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On Negativity

> You can't have a light without a dark to stick it in.
>
> – Arlo Guthrie

A December 2012 op-ed in the *Moscow Times* described State Duma Deputy Oleg Mikheyev's proposal to force Russian media to report more good news. Mass media would have to shift the amount of positive information to 70 percent and restrict bad information to the remaining 30 percent. Too much bad information was said to damage the human psyche – indeed, it "weakens their ability to think and lowers their creative powers." Michael Bohm, opinion editor of the *Times*, was of course critical of Mikheyev's (preposterous) bill. Among his reasons, Bohm wrote, "Mikheyev has got the cause-effect relationship of negative information all wrong. The media is much less a cause of society's ills than it is a mirror image of those ills."

Media are certainly as much a reflection as they are a driver of public attitudes. For the most part, media do not make us negative – they reflect our negativity. But whether that negativity is an "ill" is another matter. Focusing on negative information may be a perfectly reasonable means for citizens to monitor their environment, and particularly their governments. Ongoing negativity in politics and political communication may be a problem, but it may also be effective and advantageous.

At a minimum, negativity in politics and political communication may be understandable. Exploring the scope of, and reasons for, this negativity is the purpose of the chapters that follow. In short, this book is about the importance of negative information in modern politics. The argument has three parts. First, negativity biases are readily apparent across a wide range of political behaviors. Second, similar biases are evident in the design and functioning of political institutions. Third, it is not yet clear whether these negativity biases are efficient

or fundamentally flawed. We cannot yet tell whether our heightened attentiveness to negative information is a boon or a curse for modern democratic politics.

That said, the argument presented here need not apply just to modern politics; indeed, it need not be about politics at all. The strength of the argument is not derived from what we know about politics and political behavior nearly so much as from what we know about humans and human behavior. This broader body of evidence is the subject of this first chapter. The chapter begins by reviewing the literatures in psychology on the tendency for negative information (or events, or assessments) to have a greater effect on attitudes and behaviors than their positive equivalents. These bodies of literatures are, as we shall see, vast. They make it rather difficult to believe that asymmetry does not exist. That said, the evidence does not end with psychology. Subsequent sections draw on economics, on physiology and neurology, on evolutionary biology, and on anthropology. We start with the subject of the Preface: impression formation.

The Psychology of Negativity

There is evidence of a negativity bias – or, more broadly, the relative strength of negative over positive – throughout psychology. Indeed, the overwhelming evidence of a negativity bias has been the subject of several very valuable meta-reviews (e.g., Baumeister et al. 2001; Cacioppo and Gardner 1999; Rozin and Royzman 2001). Those reviews cover the literature far more thoroughly than will be attempted here. That said, this section provides a brief but (hopefully) convincing account of the negativity bias in the psychology literature.

We begin with "impression formation," one of the domains in which a negativity bias was first observed, and the one in which the phenomenon has been most explored and analyzed. The story of Elizabeth and Sara in the Preface draws directly on this literature, and especially on Anderson's (1965) early description of a mathematical approach to impression formation. Anderson was interested in (and found evidence of) a primacy effect: in a list of adjectives describing a person, those at the beginning of the list matter more to an overall evaluation of that person than do those toward the end. He suggested several possible models for this effect, including a "weighted-average model" in which the effect of any single adjective was weighted according to its position on the list, and in this case, those at the beginning received a greater weight.

A good deal of work has since drawn on Anderson's weighted-average model of impression formation, suggesting not just that weights vary with primacy, but that that unfavorable information has a greater impact on overall impressions than does favorable information. (For early work, also see Feldman 1966; Hodges 1974; Hamilton and Huffman 1971. For more recent work see, e.g., Fiske 1980, Ronis and Lipinski 1985; Singh and Teoh 2000; Van der Pligt

and Eiser 1980; Vonk 1993, 1996.) To be clear, this work suggests that the relative weight in which a single dimension is given an overall assessment varies systematically with the negativity of that dimension.[1]

Several explanations have been given for the apparently greater weights attached to negative information in impression formation. Most work suggests that impressions are formed based on an expectation, or reference point. These impressions can vary based on experience; however, individuals tend to be mildly optimistic, so the reference point tends to be, on average, slightly positive. (I shall return to the subject of this positive reference point in later sections.) In one conception, this simply means a shift in perspective: −4 looks much worse from an expectation of +2 than it does from an expectation of 0, and +4 is not especially impressive when it is only a little better than what you expected (e.g., Helson 1964; Sherif and Sherif 1967). An alternative theory suggests that the asymmetry is driven by cognitive weighting: more attention is given to information that is regarded as unique or novel, which tends to be information that is more extreme (e.g., Fiske 1980). So similarly, −4 is more extreme (and thus is given greater weight) if the expectation is +2 rather than 0.

This difference between what Skowronski and Carlston (1989) refer to as "expectancy-contrast" and "frequency-weight" theories is subtle but important. Expectancy-contrast theories suggest that the negativity bias is a product of how we perceive negative versus positive information: a rating close to our expectation, +2, is accurately perceived, while a rating far from our expectation, −4, is misperceived, and that misperception tends to lead to an estimate that is even further away from our expectation. So a rating that by some objective, neutral standard should be a −4 is perceived to be a −6. Negative ratings thus play an especially important role because we tend to misperceive the degree to which they vary from our expectations.

Frequency-weight theories, in contrast, assume that we have accurate perceptions; we just tend to give greater weight to information that is further from expectations because we believe it is more valuable when trying to differentiate between people (or things). So we accurately perceive the −4 but give it greater weight than figures closer to our expectation of +2. These frequency-weight theories fit more easily with the story in the Preface (and the literature on "loss

[1] Borrowing directly from Anderson's model, the overall assessment A represents a weighted average of k number of dimensions D, $A = \frac{\sum \omega_k D_k}{\sum \omega_k}$, where the weight ω_k for each dimension D_k is a function of the negativity of that dimension, N_k, $\omega = \alpha + \beta N_k$. The constant α and coefficient β will vary from case to case, but the general idea here is that the weight begins at α and then increases at some interval β with one-unit increases in negativity N. The greater the negativity (the value of N_k), then, the greater the weight attached to D_k. And the effect of negativity on the weight of a given dimension need not increase linearly. The correct model might be an exponential one, for instance, where $\omega_k = \alpha + \beta N_k^2$.

aversion" in economics, reviewed later), and find somewhat more support in the experimental literature.[2]

Either way, our impressions of people are especially susceptible to the effects of negative rather than positive assessments. And evidence supporting a negativity bias has been found in many other domains of psychology as well. Consider, for instance, the body of research on information processing, which suggests that people devote more cognitive energy to thinking about bad things than to thinking about good things (e.g., Abele 1985). In an experiment in which people were asked to form impressions of various photographs, for instance, participants spent longer looking at photos depicting negative behavior than at photos depicting positive behavior (Fiske 1980). Work on attributional processing – the process of trying to find explanations or meaning for events – suggests a similar asymmetry (e.g., Taylor 1983). In one experiment, participants bet on sports events. When settling their bets with the experimenter, those who lost spent a greater amount of time discussing the game than did those who won (Gilovich 1983).[3]

Not only does negative information induce a greater degree of processing; *all* information is subject to more processing when the recipient is in a bad mood. Put more precisely, different affective states are associated with different styles of information processing (e.g., Bless, Hamilton, and Mackie 1992; Scharz 1990). Information processing while in positive affective states tends to be characterized by a greater degree of "clustering" – the tendency to identify themes, or clusters, across otherwise separate pieces of information. People in negative affective states do not show the same tendency to "cluster," but rather are more inclined to pay careful attention to details. Some work suggests that a positive mood allows for a more complex cognitive context, so individuals are more able to see things as related (Isen 1987). But the body of evidence leans toward the hypothesis that those in positive moods are more inclined to simplify, and thus miss information (Isen et al. 1987). Those in negative moods – less likely to use shortcuts, or "heuristics" – do not.

The implication is that there will be an especially large degree of information processing when someone in a bad mood receives bad news. Forgas (1992) finds as much: he examines information processing by people in various affective states, in reaction to people who either conform or do not conform to stereotypes. A bad mood combined with atypical (more complex) information produces the greatest degree of information processing.

Indeed, there are vast literatures cataloging the many different ways in which negative information matters more than positive information. Related to impression formation, research in "person memory" – who we remember, and what we remember about them – finds that we tend to remember negative

[2] Some authors have suggested alternative accounts for the mental process through which the negativity bias exists. See esp. Skowronski and Carlston's (1989) "category diagnosticity approach."
[3] Similar differences have been found across other domains. For a review, see Weiner 1985.

behaviors more than we do positive behaviors (e.g., Ybarra and Stephan 1996). Work on performance evaluations of employees and students, in which assessors regularly provide both numerical skill- or attribute-specific evaluations as well as an overall summary evaluation, suggest that negative rankings weigh more heavily on the overall evaluation than do positive rankings (Ganzach 1995; Rowe 1989; for a review, see DeNisi et al. 1984). Relatedly, learning, by both children and adults, tends to occur faster through punishment as opposed to reinforcement (Constantini and Hoving 1973; Meyer and Offenbach 1962; Penney and Lupton 1961; Penney 1968; Spense and Segner 1967; Tindall and Ratliff 1974).[4] In addition, bad feedback from teachers tends to be regarded as a more credible indicator of teachers' assessments than does positive feedback (Coleman, Jussim, and Abraham 1987), and when participants are presented with videotaped evaluations from another person, they monitor the negative evaluations for significantly more time than the positive evaluations (Graziano, Brothen, and Berscheid 1980).

The relative strength of negativity is also apparent in work on the effects of positive versus negative events. The loss of resources, social, behavioral, objective, or otherwise (see, e.g., Hobfoll 1988), has a greater and more long-lasting impact on psychological distress (e.g., stress or depression) than does the equivalent gain in resources (e.g., Wells, Hobfoll, and Lavin 1999). Negative events have a more powerful effect on daily "mood" than do positive events (e.g., David et al. 1997). Bad days have an effect that often carries over to the next day, whereas positive days show no such effect (Sheldon, Ryan, and Reis 1996; Marco and Suls 1993). "Adaptation-level" theories (Helson 1964) suggest a related dynamic: long-term happiness tends to be stable, because the effects of all events wear off; but the effects of bad events wear off more slowly than do the effects of good events (see, e.g., Brickman, Coates, and Janoff-Bulman 1978; also Taylor 1983).[5]

Prospective and retrospective evaluations of events reflect an asymmetry as well. When looking back over the day, people tend to underestimate the frequency of positive affect and overestimate the frequency of negative affect (Thomas and Diener 1990). (But note that long-term memory shows a positivity bias – this is discussed further later in the text.) Affective forecasting – the prediction of the emotional consequences of events – tends also to be biased

[4] But note that punishment has other consequences. And it may be that the textbook assertion that reward is better than punishment is motivated not so much by evidence of the effectiveness of reward per se, but by the potential negative side-effects of punishment. See Baumeister et al. 2001: 335.

[5] Helson's (1964) "adaptation level" theory suggests that the impact of any event is temporary – that people react more to change than stasis, and that their reaction to change wears off over time. This led to Brickman and Campbell's (1971) discussion of the "hedonic treadmill," whereby long-term happiness remains roughly constant because the effect of all events eventually wears off, and so to stay happy we need a constant supply of positive change. And it was testing of this hedonic treadmill that suggested the longer durability of negative effects.

toward the negative. That is, we are more likely to overestimate the duration of negative affect as opposed to positive affect (Gilbert et al. 1998). It is little wonder, then, that according to work on "self-regulation," people have developed many more techniques for escaping bad moods than for inducing good ones (Baumeister, Heatherton, and Tice 1994).

Relatedly, the presence or absence of negative behaviors is more predictive of the quality of married relationships than is the presence of absence of positive behaviors (Gottman 1979). Indeed, Gottman's (1994) work suggests that for a relationship to succeed, positive interactions must outnumber negative ones by a ratio of five to one. (See also Huston et al. 2001; Huston and Vangelisti 1991; Rusbult et al. 1986.) On an entirely different subject, negative feelings about organ donation weigh more heavily on the decision (to donate or not) than do positive feelings (Cacioppo & Gardner 1993). And unsurprisingly given the preceding evidence, an early content analysis of 172 introductory psychology textbooks found not just a focus on negative feelings over positive ones but a rise in this negative bias over the period of study (Carlson 1966; for a similar study on journal articles, see Czapinski 1985). There is, in short, a voluminous body of work in psychology finding evidence of a negativity bias, across a wide range of situations, events, and behaviors.

Negativity in Microeconomics

Work in behavioral economics (albeit much of it by two cognitive psychologists) suggests a similarly asymmetric story. Prospect theory (Kahneman and Tversky 1979; Tversky and Kahneman 1991) is a theory of choice under uncertainty, which includes a feature called loss aversion. Simply put, people care more strongly about a loss in utility than they do about a gain of equal magnitude. Prospect theory bears a close resemblance to "frequency-weight" accounts of impression formation in psychology – it too is a product of differential reactions to (accurately observed) negative and positive information.

The relative power of negative over positive is perhaps best (and most famously, at least for those political scientists interested in policy framing) captured in Kahneman and Tversky's (1984) experiment on policy choice. The policy choice is framed as follows:

> Imagine that the US is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimates of the consequences of the programs are as follows:

One group is given these two options:

> If Program A is adopted, 200 people will be saved.
>
> If Program B is adopted, there is 1/3 probability that 600 people will be saved, and 2/3 probability that no people will be saved.

Another group is given these two options:

> If Program C is adopted, 400 people will die.
>
> If Program D is adopted, there is 1/3 probability that nobody will die, and 2/3 probability that 600 people will die.

Programs A and C are exactly equivalent, of course: under one 200 of 600 are saved, and under the other 400 of 600 die. Programs B and D are also identical. But while more than two-thirds of respondents select A over B, two-thirds also select D over C. When the first option is about being saved, in short, it seems much more attractive than when it is about dying. Put differently, the riskier option (B or D) received greater consideration when pitched against sure losses (deaths) rather than sure gains (lives); negative information is a stronger motivator (toward risky behavior) than is positive information.

Prospect theory is an extension of more standard expected utility theorems, in which the preferences of individuals for various outcomes reflect a simple (and symmetric) combination of the utility of outcomes and their respective probabilities. In prospect theory, people assess the utility of an outcome based on not the final status (as in normal expected utility theorems), but rather based on a reference point, often the status quo (as in the experiment discussed earlier). In addition, people have different attitudes about risk when they are facing gains versus losses: they are loss averse, that is, they care more about losses than about gains. The crux of the matter is thus not very different from what we have in psychological work on impression formation. In this case, we are not assessing individuals but rather making economic decisions. But the critical dynamic is the same: in making those economic decisions, people are expected to have stronger short-term reactions to potential losses than to potential gains.

Loss-averse behavior has been found at the individual level across a wide range of decision-making environments, both in the lab and in the real world. (The literature is vast, but see, e.g., Tversky, Slovic, and Kahneman 1990; Kahneman and Thaler 1991; Shoemaker and Kunreuther 1979; Arkes and Blumer 1985; Diamond 1988. For a partial review, see Edwards 1996.) It has also been evidenced in aggregate-level macroeconomic dynamics. For instance, consumption tends to drop more when the economy contracts than rise when the economy expands (Bowman, Minehart, and Rabin 1999). Bowman and colleagues suggest the following explanation: because people are averse to losses, they fail to cut back on expenditures immediately following news that economic performance is expected to decline, which forces them to cut back more sharply when the poor economic outcome is actually realized. Because people are not averse to gains, their immediate increase in consumption following good news means that there is not a steep increase in consumption once the good outcome is realized. The net result is that current increases in income have an incremental (positive) effect on current consumption,

whereas current decreases have quite a dramatic (negative) effect. (For other applications in macroeconomics, see Rosenblatt-Wisch 2008 and Vogel et al. 2009.)

Work on endowment effects (e.g., Thaler 1980; Kahneman, Knetsch, and Thaler 1990; Carmon and Ariely 2000) provides further evidence of loss-averse behavior in a wide variety of contexts. Also known as "divestiture aversion," research in this domain shows that people tend to place a higher value on things they own than things they do not. That is, once you own something, you attach more value to it than you would have before you owned it; put differently, you assess the loss of something as greater than you would assess the gain of that same thing. I revisit endowment effects later, where they provide some supporting evidence for the argument that the negativity bias is a product of evolution. Before we jump to evolution, however, I review the recent evidence from neurology.

Negative Brains and Bodies

In line with what we have seen in experimental environments in both psychology and economics, there is a growing body of evidence that neurological processes are greater for negative than positive events. In lab experiments, for instance, Smith et al. (2003) find that unpleasant pictures elicit more brain activity than pleasant pictures, suggesting that negative stimuli garner greater attention than do positive stimuli.

Research also points toward a brain mechanism the role of which is specifically to detect self-generated errors. Neurologists believe that the anterior cingulate in the frontal lobe of the brain plays an important role in pain perception and self-regulation, including the monitoring of error responses. (For a review, see Luu, Collins, and Tucker 2000.) Capturing electrophysiological responses in the brain using an electroencephalogram (EEG), a growing body of work has identified something referred to as error-related negativity (ERN) – negativity in the electrical activity at the front of the head associated with respondents giving incorrect responses (e.g., Dehaene, Posner, and Tucker 1994; Gehring et al. 1993; Luu et al. 2000; Miltner, Braun, and Coles 1997). This marked, identifiable neurological reaction to negative responses has no equivalent where correct responses are concerned.

This asymmetry in neurological reactions is paralleled by asymmetries in physiological reactions. For instance, the fight-or-flight reaction to negative events, leading to heightened heart rate, blood pressure, and perspiration, prepares the organism for either fighting or fleeing (Cannon 1932). There is no positive equivalent. And physiological research on stress and arousal has focused almost exclusively on negative stimuli. As Taylor (1991) notes, "the overwhelming majority of current laboratory-based stress work continues to make use of negative stressors, such as electric shock, cold pressor tests, and the like, thereby perpetuating the assumption that negative events and

physiological arousal are more clearly linked than positive events and physiological arousal." The assumption may be well founded.

Rozin and Royzman's (2001) review of the literature provides a particularly cogent description of the negativity bias in our experience of sensations: "With the exception of positive sensations arising in muscles (as in massage), the inside of the body is basically a source of evaluatively negative input" (301). Even on the body exterior, these authors suggest, there is a wider distribution of pain; that is, pain can be produced anywhere, while the centers for pleasure are much more limited.

Why Are We So Negative?

It seems very likely that we are so negative because evolution favors animals that exhibit a combination of mildly optimistic and loss-averse behaviors. You have to be willing to try new food sources. But if your friend gets eaten while you are there, you need to be the animal that *never goes back*.

Put a little more scientifically, work on "orienting responses" suggests that evolution has produced animals with attentional systems that give preference to stimuli with adaptive significance (Öhman et al. 1998; Hunt and Campbell 1997). Foremost among those stimuli are signs of danger. And "[b]ecause it is more difficult to reverse the consequences of an injurious or fatal assault than those of an opportunity unpursued, the process of natural selection may also have resulted in the propensity to react more strongly to negative than to positive stimuli" (Cacioppo & Gardner 1999; see also the discussion in Herwig et al. 2007).[6]

This evolutionary account is supported by a body of work finding evidence of a negativity bias in animals other than humans. Miller's early work with rats – in which fear of shock was clearly more motivating than hunger – is one early example (Miller 1961; see also Garcia and Koelling 1966; and for earlier work, see Hodge and Stocking 1912; Warden and Aylesworth 1927). Just like humans, rats tend to learn faster in response to punishment rather than reinforcement (though ideally both; see earlier discussion). The fight-or-flight reaction noted in the preceding section has similarly been identified in animals (e.g., Mahl 1952). And this behavioral evidence is buttressed by neurological research on rats and monkeys, which finds that fear-inducing events leave indelible memory traces in the brain, whereas there is no similar impact of very positive events (LeDoux, Romanski, and Xagoraris 1989; Quirk, Repa, and LeDoux 1995; Sanghera, Rolls, and Roper-Hall 1979).

Economics experiments with animals provide further support for the evolutionary account for the negativity bias. Knetch's (1989) paradigmatic endowment effect experiment – for humans – proceeded as follows: One group

[6] The idea that a negativity bias may be a product of evolution is by no means recent. See Darwin (1872), and a useful discussion of Darwin's work in Fridlund (1991).

of students received a mug and was then offered the chance to trade that mug for a chocolate bar. A second group was presented with the opposite possibility, that is, trading chocolate bars for mugs. And a third group, as they arrived, were able to simply take either a mug or a chocolate bar. This last group revealed students' preferences for mugs versus candy bars, in the absence of any endowment effect. In this case, 56 percent took mugs, 44 percent chocolate bars. But the preferences revealed by the first two groups were systematically different. Fewer students traded mugs for chocolate bars than we would have predicted given the third group's preferences; and fewer students traded chocolate bars for mugs as well. Indeed, 89 percent of students kept their mug and 90 percent of students kept their chocolate bar. Preferences were not independent of ownership effects.

The same is true, it turns out, for chimpanzees. Brosnan et al. (2007) replicated the Knetch experiment using chimpanzees, and both food and nonfood items (frozen juice stick versus PVC pipe filled with peanut butter, and bone versus rope). Trades were very common for the nonfood items, suggesting to the researchers that the interaction with the experimenter may have value over the item itself. For food items, however, trades were fewer and endowment effects were clear. To be clear: a chimpanzee attaches more value to a PVC pipe filled with peanut butter once they believe that they own it.

This work on negativity biases and endowment effects in animals supports the notion that the negativity bias in humans has a neurological or physiological source, and that this source is in all likelihood the consequence of evolution. This is not to say that a negativity bias is a good thing – that is an entirely different matter, and one that will come up repeatedly over the next few chapters. But evolution need not produce outcomes that are normatively good; it should produce outcomes that are empirically effective, at least where survival is concerned. One possible product, or perhaps a side effect, of evolution is a tendency to devote more attention, and react more, to negative information than to positive information. This is because focusing on negative information, even at the expense of positive information, may increase chances for survival. In short, "[t]he individual remains alive after several years only if he or she managed to survive every single day, and no degree of optimal experience on any given day can offset the effects of failing to survive on another" (Baumeister et al. 2001: 358).[7]

Does Positive Never Win?

Is there really no domain in which positive outweighs negative? Actually, in many if not most domains, there are more positive events than negative ones.

[7] See Weinberg's (1975) work on "general systems thinking" and its application to evolution for a particularly cogent description of how no single part of a system can ensure the system's success, but any single component can ensure the system's failure.