biases.

7. This available memory measure is similar, but not equivalent, to the projection measures used in the analyses reported on p. 408 and Table 3. The projection measures reflect the *probability* of retrieving either liked and disliked issues, controlling for initial evaluations of the issues when first encountered in the brochure. The memory availability measure reflects the *mix* of liked and disliked issues available in memory. The correlations between the available memory ratio, and positive-negative projection memory ratios are .50 and  $-.39$ , respectively.

8. At this point, we focus exclusively on the impression-driven processing condition and do not estimate the model for the memory-based condition. Inclusion of that condition was critical for understanding the impact of processing objectives on memory, as well as the relationship between available memory and judgment. However, the impression-driven conditions represent the most common and realistic information-processing mode, whereas the memory-based condition was purposefully artificial. Therefore, the impression-driven condition data provide the optimal circumstances for estimating the parameters of the candidate appraisal model.

Moreover, the stereotype measure was not included in the candidate appraisal model. As operationalized here, stereotype is purely a cognitive measure, and there are no a priori reasons to expect that this affect-free variable will (by itself) predict an evaluative judgment. Consistent with this reasoning, preliminary analyses revealed that stereotyping was not related to candidate evaluations. For the sake of parsimony, stereotyping was omitted from the complete model estimation.

9. See n. 8.

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