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Passion, Reason, and Necessity *A Quantity-of-Processing View of Motivated Reasoning*

PETER H. DITTO

INTRODUCTION

The judgments that make up the most pivotal points in our lives are seldom made dispassionately. When we await news from our beloved regarding her deliberations on a proposal of marriage, news from our doctor regarding the results of a medical test, or (perhaps as important to many of us) news from a journal editor regarding the fate of our latest manuscript, we do not approach that information with the cold detachment of a computer awaiting its next input. When we process information about valued aspects of self like our attractiveness, health, or intelligence, we almost always have clear preferences for what we want that information to hold. Rather than being indifferent to whether information suggests that we are loved or spurned, healthy or ill, published or one step closer to perishing, our processing of self-relevant information is usually accompanied by strong hopes and fears—hope that the information will favor the judgment conclusion we want to reach and fear that it will not.

Given the ubiquity of motivational forces as concomitants of important real-world judgments, it seems strange that documenting their role in judgment processes has been one of the thorniest problems in the history of experimental psychology. Terms such as “denial” and “wishful thinking” are mainstays of the contemporary vernacular and evidence for their role in everyday judgment would likely seem so obvious to the average person as to defy the need for empirical confirmation. At a formal scientific level, however, the simple proposition that what

people believe can be affected by what they want to believe has proven to be a surprisingly controversial idea.

I begin this chapter by trying to illuminate the origins of this odd clash between intuition and science; I provide an abbreviated history of the controversy and a discussion of the empirical and theoretical challenges that have faced researchers attempting to incorporate motivation into the study of perception and cognition. I then provide an overview of my own research on motivated reasoning and the theoretical view that underlies it. The essence of my theoretical approach is to explain motivationally based biases in judgment as stemming from the same mechanisms that produce many of the cognitively based biases that have proven much less controversial in psychological research.

More specifically, the view I will present in this chapter is that people often come to believe what they want to believe (and disbelieve what they want not to believe) because of a quite reasonable tendency to think more deeply about negative information than positive information. By conceiving of motivation as affecting the quantity rather than the quality of cognitive processing, much of the mystery surrounding motivated reasoning is removed, and it can be understood as simply another example of the pervasive tendency in human thought to allocate cognitive resources strategically.

A BRIEF HISTORY OF MOTIVATED COGNITION

Since at least the time of the great Greek philosophers, scholars of many stripes have been fascinated by the complicated interplay of passion and reason in human thought. During the twentieth century, Freud (1923/1957) was certainly the most prominent advocate for motivated cognition, writing in great detail about how the logical powers of the ego were often co-opted to serve the impetuous desires of the id.

Within experimental psychology, there have been two well-known attempts to demonstrate the influence of motivational factors in cognitive processes. Reviewing the history of each is instructive in that both attempts eventually succumbed to very similar sets of empirical and theoretical problems.

Perceptual Defense and the New Look in Perception

The first and most ambitious attempt to incorporate motivated phenomena into experimental psychology was the so-called “New Look” in perception led by Jerome Bruner in the late 1940s and early 1950s. The New Look is best understood as a reaction against the stranglehold that orthodox behaviorism had on scientific psychology during the early twentieth century (Erdeyli, 1974). Itself a reaction against Freudian psychodynamics and its host of mysterious mental forces, behaviorism held fast to the notion that perception could be explained solely with reference to objectively measurable characteristics of the external stimulus (no internal events need apply). Bruner and his colleagues, however, were determined to rein-vigorate a constructivist view of perception (best represented by the constructivist approach to memory processes championed by Bartlett, 1932) and launched a

concerted empirical effort to demonstrate that the organism too brought something to the perceptual situation and that internal forces, such as attitudes, values, expectancies, and personality dynamics, could all affect the products of perception (Bruner & Goodman, 1947; Bruner & Postman, 1947a, 1947b, 1949; Postman, Bruner, & McGinnies, 1948).

Bruner's goal was to demonstrate the role of extra-stimulus factors using established techniques of experimental psychophysics, thus challenging the dominant behavioral perspective on its own methodological turf. In one of an initial flurry of experiments, for example, Bruner and Goodman (1947) found that children asked to estimate the size of coins using an adjustable circular diaphragm consistently perceived the coins as larger than identically sized cardboard disks. To support the argument that this effect was due to the children's valuation of the coins, they further showed that children from impoverished backgrounds perceived the coins as significantly larger than did children with more privileged upbringings.

Over the next decade, hundreds of studies adopting a similar constructivist approach to perception were conducted under the New Look banner, but the iconic phenomenon to emerge out of this voluminous literature was what came to be called *perceptual defense* (Bruner & Postman, 1947a; McGinnies, 1949). It would take the rest of this chapter to characterize adequately the complexities of the empirical findings regarding perceptual defense and its empirical cousin perceptual vigilance (see Erdeyli, 1974, for an insightful review). The gist of the phenomena, however, is well captured by McGinnies's (1949) original study in which a group of undergraduates was presented with a series of words via tachistoscope and the exposure duration required to recognize the words was measured. McGinnies found that the students required longer exposure durations to recognize a set of "emotionally toned" words (e.g., words with sexual content like "penis" and "whore") than a set of neutral words. Moreover, the fact that students were found to show elevated levels of galvanic skin response to the emotional words at prerecognition exposure durations (i.e., before participants said that they could correctly identify the presented word) was interpreted by McGinnies as evidence that these words were "perceived" by students at an unconscious level, but conscious recognition of the words was delayed because of their anxiety-provoking content.

Much to Bruner's chagrin (1992), perceptual defense became the cause celebre of the New Look movement as McGinnies's findings were seized upon by a host of researchers attempting to tie the phenomenon to psychodynamically derived ideas like denial and repression (e.g., Lazarus, Eriksen, & Fonda, 1951). While Bruner turned his attention to less motivationally oriented but equally constructivist notions like the role of expectations and "set" in perception (e.g., Bruner, 1957), aggressive advocates of perceptual defense research triggered equally aggressive critiques of the theoretical and empirical foundations of the phenomenon (Eriksen, 1958; Goldiamond, 1958).

The body of criticism that was leveled at the phenomenon of perceptual defense had two major thrusts. The first was a methodologically based argument regarding the susceptibility of the key empirical findings to nonmotivational counterexplanation. According to the New Look view of perceptual defense, it was the anxiety-provoking nature of the threatening words that led to a desire to keep the words

from conscious awareness (hence their higher recognition thresholds). This motivational explanation was challenged, however, with a number of nonmotivational accounts based on expectations and response biases (Erdeyli, 1974). The gist of these arguments was that perceivers take longer to recognize emotionally threatening words not because they do not *want* to see them, but rather because they do not *expect* to see them. This expectation argument was sometimes made on the basis of the threatening words' lower frequency of usage in the English language (Howes & Soloman, 1950) and other times based on the contention that these "taboo" words simply seemed less likely than neutral words to be presented in the sterile environment of a psychology laboratory (Luchins, 1950).

Also left murky in this literature was whether the unexpectedness of the threatening words had its effect on the perceptual process itself or merely affected participants' threshold for offering a response (i.e., a student likely wanted to be pretty darn sure she saw the word "penis" before blurting it out to some stern-faced experimenter during a psychology study). What was clear, however, was that the New Look's motivated account of perceptual defense was not the only viable explanation for the observed experimental effects. The irrational and somewhat mysterious tendency to defend oneself against things one did not wish to see could just as easily be explained as the product of a quite rational tendency to require more information before claiming to see something that seemed unexpected in the current context.

In fact, it was precisely this "mysterious" nature of the mechanisms underlying perceptual defense that was the second focal point for New Look critics. Like the methodological criticisms, theoretical critiques of perceptual defense came in a number of different flavors (Erdeyli, 1974), but the core of the argument focused on the lack of any specific and plausible theoretical account of how perceptual defense effects might occur. As Erdeyli cogently argues, much of the theoretical difficulty with perceptual defense flowed from an overly simplistic view of perception as a unitary event (i.e., you either perceive something or you do not). From this perspective, perceptual defense seemed to present an intractable logical paradox in that it required that the individual perceive a stimulus (in order to defend against it) and not perceive it (the defense itself) at the same time (Eriksen & Browne, 1956).

At a superficial level, this paradox can be easily resolved by assuming a modern multiprocess conceptualization of perception. But the essence of the problem ran deeper than that. What troubled critics of the New Look perspective most was the image of a purposive "homunculus" surreptitiously scanning the environment and deciding what stimuli should and should not be allowed into conscious awareness (Spence, 1957). What type of mechanism could produce this kind of intentional manipulation of sensory information and then hide the evidence of this process from the conscious perceiver? Psychologists raised in a hard-headed behaviorist tradition were both ill equipped and disinclined to explain these kinds of psychodynamic hide-and-seek games. Thus, despite the intuitive tug that many psychologists felt from the New Look's motivational perspective, the difficulty of producing clear empirical support for perceptual defense, and of generating a pal-

atable theoretical account of it, led most in the field to redirect their energies toward more tractable research pursuits.

Self-Serving Bias and the Cognition–Motivation Debate

The intuition that beliefs are shaped by wishes and fears is a persistent one, however, and the debate regarding the role of motivation in cognitive processes flared again in the 1970s and 1980s—this time in the guise of research on the *self-serving attributional bias*. Early attribution theorists were constructivists by temperament (Fritz Heider was trained in the Gestalt tradition and Ned Jones was a student of Bruner's at Harvard), and the notion that causal reasoning can be perturbed by motivational forces was deeply embedded in the original treatments of attribution theory (Heider, 1958; Jones & Davis, 1965).

The empirical phenomenon that best captures this influence is an asymmetry that is frequently found in attributions for outcomes that reflect positively and negatively on the self (i.e., success and failure). As with research on perceptual defense, space precludes a nuanced treatment of the large corpus of empirical findings regarding self-serving bias, but the essence of the phenomenon, demonstrated across a number of studies, is that individuals receiving success feedback tend to report more internal and less external attributions for the causes of the feedback than do individuals receiving identically structured failure feedback (e.g., Streufert & Streufert, 1969; Wolosin, Sherman, & Till, 1973; Wortman, Costanzo, & Witt, 1973). The typical explanation for these findings was that they reflected the individual's desire to maintain a positive view of self by taking credit for positive outcomes and deflecting the unwanted implications of negative outcomes by attributing them to situation or circumstance.

As the cognitive revolution began to take a firm hold on social psychology in the mid-1970s, however, a number of researchers questioned the empirical and theoretical basis of self-serving bias as a motivationally driven phenomenon. A review of the empirical literature by Miller and Ross (1975), for example, concluded that all of the existing evidence for self-serving bias could be explained without invoking motivational mechanisms, but rather with other rational or pseudorational reasoning processes that were already documented in the psychological literature. Most central to their analysis, as well as to our purposes here, Miller and Ross suggested that much of the data ostensibly showing self-serving bias could be explained as a function of participants' expectations in the context of the experiment.

The motivational explanation for self-serving attributional bias assumes that when an individual offers internal attributions for success or external attributions for failure it is because he or she *wants* to succeed rather than fail. According to Miller and Ross, however, an equally plausible explanation for such an empirical pattern is that it occurs because the individual *expects* to succeed rather than fail. Not only do most individuals enter situations expecting and intending to succeed (Miller & Ross, 1975; Weinstein, 1980), but this is also especially likely of college students (the typical participants in self-serving bias experiments) taking academic tasks (the typical method of delivering feedback in self-serving bias experiments). Thus, when college student participants in self-serving bias studies are told by the

experimenter that they did well on some academic task, it seems only logical for them to assume that this is attributable to their proven academic ability (given that they have done well on most academic tasks in the past). When similar students are told they did poorly on an academic task, however, they are likely to be surprised by this result and “rationally” assume that this unexpected outcome must be attributable to some external factor (difficult and unfamiliar testing situation, bad luck, etc.).

Just as with the critique of perceptual defense then, the first line of attack on the motivational account of self-serving bias was an empirical one. Once again, a pattern of data seemingly indicative of motivated bias could be explained just as easily as a product of a rational inference process stemming from the contrast or consistency of incoming information with prior expectations.

Also reminiscent of the New Look literature, however, was the existence of a dominant metatheory that was inhospitable to the notion of motivational influences on cognitive processes. The prevailing information processing perspective and its guiding metaphor of the person-as-computer had little need for motivational variables in its explanatory framework. Computers, after all, do not have emotions or preferences, and the view of people as flawed information processors offered a host of cognitive mechanisms that could be flexibly drawn upon to explain virtually any judgment outcome—even those that deviated significantly from rationality—as a product of limitations and biases in our ability to attend to, encode, store, and retrieve relevant information (Tetlock & Levi, 1982).

This ability of the burgeoning cognitive perspective to offer plausible, specific, process-based accounts of judgmental errors (at least post hoc ones) contrasted sharply with the mechanistic vagueness of motivational accounts, which seemed to provide little guidance regarding how underspecified motivational constructs such as the need for “self-esteem maintenance” might alter judgment outcomes. Moreover, in comparison to the cognitive view, which explained errors and biases as unintentional miscues of imperfect but essentially functional information-processing strategies, motivational phenomena like “defensiveness” and “self-enhancement” implied a less benign view of people as intentionally distorting reality to serve their own egocentric purposes. Although the field by this time had developed some conceptual and empirical tools to wrestle with issues of self-deception (e.g., Sackheim & Gur, 1978), the idea still posed a significant challenge to most people’s intuition and thus dampened many researchers’ enthusiasm for motivational accounts of judgmental bias.

Motivated bias also raised difficult adaptive issues. How could any organism sustain a tendency to reject threatening information for short-term emotional gain when this type of information so often has important long-term behavioral implications (Jones & Gerard, 1967; Nisbett & Ross, 1980)? As such, motivational explanations of judgmental bias came to be viewed by the new field of social cognition as second-class theoretical citizens—explanations that could sometimes be tolerated (e.g., cognitive dissonance theory; reactance theory) but were generally disfavored because of the difficulty of incorporating their emphasis on emotional irrationality (with all its conceptual baggage) into an increasingly coherent and exponentially productive metatheory emphasizing a simpler kind of cognitive irrationality instead.

Motivated Reasoning: The Next Generation

This brief and admittedly selective history of psychological research on motivated cognition was intended to highlight two points. First, disentangling motivational and cognitive explanations for judgmental phenomena is hard. Second, past attempts to explain how motivational forces affect judgmental outcomes have suffered from both a lack of theoretical specificity and a view of motivated bias as fundamentally different from (and inherently more mysterious than) other kinds of judgment bias.

In recent years, however, there has been progress made on both fronts. At the empirical level, a number of studies have now accumulated documenting self-serving bias in a way that makes nonmotivational counterexplanation implausible. These studies have used a variety of different methodological strategies, including providing evidence for the mediational role of arousal (Brown & Rogers, 1991; Gollwitzer, Earle, & Stephan, 1982; Stephan & Gollwitzer, 1981) and directly manipulating the motivational significance of the judgment while holding potentially confounding expectancy information constant (Ditto, Jemmott, & Darley, 1988; Dunning, Leuenberger, & Sherman, 1995; Kunda, 1987; Liberman & Chaiken, 1992; Miller, 1976).

At the theoretical level, the maturing field of social cognition has witnessed a gradual breakdown of the artificial barrier that originally existed between motivational and cognitive processes (Kruglanski, 1996; Sorrentino & Higgins, 1986). Against this backdrop, a number of theories were generated during the late 1980s that attempted to specify how motivational forces might enter into and perturb the generic information-processing sequence (Kruglanski, 1990; Kunda, 1990; Pyszczynski & Greenberg, 1987). The key insight in this regard was the simple idea (absent in almost all early treatments of motivated bias) that if motivational factors are to affect cognitive *outcomes*, they must do so by affecting some aspect of cognitive *process*.

Together, these empirical and theoretical advances ushered in a new era of research on motivated bias, allowing researchers to move beyond the first-generation question of determining *whether* motivational forces affect cognitive processes to more interesting second-generation questions focused on distinguishing between different accounts of *how* this influence occurs (Kruglanski, 1996). This is not to say, however, that the empirical and theoretical challenges facing past research of motivated bias can be ignored. Past research supporting a motivational account of judgmental bias in no way absolves subsequent studies from the responsibility of providing evidence in support of the motivated nature of their effects. Similarly, although progress has clearly been made in terms of conceptualizing motivated reasoning processes in a specific, cognitively sophisticated way, this work has done much less to address the nagging discomfort felt by many experimental psychologists about the seemingly self-deceptive and maladaptive nature of motivationally based biases in judgment.

In the pages that follow, I will take up these second-generation questions by describing and defending my particular view of motivated reasoning. My view builds on the important insights of Kunda, Kruglanski, and others to articulate

a specific account of how the desire to reach a particular conclusion affects the processing of information that either supports or challenges that conclusion. I will, of course, present data in support of my model. Perhaps more importantly, however, I will also present arguments for the conceptual advantages of my position. Put simply, it will be my contention that the essential “differentness” of motivated judgment biases dissolves if motivations are conceived of as affecting the quantity rather than the quality of thought.

THE QUALITY VERSUS QUANTITY OF PROCESSING DISTINCTION

The prototypical phenomenon in the motivated reasoning literature is the pervasive tendency for individuals to accept more readily the validity of information consistent with a preferred judgment conclusion (*preference-consistent information*) than that of information inconsistent with a preferred judgment conclusion (*preference-inconsistent information*). Both perceptual defense and the self-serving attributional bias can be framed as examples of this general phenomenon, and similar effects have been found to occur whether the flattering or threatening information concerns one’s intelligence (Wyer & Frey, 1983), professional competence (Beckman, 1973), personality (Ditto & Boardman, 1995), social sensitivity (Pyszczynski, Greenberg, & Holt, 1985), or vulnerability to future illness (Ditto et al., 1988; Kunda, 1987).

But why does this differential acceptance occur? How does the processing of preference-consistent information differ from that of preference-inconsistent information?

Most treatments of motivated reasoning suggest, either explicitly or implicitly, that the difference lies in the *kind* of processing people apply to the two types of information. This view was expressed most clearly by Kunda (1990; Klein & Kunda, 1992, 1993; Sanitioso, Kunda, & Fong, 1990), who argued that individuals motivated to arrive at a particular judgment conclusion engage in a biased memory search to access hypotheses, inference rules, and instances from past behavior that are most likely to support their desired conclusion. From this perspective, preference-inconsistent information is seen as less valid than preference-consistent information because individuals faced with information they prefer not to believe recruit memories with the goal of undermining the validity of that information, whereas those faced with information they want to believe engage in a similar construction process but with the goal of supporting the validity of the information. According to this view, then, the desire to reach a specific judgment conclusion affects the *quality* of information processing: People approach preference-consistent and preference-inconsistent information with different processing goals and then use a biased set of cognitive operations to pursue those goals actively.

There is, however, another way to construe how the processing of preference-consistent and preference-inconsistent information might differ. In his theory of lay epistemology, Kruglanski (1980, 1990) argued that because the information-processing sequence has no natural termination point, motivational factors affect judgment outcomes by delaying or hastening the “freezing” of the epistemic search.

For example, Kruglanski theorized that the desire to reach a particular judgment conclusion (what he called the need for specific closure) should result in individuals engaging in a more extensive search for alternative explanations (i.e., delayed freezing) when incoming information is inconsistent with the preferred conclusion than when it is consistent with the conclusion.

This prediction is quite consistent with a large body of research in social cognition showing that negative information and negative affective states produce more systematic, detail-oriented cognitive processing than do positive information and positive affective states (e.g., Bless et al., 1996; Isen, 1984; Mackie & Worth, 1989; Pratto & John, 1991; Schwarz, 1990; Taylor, 1991). Pratto and John (1991), for example, found longer color-naming latencies in a Stroop (1935) color-interference paradigm when participants named the color of undesirable trait words than when they named the color of desirable trait words. They argued that this pattern revealed that negative information evokes an “automatic vigilance” effect such that cognitive analysis stimulated by the meaning of the undesirable trait words interfered with participants’ ability to attend to the task of naming the color of the type the words were printed in. Similarly, Bless et al. (1996) found that, compared to participants induced to experience sad or neutral moods, participants induced to feel happiness showed a number of indicators of reliance of heuristic rather than systematic processing of stimulus information.

The most common explanation for this asymmetry is an adaptive one. Negative stimuli are more likely than positive ones to require an immediate behavioral response (to avoid loss or harm). As such, negative stimuli tend to evoke a “mobilization” response that includes a narrowing and focusing of attention and an increase in detail-oriented cognitive analysis (Pratto & John, 1991; Taylor, 1991). The argument regarding the cognitive effects of negative and positive moods is virtually identical to that for negative and positive information, but simply adds that, because affect serves a signal function regarding the state of one’s current environment (e.g., Frijda, 1987, 1988), diffuse mood states can produce cognitive effects even in the absence of specific confrontation with negative or positive information (Bless et al., 1996; Schwarz, 1990).

This body of work suggests that the key difference in the processing of preference-consistent and preference-inconsistent information may not lie in the kind of processing each receives, but rather in the *intensity* of that processing. That is, rather than actively working to construct justifications for preference-consistent information (as Kunda’s view suggests), information we want to believe may often be accepted unthinkingly at face value. In contrast, because information inconsistent with a preferred judgment conclusion is more likely to initiate an effortful cognitive appraisal, alternative explanations for the unwanted information are likely to be considered, generating uncertainty regarding the validity of the information. Ditto and Lopez (1992) referred to this view of motivated reasoning as the *quantity of processing* (QOP) view to highlight the contention that it is the amount or intensity of cognitive processing that most clearly differentiates the treatment of preference-consistent and preference-inconsistent information rather than the direction or intended goal of that processing.

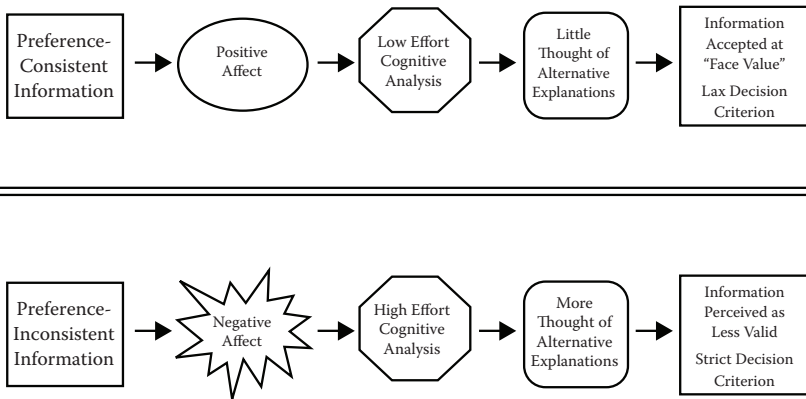


Figure 2.1 The Quantity of Processing View of Motivated Reasoning.

To illustrate the workings of the QOP model more fully, examine Figure 2.1 and consider the following example. Imagine two men going to a medical lab to be tested for a suspected health condition. Assume that both men have symptoms or some other reason to fear that they may have the condition, so an unfavorable test result is at least as expected to them as a favorable one.

The first man receives a favorable result (indicating he does not have the feared condition) and his affective response to this news is understandably positive. Based on social psychological research, we would expect this positive affective response to be unlikely to trigger an effortful cognitive analysis of the diagnostic information. As such, the individual is unlikely to consider other explanations for the favorable test result, but rather accept the validity of the diagnosis without much additional thought (after all, at a superficial level everything about the test and testing situation seems on the up-and-up). Stated another way, the man may be said to have a lax decision criterion for accepting the validity of the diagnosis, requiring relatively little information or information of relatively poor quality to accept the preferred conclusion that he is healthy. The happy man thanks the lab technician, pays at the door, and goes.

Now imagine a second man in identical circumstances whose test result indicates that he does have the feared medical condition. This man's affective reaction to the unwanted news is likely to be quite negative, and social psychological research suggests that this should provoke a critical, detailed-oriented cognitive response. Whereas a favorable test result under identical informational circumstances would have been accepted at face value, the affective sting of the unfavorable result evokes a more thoughtful consideration of the test's validity:

“I was supposed to start fasting at 11:00 p.m. last night. Could that banana I had at midnight throw off the test?”

“That technician seemed kind of young to me. Could he have screwed up the test?”

“I wonder what my doctor will say. Maybe she'll want to run some other tests.”

Because this second man was able to generate plausible alternative explanations for the unfavorable test result, he is likely to have some question about the accuracy of the test. Moreover, because of the imperfect confidence he has in the test, the second man is likely to be interested in seeking additional corroboration of what he perceived as a less than definitive result. That is, compared to the man receiving the favorable result, the man receiving an unfavorable result can be said to have a stricter criterion for accepting the validity of his unwanted test result. Rather than leaving the lab satisfied that this single diagnostic test provided him with an accurate picture of his health state, he is likely to set off from the lab with an uneasy sense of uncertainty about his medical condition and in search of some kind of second opinion to confirm (or better yet, of course, to refute) the initial test result.

There are a few points worth making about this example. First, the example was constructed in such a way as to rule out explanations for any differential reactions based on the relative unexpectedness of the unfavorable test result. If the men had little reason to expect that they were ill, then the second man's skeptical reaction to his unfavorable test result could be explained as simply a "rational" tendency to think deeply about information that violates one's assumptions or expectations about the world. As a motivational theory, the QOP model predicts that people will respond more skeptically to preference-inconsistent than preference-consistent information *even when the consistency of the two types of information with prior expectations is equivalent*. That is to say, the QOP view does not deny that factors such as the consistency of information with prior expectations affect how effortfully that information is processed. For example, an individual who discovers that she is holding a multimillion-dollar lottery ticket is initially likely to respond quite skeptically, checking and rechecking the number on her ticket against the number on the television screen in an attempt to confirm that this highly unexpected windfall is actually true.

What the QOP view does suggest, however, is that the consistency of information with an individual's expectations and the consistency of information with an individual's preferences have analogous but *independent* effects on intensity of cognitive processing. People should be prompted to think deeply about events that they do not expect and those they do not want. In fact, the reason that the roles of expectation and motivation (i.e., positive vs. negative outcome) have historically been so difficult to disentangle is that both factors are typically posited to have identical effects on judgment. At an empirical level, this means that any attempt to confirm the QOP model (or any other motivational model for that matter) must take care to mimic the approach used in the example to rule out differential expectations as a plausible alternative for any putatively preference-based effects.

Second, both the example and the QOP model assume that merely thinking more intensely about a piece of information leads to a greater likelihood of considering multiple explanations for it. This assumption seems particularly non-controversial. The guiding presupposition of the entire attributional perspective in psychology is that almost all human events are causally ambiguous, and thus people must *infer* why things occur from very limited observational data (Jones & Davis, 1965). Stated more simply, given a little motivation, people can generate multiple plausible explanations for virtually any piece of information. Whether it

be a medical test result (could mean illness or could be a flawed test of some kind), the generosity of a stranger (could be kindness or could be an act of manipulation), or the well-documented military record of a political candidate (could be heroism or he could have just made the whole thing up), even information that seems at face value to provide compelling support for a given conclusion is little match for the impressive human facility for reinterpretation. As such, if negative affect indeed promotes more intensive cognitive analysis than does positive affect, it is almost inevitable that people will be more likely to consider multiple explanations for unwanted outcomes than wanted ones.

Finally and related to this last point, this is not to say that people will necessarily accept the truth of any of the alternative explanations they generate for preference-inconsistent information. In the example, I took care to phrase the consideration of alternative explanations for the unfavorable test result as just that—consideration. The QOP model does not require that people convince themselves of the inaccuracy of undesirable information. Instead, it predicts that people will be more *uncertain* about the validity of preference-inconsistent than preference-consistent information because of their greater likelihood of entertaining the possibility that unwanted information might be explainable in more than one way (in scientific terms, the information is perceived as potentially “confounded”). Because people adopt this more skeptical stance toward preference-inconsistent than preference-consistent information, it should simply require more (or better) information to convince someone of something he or she does not want to believe than of something he or she does.

SOME EVIDENCE FOR THE QOP VIEW

Over the years, my research group has conducted a number of studies inspired by the QOP view (Ditto & Lopez, 1992; Ditto, Munro, Scepanzky, Apanovich, & Lockhart, 2003; Ditto, Scepanzky, Munro, Apanovich, & Lockhart, 1998; Lopez, Ditto, & Waghorn, 1994). The majority of this work has focused on examining two seemingly contradictory predictions: (a) that people are more skeptical processors of preference-inconsistent than preference-consistent information, and (b) that people are more sensitive processors of preference-inconsistent than preference-consistent information. A few studies illustrating each of these phenomena are presented in the next sections.

Motivated Skepticism

The most straightforward prediction of the QOP model is that, all else being equal, people should be more thoughtful and therefore more skeptical processors of preference-inconsistent than preference-consistent information. Ditto and Lopez (1992) examined this idea by presenting people with a scenario that closely matched the medical example laid out earlier. Borrowing a paradigm used in a number of previous studies (Ditto & Jemmott, 1989; Ditto et al., 1988; Jemmott, Ditto, & Croyle, 1986), college student participants were brought into the lab and “tested” for the presence of a fictitious medical condition. As the story told to the students goes,

the condition involves the presence or absence of an enzyme in the body called thioamine acetylase (TAA) that affects future susceptibility to a complex of “mild but irritating pancreatic disorders.” The diagnostic test for the condition is a simple saliva test in which the students are asked to dip a chemically coated test strip into a sample of their saliva and look for a color reaction. As one might suspect, however, the results of the test are engineered by us—in this case so that it always shows a color reaction. We do this by using glucose-sensitive paper as the test strip and having the students rinse their mouths prior to the test with mouthwash spiked with a small amount of sugar. In this way, when participants dip the test strip into their saliva, it turns from its normal yellow color to a bright green.

The key to the procedure, however, is that participants are told different things about what this color reaction means. Some of the participants are told that a color reaction indicates that they have a medical condition that makes them relatively susceptible to pancreatic disorders, whereas others are given a more positive interpretation of the result. In this way, the procedure allows us to examine reactions to information that differs in its consistency with participants’ preferences (assuming the students preferred to be healthy rather than ill) but in every other way is equated across experimental conditions.¹

In past studies using this paradigm, participants have been found to demonstrate a number of “defensive” reactions to minimize the threat represented by the unfavorable test result; the most important for our current purposes is a tendency to derogate the accuracy of the diagnostic test (see Ditto & Croyle, 1995, for a review). The problem with interpreting these results as definitive evidence of motivated reasoning, however, is that the original studies were vulnerable to classic expectancy-based counterexplanation. That is, in the original procedure, participants receiving the unfavorable diagnosis are compared to a group that is simply told that the test indicates a “normal” absence of the enzyme condition. As such, any tendency of the former group to perceive the test as less accurate than the latter could be attributed to the relatively unexpected nature of the unfavorable test result rather than its undesirability. To address this issue, Ditto and Lopez (1992) altered the procedure so that the unfavorable diagnosis group was compared to a second group who were told that the color reaction indicated that they also had an enzyme condition, but one that actually made them particularly *resistant* to future pancreatic disorders. Both sets of participants were also given identical information about the prevalence of the condition in college students (5%), so, for all participants, the condition should have been equally unexpected; the only difference was whether the surprise was a happy or an unhappy one.

Figures 2.2 and 2.3 present the key results from the Ditto and Lopez (1992) study. In order to provide further evidence of the motivated nature of the effects, participants’ postdiagnosis reactions were compared to those of another group of participants who completed analogous measures after receiving all of the relevant information about the TAA test, but before receiving their (favorable or unfavorable) results.² As can be seen in Figure 2.2, prior to receiving their test results, participants perceived the test as equally accurate whether it was described as a test of a favorable or an unfavorable condition, confirming both the equivalency and the plausibility of the provided information (i.e., in both conditions test accuracy was

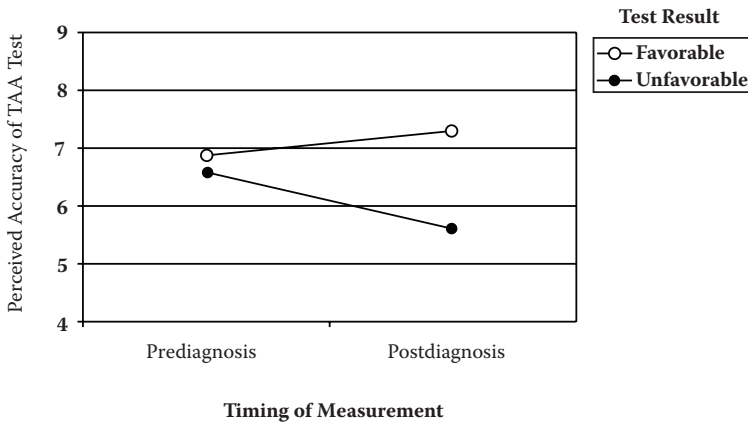


Figure 2.2 Perceived accuracy of TAA diagnostic test by experimental condition (Ditto & Lopez, 1992, Study 3). Higher numbers indicate greater perceived accuracy.

rated at around 7 on a 9-point scale). After receiving their diagnosis, however, clear differences in the accuracy of the test were found. Nicely consistent with the predictions of the QOP view, participants receiving the favorable diagnosis continued to rate the test as highly accurate. Participants receiving the unfavorable diagnosis, however, rated the test as significantly less accurate than the other three groups did, with mean accuracy for that group falling almost exactly at the midpoint of the scale (indicating uncertainty about the accuracy of the test rather than a firm sense that it was inaccurate).

These findings confirm results from past research with this paradigm, as well as research on self-serving bias more generally, using a procedure that is much less susceptible to cognitive counterexplanation. But what evidence is there more particularly for the QOP prediction that these differential accuracy ratings are due to the relatively skeptical processing of preference-inconsistent information? In addition to direct questions about the accuracy of the TAA test, participants were also asked to generate a list of any factors they could think of that might have thrown off the accuracy of their particular test. Specifically, the students were told that any irregularities in their “diet, stress, sleep pattern, or activity level” could affect the accuracy of their test and were asked to list any such life irregularities that had been true for them over the last 48 hours. Figure 2.3 presents the results of this listing task. Similar to the pattern seen in the accuracy ratings, participants asked to list irregularities prior to receiving their test result identified a similar number whether they were expecting a test for a healthy or an unhealthy condition. When asked after receiving their test result, however, participants receiving an unfavorable result generated significantly more factors that might have disrupted the accuracy of their test than did participants receiving the favorable result.

Together, the findings depicted in Figures 2.2 and 2.3 paint a picture of motivated processing quite consistent with the QOP view. Students receiving a test result indicating that they had a desirable health condition seemed to accept the validity of this information unthinkingly. Despite the unfamiliarity and relative

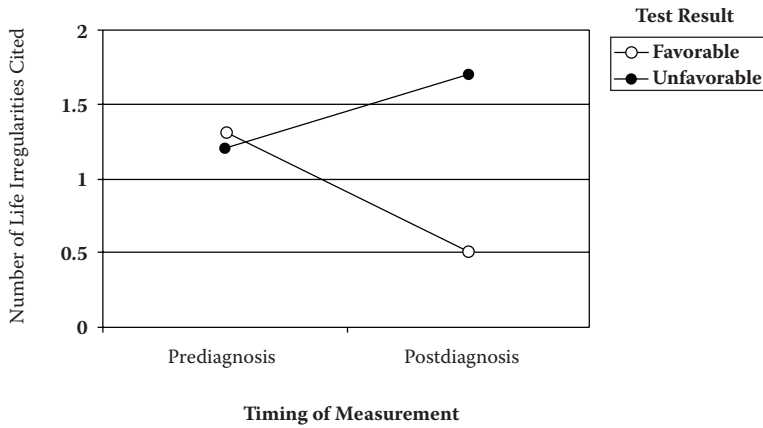


Figure 2.3 Number of test-affecting life irregularities cited by experimental condition (Ditto & Lopez, 1992, Study 3).

rarity of the condition (said to be present in only 1 out of 20 people), they seemed quite comfortable accepting the accuracy of the test and unmotivated to consider alternative factors that might account for their result. Students in the unfavorable diagnosis condition, on the other hand, responded much more skeptically to their preference-inconsistent test result. They were quite able to generate irregularities from the preceding 2 days that might have affected their test results and, as a consequence, were much more uncertain about whether their results were an accurate reflection of their health condition.

One fact, however, makes these results less than ideal as support for QOP predictions. Despite the fact that there was a sizeable negative correlation found between the number of life irregularities cited and perceived accuracy, it is still unclear whether unfavorable-result participants spontaneously generated the life irregularities as evidence against the accuracy of the test or only supplied these explanations to us when asked as a way of justifying their desired belief that the test was inaccurate. But is it possible to examine whether people spontaneously question the validity of preference-inconsistent information?

Luckily, the bogus diagnosis paradigm offers the perfect window into participants' unsolicited reactions to their TAA test result. Because we wanted to prevent students from asking for clarification about their TAA test results prior to completing the written dependent measures, the procedure was originally designed such that participants self-administered the test while alone in a laboratory room. As it turns out, this procedural oddity provides a wonderful opportunity to observe participants' spontaneous behavioral reactions to their test results.

In order to quantify these observations, a few procedure changes were needed. First, we redesigned the study so that the test strip remained yellow after contact with the saliva rather than turning green (we replaced the glucose-sensitive test strips with plain yellow construction paper). Second, we retooled the directions to lead participants to focus on the *lack of color change* as the indicator of the enzyme condition. That is, participants were led to believe the lack of color change

indicated either a negative or positive health condition (susceptibility or resistance to pancreatic disease). Third, participants were told that it was important that as soon as they thought their test result was clear, they were to seal their test strip in a provided envelope (ostensibly for our later analysis). All participants were told that the color reaction, if it were to occur, would generally be complete within 20 seconds (a clock was placed on the wall so that all participants could time the reaction if they so desired). Finally, participants were surreptitiously videotaped while they self-administered the test so that we could observe and code their reactions to their test result.

There were two key dependent measures in the study. First, we coded the amount of time subjects took to decide their test result was complete (i.e., to accept that their test strip was not going to turn green). This was operationalized as the number of seconds between when subjects first dipped their test strip in their saliva and when they sealed their test strip in the provided envelope. Second, we coded whether, during this time, participants engaged in any kind of “retesting” behavior. This was defined as any attempt on the part of the participant to confirm the result of the test by doing things such as redipping the test strip, testing additional test strips (a full container had been placed on the table before them), or testing additional saliva samples.

Once again, here is the picture. Students are confronted with a test strip that will never turn green; some hope it will and others hope it will not. They are alone in a room with no questions being asked and no one prompting them to behave in any particular way.

How long will they stare at this test strip before they decide that no color reaction is going to take place? Will they accept the results of their first test quietly or will they seek to confirm the results by retesting themselves in some way?

Figures 2.4 and 2.5 present the results of a study by Ditto and colleagues (2003) suggesting that as the QOP model would predict, how participants reacted to their test result depended on its consistency with their preferred outcome. First, participants who believed a lack of color reaction indicated an unhealthy diagnosis took

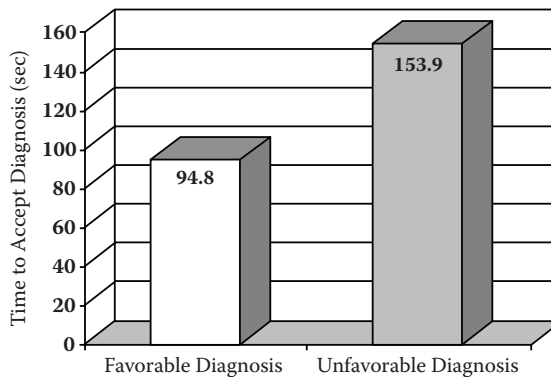


Figure 2.4 Time (in seconds) required to accept favorable and unfavorable diagnoses (Ditto et al., 2003, Study 1).

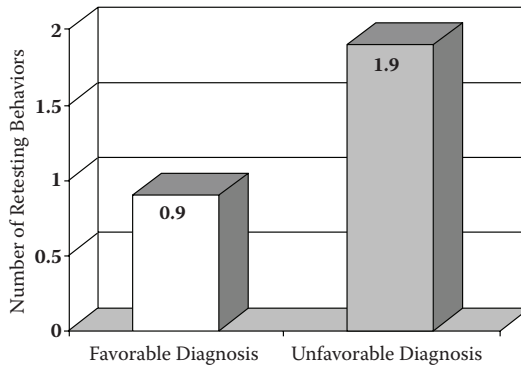


Figure 2.5 Number of “retesting” behaviors exhibited by participants receiving favorable and unfavorable diagnoses (Ditto et al., 2003, Study 1).

considerably longer to decide their test was complete than did participants who believed a lack of color reaction indicated a healthy diagnosis. As can be seen in Figure 2.4, although all the students took well more than the suggested 20 seconds to complete their tests, unhealthy diagnosis participants required almost a full minute longer than did healthy diagnosis participants to conclude ultimately that the test strip was not going to turn green.

Of course, it is possible that the unhealthy diagnosis participants were just stunned by their unwanted test results and thus the extra time required to seal up their test strips is better characterized as passive disbelief than effortful cognitive processing. Contrary to what we affectionately refer to as the “deer in the headlights” hypothesis, however, Figure 2.5 shows that unhealthy diagnosis participants engaged in almost twice as many retesting behaviors as did healthy diagnosis participants. An informal perusal of the videotapes provides clear subjective confirmation of these differential reactions. As a rule, students believing no color reaction to indicate a positive health condition appear quite content to accept the validity of their initial test result without additional scrutiny.

Students for whom no color change indicated a negative health condition, however, seemed to respond much more skeptically to the recalcitrant test strip, enacting a number of behaviors that suggest that they were considering explanations for the lack of color change other than their affliction with the unwanted enzyme condition. By redipping their test strips or adding additional saliva to their testing samples, participants seemed to be considering the possibility that their original test strips were “duds” or that the strips may not have had sufficient contact with their saliva to generate a color reaction (at least one student was observed placing the test strip directly on her tongue). Similarly, a number of unhealthy diagnosis participants were observed reopening their envelopes after a few minutes to reexamine their test strips, perhaps considering the possibility that their test strips were just slow to activate and might still change if given enough time. Of course, the use of purely behavioral measures of skepticism makes any inferences about underlying cognitions tentative. Still, the completely unprompted nature of these behaviors is quite consistent with the QOP prediction that people are more likely

to “spontaneously” question the validity of information they do not want to believe than of information they do.

Motivated Sensitivity

The most obvious predictions of the QOP view involve its ability to explain people’s resistance to preference-inconsistent information as a function of the relatively effortful cognitive processing this type of information receives. Any analysis of motivated reasoning, however, must also account for another obvious empirical fact. People frequently believe things that they would rather not believe. I would rather be taller, more athletic, and have a better head of hair, but I do not believe that I possess any of these characteristics because the data simply will not let me. In some of the earliest work on motivated cognition, no lesser figures than Bruner (1957; Bruner & Goodman, 1947), Festinger (1957), and Heider (1958) all suggest that what we ultimately see and believe is not solely what we wish to see and believe, but rather represents a compromise between our wishes and the objective stimulus information provided by sense and reason. As such, any analysis of motivated reasoning must account for both sides of the resistance–sensitivity coin.

Central to the QOP view is an image of people as fundamentally adaptive information processors. Whereas qualitative treatments of motivated reasoning portray people as intentionally pursuing the goal of reaching a desired conclusion, the QOP view sees the reluctance of people to acknowledge the validity of unwanted information as an unintentional by-product of a quite reasonable strategy of directing detail-oriented cognitive processing toward potentially threatening environmental stimuli (Taylor, 1991). Ditto and Lopez (1992) tried to capture this adaptive flavor by characterizing people as relatively “skeptical” processors of preference-inconsistent information and providing data that people simply require more information to acquiesce to a preference-inconsistent conclusion than a preference-consistent one.

It is possible, however, to push the QOP view one step further. According to this view, the only bias in the processing of preference-relevant information lies in the greater tendency of preference-inconsistent information to initiate systematic cognitive analysis. Once that processing is initiated, it is thought to proceed in an unbiased fashion. One well-documented product of systematic processing is a heightened sensitivity to information quality. Research under the rubric of the elaboration likelihood model of persuasion, for example, has repeatedly shown that individuals motivated and able to engage in an effortful consideration of the persuasive message are more likely than unmotivated or unable individuals to distinguish between a message composed of strong, compelling arguments and one composed of weak, specious ones (e.g., Petty, Cacioppo, & Goldman, 1981; Petty, Cacioppo, & Schuman, 1983; Petty, Wells, & Brock, 1976). If preference-inconsistent information does in fact initiate more intensive cognitive analysis than does preference-consistent information, then it is possible to predict that people should not only be *ultimately* sensitive to preference-inconsistent information, but should also be *particularly* sensitive to it.

Importantly, this relatively sensitive processing of preference-inconsistent information is not predicted by qualitative views of motivated reasoning. Although

both Kunda (1990) and Pyszczynski and Greenberg (1987) clearly accept that the effects of motivation on judgments are ultimately constrained by the quality of available information, they attribute this constraint to people's generalized desire to construct a seemingly rational basis for desired conclusions and thus maintain an "illusion of objectivity" to themselves and others. This view implies that the constraining effect of information quality will be symmetrical across judgments about preference-consistent and preference-inconsistent information (assuming that the desire to maintain an illusion of objectivity is operative in both cases). Only the QOP view predicts a pattern of asymmetrical sensitivity in which information quality constrains judgments about preference-inconsistent information but has little effect on judgments about preference-consistent information.

The QOP model's prediction of differential sensitivity to preference-consistent and preference-inconsistent information was examined in a series of studies by Ditto and colleagues (1998). The first two studies used a paradigm borrowed from social psychological research on the correspondence bias. Also known as the fundamental attribution error (Ross, 1977), this is the well-documented tendency for perceivers to underappreciate the role of situational factors in causal attribution (see Gilbert & Malone, 1995, for a review). Empirically, the correspondence bias is most often demonstrated by having perceivers make inferences regarding the meaning of a target person's behavior under conditions where the behavior seems most obviously to be a function of the target's disposition (e.g., the target is free to choose among a number of behavioral alternatives) or where there is a clear situational demand for the target to behave in a particular way (e.g., the target has no choice of behavioral alternatives; see, for example, Jones & Harris, 1967). Correspondence bias is revealed if perceivers' inferences regarding the causal meaning of the behavior are insufficiently sensitive to this contextual information so that the behavior continues to be perceived as informative of the target person's disposition even when a rational analysis would suggest that it should not be (i.e., when situational demand ambiguates the dispositional meaningfulness of the behavior).

Following this general approach, Ditto et al. (1998) presented male students with written evaluative statements from an attractive female (actually a confederate). These statements were either flattering or derogatory toward the male and he was led to believe that the female had been free to write positive or negative things about him or was constrained by experimental instructions to focus her comments only on the things she liked most (in the positive evaluation condition) or least (in the negative evaluation condition) about him. The key dependent measure was the male participant's perception of how much the female actually liked him.

Figure 2.6 presents the results of the study. As can be seen in that figure, male participants receiving a flattering evaluation from the female confederate showed no sensitivity to the constrained nature of her evaluative comments. Demonstrating the classic correspondence bias pattern, favorable feedback participants rated the writer as having equally positive feelings about them when she was said to be constrained to write only positive comments as when she was said to be free to comment on either their positive or negative qualities. Participants receiving an unflattering evaluation, on the other hand, were quite sensitive to the situational context in which the behavior occurred. When the female confederate's

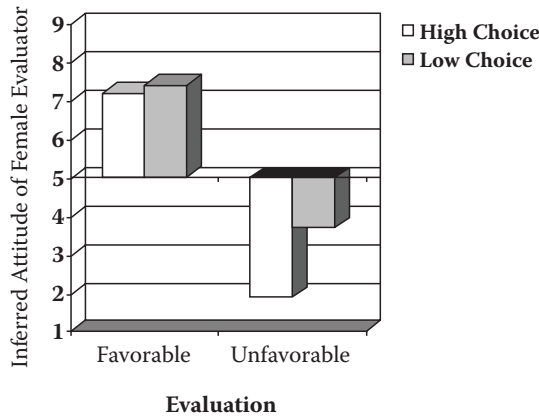


Figure 2.6 Inferred attitude of female evaluator by experimental condition (Ditto et al., 1998, Study 1). Higher numbers indicate a more positive inferred attitude toward the participant.

unfavorable comments were freely chosen, she was perceived by the male participant to harbor genuinely negative feelings about him. When her written evaluation was constrained to be unfavorable by experimental instruction, however, participants adjusted their impressions, indicating something approaching uncertainty when asked to infer the female's true feeling about them.

Perhaps the most striking evidence for the relative sensitivity of inferences drawn from preference-inconsistent information is revealed by comparing the degree of correspondence shown by inferences made in the favorable and unfavorable feedback conditions. A careful inspection of Figure 2.6 shows no evidence of any overall tendency to reject preference-inconsistent information. Although inferences drawn from low-quality (i.e., low choice) unfavorable feedback tend to be less correspondent (diverge less from the scale midpoint) than inferences drawn from low-quality favorable feedback, inferences drawn from high-quality (i.e., high choice) feedback actually appear somewhat *more* correspondent in the unfavorable than the favorable conditions. That is, consistent with the QOP prediction of unbiased sensitivity to preference-inconsistent information, the results of this study show participants to be discriminating but ultimately responsible consumers of unfavorable feedback. Rather than merely rejecting unwanted information out of hand, participants showed skepticism about the meaningfulness of unfavorable feedback when it was of uncertain attributional quality. However, they were willing to accept its validity when rational attributional analysis suggested the feedback to be a freely chosen expression of the writer's true feelings.³

Ditto et al. (1998) also demonstrated a similar pattern of sensitivity to preference-inconsistent information within the bogus diagnosis paradigm described earlier. Once again, some participants received a test result indicating susceptibility to pancreatic disease and some a result indicating resistance to pancreatic disease. Orthogonally, some participants were provided with information suggesting that the diagnostic test was highly accurate (having a 1 out of 200 chance of a false

positive result), while the information provided to others suggested that the test was only “reasonably” accurate (having a 1 out of 10 chance of a false positive result).

Figure 2.7 presents participants’ assessments of the accuracy of the test after receiving their test results. As can be seen, individuals receiving favorable medical information showed little sensitivity to the quality of that information. Participants were just as confident in the accuracy of favorable medical diagnoses when there was ostensibly a 1 in 10 chance that it was a false reading as when there was only a 1 in 200 chance. Although this level of insensitivity to detail may seem inconsequential when taken alone, it stands in sharp contrast to the sensitivity to the same level of detail shown in judgments about unfavorable medical information.

Individuals receiving an unfavorable medical diagnosis might have been expected to use any hint that the diagnostic test was flawed as evidence of the inaccuracy of their diagnosis. Instead, the results suggest that these individuals engaged in a careful analysis of the available information to assess the likelihood that the unwelcome test result was true. When this information suggested that it was reasonable to suspect that their test result might be a false positive, considerable skepticism regarding the validity of the test result was expressed. On the other hand, when the information suggested that this was a possible but seemingly improbable alternative explanation, individuals receiving an unfavorable diagnosis seemed to acquiesce to this unfortunate truth, rating the diagnostic test as just as likely to be accurate as did individuals who received a favorable diagnosis.

This last result is particularly important in that it once again demonstrates a rather remarkable pattern of unbiased sensitivity in the processing of preference-inconsistent information. The probability manipulation used in this study was extremely subtle. Not only were individuals confronted with an unfavorable test result sensitive to this subtlety, but they were also willing to follow its implications wherever they led, even when a thoughtful consideration of the information suggested that there was little hope that the unwanted diagnosis might be untrue.

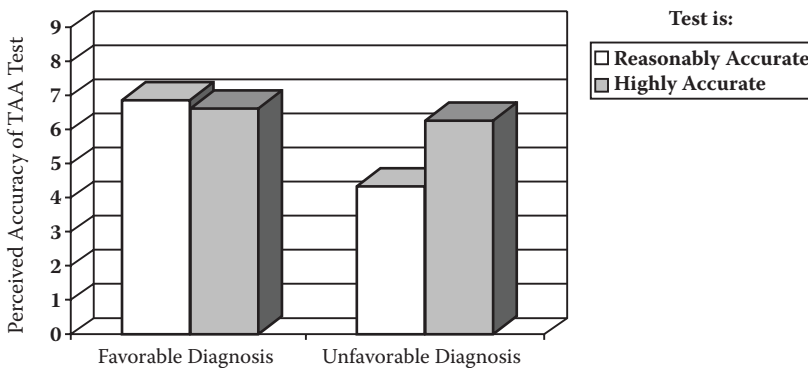


Figure 2.7 Perceived accuracy of TAA diagnostic test by experimental condition (Ditto et al., 1998, Study 3). Higher numbers indicate greater perceived accuracy.

CONCEPTUAL ADVANTAGES OF THE QOP VIEW

At the empirical level, there seems solid support for the predictions of the QOP model of motivated reasoning. Both of the key predictions of the model—that people are more likely to spontaneously question the validity of preference-inconsistent than preference-consistent information and that people are more sensitive to the quality of preference-inconsistent than preference-consistent information—have been confirmed by experimental research. This research has taken care to rule out nonmotivational explanations for the observed effects, and the findings are equally difficult to explain based on competing conceptualizations of how motivation alters cognitive processing.

Throughout this chapter, however, I have argued that attempts to understand motivational influences on judgment have been hampered at least as much by nebulous theoretical concerns as by specific empirical ones. In this final section, therefore, let me briefly discuss how the QOP view helps to address three key theoretical problems that have contributed to the problematic status of motivated reasoning in experimental psychology.

First, conceiving of preferences as affecting the quantity rather than the quality of thought avoids issues of self-deception that have dogged research on motivated bias since the New Look era (Fingarette, 1969; Howie, 1952; Luchins, 1950). Because traditional explanations of motivated bias view individuals as intentionally pursuing the goal of reaching a desired conclusion, some level of self-deception is necessary in that the illicit nature of the goal driving the process must go unrecognized by the individual (Kruglanski, 1996; Spence, 1957). If individuals recognize that they have fudged the data in their own favor, it is difficult to see how this can achieve the goal of improving their self-image. Even the fact that self-serving tendencies are constrained by the plausibility of available information is characterized in a self-deceptive way as an attempt to maintain an *illusion* of objectivity (Kunda, 1990).

Conceiving of motivated reasoning from a quantitative perspective, however, implies no such self-deception. According to the QOP view, the difference between the processing of preference-consistent and preference-inconsistent information is a difference in *drive* rather than a difference in goals. In other words, unlike almost all past approaches to motivated reasoning, the QOP view does not conceive of people as actively constructing a case for why things they want to believe are true and why things they do not want to believe are false, and then conveniently ignoring or repressing their own role in the “cherry-picking” of the available evidence. Rather, it conceives of people as pursuing an “accurate” view of the world whether confronted with preference-consistent or preference-inconsistent information. It is just that we tend to pursue that goal more vigorously in the latter case than in the former. Thus, the QOP view does not see the tendency to accept more readily the validity of preference-consistent than preference-inconsistent information as arising from an elaborate process of constructing a justification for one’s desired conclusion. Rather, it sees it as the result of a more passive, less intentional process in which people are simply less motivated to question the validity of information consistent with a preferred conclusion than information inconsistent with a preferred conclusion.

Second, the QOP view also helps to address concerns about the inherently maladaptive nature of phenomena like perceptual defense and self-serving bias. Not far behind all research on motivated reasoning lurks a paradox. How can people believe what they *want* to believe and believe what they *have* to believe at the same time? Rose-colored glasses offer a myopic and potentially dangerous view of the world (Baumeister, 1989). Effective coping requires that people acknowledge personal limitations and environmental threats even though doing so can engender disappointment and fear. That people do acquiesce to such unwanted truths is supported by the fact that coexisting with the large body of research and anecdotes suggesting that people have an overly positive view of themselves and their world (Taylor & Brown, 1988) is an equally large body of empirical and intuitive evidence to suggest that the majority of people hold many negative beliefs about themselves as well (Markus & Wurf, 1987). Our rose-colored glasses are, by necessity it seems, bifocal.

An important strength of the QOP view is its ability to explain people's reluctance to accept the validity of preference-inconsistent information and their ultimate sensitivity to it as by-products of the same process. As noted previously, many authors have argued that it makes good adaptive sense that negative affect/information initiates effortful, detail-oriented cognitive analysis (Frijda, 1988; Pratto & John, 1991; Schwarz, 1990; Taylor, 1991). Although one by-product of this effortful processing is a relative skepticism regarding the validity of preference-inconsistent information, it is crucial to recognize that this skepticism does not arise from a simple reluctance to believe unwanted information, but rather from the sensitivity of this effortful analysis to information quality. In other words, although people do show a tendency to believe things that they want to believe more readily than they believe things that they do not want to believe, the QOP view suggests that the preponderance of this bias does not occur because of the rigid, defensive rejection of preference-inconsistent information, but rather because of the uncritical acceptance of preference-consistent information. From an adaptive perspective, it would seem crucial for an organism to develop an affective/motivational system that would lead it to orient toward potentially threatening stimuli, attempt to discriminate carefully between real and imagined threat, and acknowledge and respond to the threat if it is determined to be real. Being an indiscriminating consumer of preference-consistent information, on the other hand, should have relatively fewer costs (Brown & Dutton, 1995) and a variety of important benefits (Taylor & Armor, 1993; Taylor & Brown, 1988).

Finally and most generally, research on motivated reasoning has been hindered throughout each of its twentieth century incarnations by a view of motivationally based biases in judgment as somehow "outside the fold," requiring explanatory mechanisms different from those underlying other types of judgmental phenomena. A key strength of the QOP view in this regard is that it represents a complete and natural incorporation of motivated bias into the information-processing paradigm. This integration occurs on at least three different levels.

At the most general level, viewing preferences as affecting the quantity of cognitive processing allows motivated bias to be subsumed into the information-processing literature as simply another example of an extremely general tendency for people to allocate their cognitive resources strategically. For example, dual process

models of persuasion (Chaiken, 1987; Petty & Cacioppo, 1986) and social judgment (Chaiken, Liberman, & Eagly, 1989; Fiske & Neuberg, 1990) conceptualize judgment processes as lying on a continuum with deep, systematic, or central processing on one end and shallow, heuristic, or peripheral processing on the other. Research within and outside these theoretical perspectives has identified a number of situational factors that seem to determine whether incoming information will receive extensive processing.

One way to synthesize this diverse body of research is to suggest that people engage in a kind of “cognitive triage,” allocating scarce cognitive resources to the situations where they are needed most. Thus, people have been found to think deeply about information when it is personally relevant (Borgida & Howard-Pitney, 1983; Petty et al., 1981), when it violates their expectations (Hilton, Klein, & von Hippel, 1991; Pyszczynski & Greenberg, 1981), and when they feel personally responsible for judgment outcomes (Harkins & Petty, 1982; Petty, Harkins, & Williams, 1980; Tetlock, 1983, 1985). The QOP view of motivated reasoning fits seamlessly into this body of research in that it simply posits another situational “trigger” that affects the degree to which incoming information is subjected to effortful cognitive analysis: the consistency of information with a preferred judgment conclusion. From this perspective, motivated reasoning can be explained as resulting from the same processes that contribute to a host of other types of judgmental phenomena. No new explanatory concepts are needed. No argument for a fundamental difference need be made.

Second, the QOP view also draws clear connections between motivated reasoning research and research on the role of mood and affect in information processing. Interestingly, these two literatures have remained largely distinct despite obvious similarities between them (e.g., success and failure feedback are often used by affect researchers as mood inductions; Isen, 1984). The view of motivated reasoning espoused here, however, argues for a much deeper integration of the two literatures by suggesting that there is an important empirical similarity in how people process good and bad information and how they process information in good and bad moods. Moreover, it is tempting to extend this integration beyond work on temporary mood states induced in the lab to research on the cognitive effects of chronic mood states like depression. Research by Weary and her colleagues (Gleicher & Weary, 1991; Weary, Marsh, Gleicher, & Edwards, 1993; Yost & Weary, 1996) has shown that, very much like individuals subjected to negative mood inductions in the lab, depressed individuals tend to exhibit more effortful processing of social information than do nondepressed individuals. The notion that people may often be more sensitive processors of negative than positive information is similarly reminiscent of the well-known phenomenon of depressive realism (Alloy & Abramson, 1988; Taylor & Brown, 1988), suggesting that depressed mood is associated with relatively accurate perceptions.

Finally, another advantage of a quantitative view of self-serving bias is its position that a single mechanism underlies many different motivational influences on judgment. Accuracy motivation, for example, is generally thought to affect information processing by altering the intensity of cognitive effort that an individual allocates to a judgment task (Chaiken et al., 1989; Simon, 1957). Effortful cognitive

processing has also been posited as the mechanism underlying the effects of control motivation on attributional judgments (Pittman & D'Agostino, 1985). It is instructive to note in this regard that whereas the influence of preference-based motivations on judgment has been extremely controversial in psychology, these other types of motivational influence have enjoyed a much easier acceptance.

Perhaps the key conceptual strength of the QOP view, then, is its ability to insert a once outcast phenomenon into the very heart of the information-processing paradigm. Direct connections can be drawn between motivated reasoning research and research on persuasion, impression formation, mood, depression, and a host of related topics. Moreover, suggesting that preferences affect the mental effort allocated to judgment tasks reunites motivated bias research with research on other varieties of motivational influence on judgment. What emerges out of all this integration is a highly coherent picture of a single mechanism—the strategic allocation of cognitive resources—that underlies a range of diverse phenomena whether they are cognitive, affective, or motivational in nature.

CONCLUSION AND A CODA

Experimental psychology has seen few problems as pernicious as understanding and documenting the influence of wishes and fears in human judgment. The antiseptic confines of the psychology lab are a poor environment for studying the passionate side of human belief, and the minds of researchers suspicious of the vagaries of psychodynamics and justifiably inspired by the conceptual power of the information-processing paradigm have been an equally inhospitable medium. Yet, as the cognitive perspective has matured and the conceptual limitations of an amotivational social cognition have become apparent, psychology has witnessed a renewed tolerance of and interest in the “hot” side of human judgment.

The research described in this chapter is an attempt to explore the complicated interface between motive and thought, wish and belief, passion and reason. It is certainly the case, however, that most of the territory in this exploratory enterprise remains uncharted. One example worth mentioning in the current context is the applicability of QOP predictions to clinical scenarios involving confrontation with extreme threat or individuals with impaired mental or perceptual functioning. The QOP view presents a distinctly “normal” view of motivated reasoning, examining how preferences and information interact for cognitively competent people under conditions of relatively mild motivational significance. Although an important implication of the QOP view under these conditions is that people deal more effectively with preference-inconsistent information than previous treatments have suggested, there are certainly real-world situations (e.g., a diagnosis of terminal illness) in which acceptance of preference-inconsistent information is so threatening, and the motivation to think one's way out of it so intense, that effortful thinking may overwhelm even quite compelling preference-inconsistent information. Additional research is clearly needed to examine how motivated reasoning processes operate in these more atypical but extremely important real-world situations.

My hunch about this question (and it is little more than a hunch) is that the processes involved in mundane and more “clinical” situations are the same, but the

outcomes may differ in the two situations because of differences in the strength of the various forces involved. In fact, viewing motivated reasoning processes from the perspective of battling forces is a useful conceptual exercise. In our laboratory studies we are able to create an ideal balance of forces so that, in certain situations, reason triumphs over passion. I suspect, however, that in many real-world situations, powerful emotional preferences may have considerable latitude to bias beliefs in favor of desired conclusions and reality may constrain the judgments of some individuals much less so than others. Thus, unlike the more equitable battleground created in our experimental laboratory, in many real-world clashes between passion and reason, reason may find itself at a distinct disadvantage.

NOTES

1. Students are fully debriefed about the fictitious nature of the feedback immediately after their participation is complete, and no evidence for any adverse effects of the procedure has ever been observed (Ditto & Croyle, 1995).
2. The steps taken to rule out cognitive counterexplanations for the effect were actually even more elaborate than those described here. For example, participants were also told that the enzyme condition had no current symptoms and had little effect on health until after the age of 30 (all subjects were well under this age). In this way, their lack of current symptoms could not be used as a “rational” explanation for the inaccuracy of the test. Moreover, a number of checks were included (both before and after diagnosis) to confirm that participants viewed the favorable and unfavorable test results as equally surprising. More details about these procedures can be found in the original Ditto and Lopez piece (1992) or in Ditto and Croyle (1995).
3. The results of this study were replicated and extended in a second study using the identical paradigm but including a manipulation of cognitive load to demonstrate the role of effortful cognitive processing in the effect (Ditto et al., 1998; Study 2). Participants in the no-load condition closely replicated the differential sensitivity effect found in Study 1. Participants in the cognitive load condition, however, showed no sensitivity to constraint information in the negative feedback conditions, suggesting that this sensitivity is due to the relatively greater processing usually allocated to preference-inconsistent information.

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