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Deliberate Trust and Intuitive Faith: A Dual-Process Model of Reliance[*]

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Abstract

Drawing on the dual process framework from social and cognitive psychology, this paper reconciles two distinct conceptualizations of trust prevalent in the literature: "rational" calculative and irrational "affective" or normative. After critically reviewing previous attempts at reconciliation between these distinctions, we argue that the notion of trust as "reliance" is the higher order category of which "deliberate trust" and "intuitive faith" are subtypes. Our revised approach problematizes the conflation of epistemic uncertainty with phenomenological uncertainty while providing sound footing for a key sociological insight: that reliance on the routine social order is both the cognitive default and based on substantial practical evidence. We develop two broad suggestions for future research from these implications: (1) sociological research should examine the role of intuitive faith—as opposed to deliberate trust—in late modern societies, and (2) analysts should challenge the role of deliberate trust as the "modal" form of reliance in contemporary research.

KEYWORDS
cognition, dual process theory, faith, reliance, trust

1 | INTRODUCTION

The rapidly expanding interdisciplinary work on trust has yielded two broad ways in which the concept is deployed in social-scientific investigations. One camp theorizes trust as a process of *conscious* decision-making that is largely calculative. The other camp sees trust as a "natural attitude" or disposition involving *affectively* driven normative processes. These two approaches echo the distinction between *trust* and *faith*, advanced by the German sociologist Georg Simmel over a hundred years ago (1906, p. 450). In this paper, we provide a theoretical reconciliation between these two approaches by drawing on dual process theory in social and cognitive psychology (e.g. Gawronski & Bodenhausen, 2006; Smith & DeCoster, 2000; Strack & Deutsch, 2004).

The basic premise of dual process theory is that there exists two distinct forms of cognition. This is the contrast between a fast, association-based, intuitive, processes (Type I) process and a slow, rule-based, deliberative (Type II) process. Likewise, we argue, there is slow and deliberate *trust*, but also fast and intuitive *faith*. Both are variants of the category of *reliance*. Our dual-process model of reliance provides an empirically validated account of Georg Simmel's neglected "other type" (1906, p. 450) of trust. In his writings, the German sociologist described this phenomenon as a "social-psychological quasireligious," (2004, p. 178) "mystical, 'faith' of man in man" (Simmel, 1950, p. 318), a "supratheoretical belief" that is "hard to describe" (2004, p. 178) and as falling "outside the bounds either of knowing or not knowing" (1950, p. 318), "which is both less and more than knowledge" (2004, p. 178). We argue the reason this "other type" is "hard to describe" because it does not require the use of explicit propositional knowledge and conscious decision-making. Instead, intuitive faith relies on procedural cultural knowledge and uses associative processing deployed at time-scales faster than those underlying more reasoned propositional processes (Gawronski & Bodenhausen, 2006). Underlying Simmel's discussion of trust and faith, we argue, is an insightful anticipation of contemporary dual-process understanding of human cognition.

In what follows, we identify three recurring analytic conflations in the contemporary trust literature that can be resolved by our dual process model of reliance. The first conflation is between conscious decision-making and calculation. Against this equation, we argue that either quantities *or* qualities can equally be the object of conscious decision-making, and calculation can just as easily, if not more easily, be handled by an intuitive process (Sloman, 1996). The second conflation is between affect and intuitive processing. By way of contrast, we argue that affective qualities or feelings are not distinct from "cognition" or even conscious, deliberate decision-making narrowly conceived. Affect and emotion can be *inputs* to decision-making but should not be equated with the *process* by which decisions are reached whether intuitive or not (Lindquist, Wager, Kober, Bliss-Moreau, & Barrett, 2012). The final conflation is between intuitive judgment and ignorance of facts or objective conditions. We argue that presence or absence of information should be analytically separable from the process by which a decision is made. Most times, calculative decision-making can occur under information-poor conditions, while the intuitive process can involve substantial amounts of evidence. In this last respect, intuitive faith can be as, if not more, effective than deliberate decision-making processes of especially regarding complex matters (Dijksterhuis & Nordgren, 2006). The resolution of these three conflations leads to the rejection of the idea that the contrast between intuitive faith and deliberate trust is equivalent to the contrast between irrationality and rationality.

In the following sections, we first engage in some terminological clarification. We begin by suggesting that the notion of "reliance" can cover the wide variety of outcomes often attributed to trust, or variants thereof. Next, we review previous attempts to typologize trust, noting some of

their shortcomings. We show how an incipient, and encouraging, tendency to converge to something approximating Simmel's distinction between trust and faith can be seen in these writings. We then present our dual-process model of reliance. We conclude with two suggestions for future research: (1) sociological research should examine the role of intuitive faith—as opposed to the disproportionate focus on deliberate trust—in late modern societies, and (2) analysts should challenge the role of deliberate trust as the "modal" form of reliance in contemporary trust research.

2 | EXISTING TRUST TYPOLOGIES

While "definitions" of trust are legion, we suggest that the general empirical phenomenon underlying all conceptions of trust in the social sciences are all variations of more general notion of *reliance* (Nickel, 2009). Instead of asking, why, or how much people "trust," asking when and why people *rely on* a particular person, object, or institution provides a more productive starting point (Granovetter, 1985, 2017, p. 756; Zucker, 1986). A key advantage of turning to the notion of reliance, is it allows us to be theoretically neutral as to *the cause* of the phenomenon. This is useful when navigating a literature as theoretically and disciplinarily diverse as that pertaining to trust. Single cause conceptions of the "why" of reliance phenomena are not useful in helping us to account for the myriad entities researchers have documented persons *relying on*. Definitions and typologies of this "why" should not begin with *a priori* assumptions about how different criteria of trustworthiness (causes or attributes of trustees) reflect demarcated forms of trust (processes), or how both reflect different behaviors (outcomes).

The tripartite distinction between causes, processes, and outcomes associated with reliance phenomena can bring order to previous typological (and definitional) attempts to theorize the notion of trust in the interdisciplinary literature. The first set refers to trust research that considers the external dimensions of trust (causes), this include attributes of trustees or qualities of the objects of trust. The third set considers trusting behavior or cooperation (or trust-related behavioral outcomes). While valuable, these do not allow us to specify the underlying socio-cognitive processes involved in linking causes to outcomes and lead to the conflation of analytically and empirically distinct mechanisms underlying superficially similar phenomena. The second set of typologies incorporates cognitive processes, but often rely on limited (e.g. single-process) models of human cognition. Members of this last group divide into two disparate camps. We refer to these two as the "calculative" and "affective" approaches, respectively.

Our review of the literature is based primarily on the most cited theoretical treatises on trust, and secondarily on a survey of research on trust published in the last ten years (2005-2015) in most of the top journals (24 in total) in sociology, economics, psychology, political science, organization and management studies (144 journal articles, see Figure 1). We coded articles by whether they adopted an object, outcome, or process approach to the topic. We find that the majority build on process approaches (62 of 121[1]). Within articles in this last category, we find that the primary trust process (40 out of 62) is conceived as "calculative," and if "affective" (or similar form of) trust emerges at all (22 out of 62), it is primarily as a residual category.

Much theoretical work attempts to answer the question: "Why people trust?" To generalize, within this literature, there is a strong tendency to presume that skepticism and distrust is the default starting point for humans. Trust, this literature suggests, is built first through a deliberative weighing of cost and benefits in iterative tit-for-tat exchanges resulting in a "thin" strategic trust. This eventually leads to a "thick" affective trust that is basically "blind" and taken-for-granted, which then creates the possibility for opportunism. We briefly review literature using
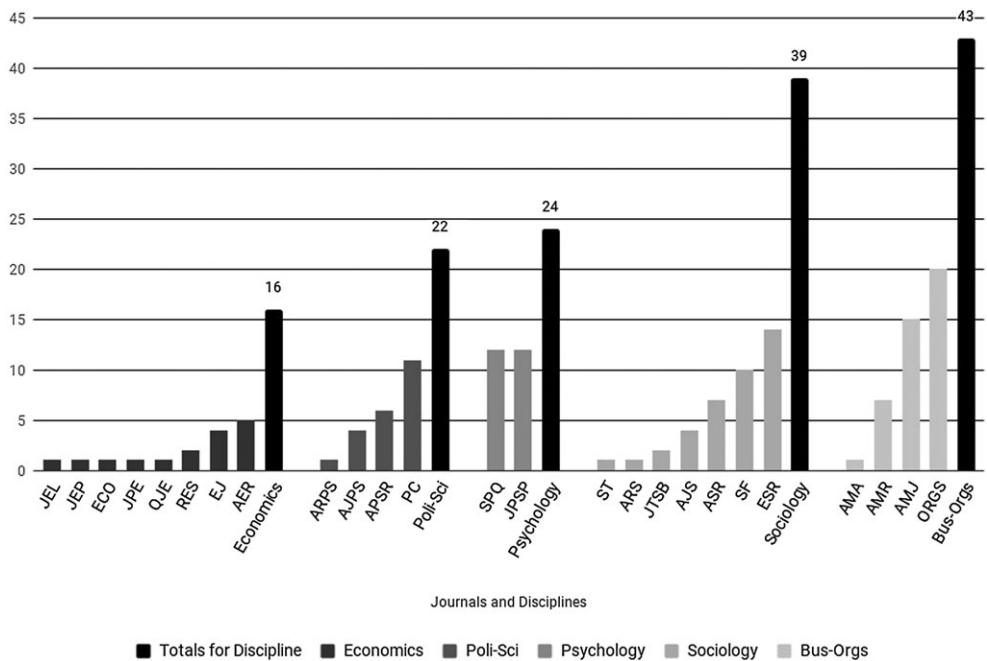
FIGURE 1 Count of Trust Articles per Journal by Discipline, 2005-2015

behavioral and object approaches and offer reasons they are not proper starting points for building typologies. We then turn to process typologies arguing that, while they represent the most promising ground on which to build, the emphasis on calculation over intuition noted above would have to be reversed.

2.1 | Behavioral typologies

Those who argue that trust is a form of (usually interpersonal) *behavior* often characterize it as "cooperation"—a common strategy in game-theoretic treatments (e.g. Macy & Skvoretz, 1998). This approach has its advantages. Mainly, there is little need for definitional specificity (several articles taking this approach offer no explicit definition), and operationalization is straightforward "since it refers to actions that can be observed in an experiment" (Kuwabara et al., 2007, p. 462 fn 1). Our review of the literature finds that this is the minority approach overall (just 10 out of 121 articles), but it is naturally a dominant approach in economics (see Figure 2), and social exchange theory in sociology (Buchan, Croson, & Dawes, 2002; Kuwabara, 2011; Kuwabara et al., 2007; Macy & Skvoretz, 1998). In this literature, the primary tool is the trust game (Berg, Dickhaut, & McCabe, 1995), or variations thereof, which are useful for cross-national comparison because of their simplicity (e.g. Snijders & Keren, 1999; Willinger, Keser, Lohmann, & Usunier, 2003).

A purely behavioral understanding of trust may lead to problems (inclusive of riding roughshod over phenomenological intuitions): People may act *as if* they trust. Phenomenologically, these actions could be perceived as "trusting behavior," and might, in a recursive loop, lead to "genuine" trust among those involved (Weigert, 2011). Conceptualizing trust as a practice in which human interaction fluctuates between "simulated" and genuine "trust" over time — trust is an ongoing emergent social process (Khodyakov, 2007)—may be how trust is made manifest *empirically*. However, it is problematic to build scientific definitions of trust on purely behavioral
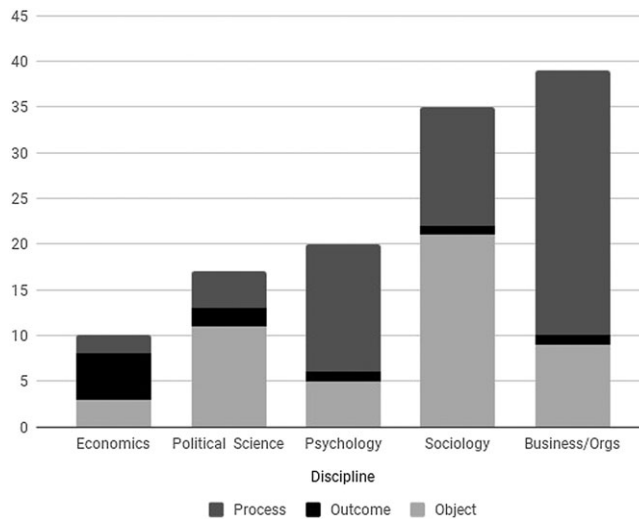
FIGURE 2 Approach by Discipline, 2005-2015

grounds, since it is difficult to differentiate trust from deception, or either from cooperation caused by expediency or habit. The more neutral term *reliance* can characterize the various behaviors attributable to trust while allowing for the analyst to postulate social and cognitive mechanisms underlying these behavioral patterns.

2.2 | Object typologies

Another set of articles (49 out of 121, see Figure 1) differentiate types of trust by the entity to be relied on and is most common in sociology and political science (see Figure 2). Perhaps the most common object distinction is that between *generalized* (sometimes called "social") and *particularized* (sometimes referred to as "interpersonal") trust. In most cases, the object of the former is "society," while the object of the latter is a particular individual or group with which the trustor is acquainted. A plethora of literature operationalizes generalized trust using the now famous double-barreled question: "*Generally, would you say that most **people** can be trusted or that you can't be too careful in dealing with **people**?*" Most interpretations of answers to this question consider it an evaluation of the trustworthiness of the people in that nation-state (Newton, 2001, p. 203). However, it is also common for analysts to link trust to an underlying process: generalized trust is a disposition of the respondent, leading some to refer to it as "moral" trust (see especially Uslaner, 2002), while particularized trust is a situational consideration. Other analysts are interested in the geographical expanse of the "people" in which respondents express trust, as in the now rapidly growing "radius of trust" literature in sociology (Delhey, Newton, & Welzel, 2011).

2.2.1 | Generalized versus specific trust in others

Other authors distinguish between generalized trust and specific, yet impersonal acts of reliance. For instance, Yamagishi and Yamagishi (1994) argue that trust should be distinguished from *assurance*, which can happen only when the "incentive structures" are such that it is in the best interest of the trustee to act in a particular manner. This means the trustor can depend on a trustee, but the actual entity to be relied on is the system of incentives which assures the trustor

that the trustee will cooperate (and which curtails the trustee's range of "rational" choices). Similarly, Portes (1998, 2010) sees *enforceable trust* as relying on a person not because the legal system will assure the trustee acts in a desired manner, but because the informal social pressure of the group does—"the power of the community." Here, the entity to be relied on is those in the group who will presumably enforce norms if need be, less so the actual person. This same reasoning leads some to differentiate "social" or "generalized" trust toward "people" from specific "institutional," "organizational," "system," or "political" trust.

In both variants of object typologies two problems emerge. First, is "if a theoretically sound case can be made for why institutions can be a source of trust between actors, it also needs to be recognized again that institutions become an object of trust for the trustors who exercise agency in relying on them (or not)" (Möllering, 2006, p. 355). This is summarized by the distinction between "trust in institution," versus "institutional-based trust" (e.g. Bachmann & Inkpen, 2011; Spicer & Okhmatovskiy, 2015). The former is common in the political science literature, and views institutions as objects of trustee's assessments. The empirical research proceeds by using survey-based operationalizations, and relying on respondents' interpretation of the word "trust," without offering a definition. With institution-based trust (e.g. Zucker, 1986) there is the implicit or explicit presumption that such trust differs from, say, interpersonal or social trust. However, in both cases, this makes an analytic issue of what should be an empirical question: is relying on *a person* different from relying on *institutions*, *organizations*, *incentive structures* or *third-party enforcers of norms*? If different trust processes cut across trust objects, then the nature of the object falls off as an adequate criterion with which to build a theoretically generative typology of modes of reliance.

2.2.2 | Trustworthiness

Another body of literature concerning causes of reliance is the work on "trustworthiness" (e.g. Caldwell & Clapham, 2003; Cook, Hardin, & Levi, 2007; Hardin, 1996)—which decomposes the object into the specific criteria of the trustee which supposedly matter for the trustor's decision, or the range of relevant attributes which a candidate might possess. For instance, Barber (1983) classifies types of trust according to the expectations of "technical competence" and "fiduciary responsibility" of the relevant trustee. Likewise, although Mayer, Davis, and Schoorman's (1995; Schoorman, Mayer, & Davis, 2007) widely cited model is process based, many only use their proposed criteria of trustworthiness: ability, benevolence, and integrity (Möllering, 2013). However, assuming a necessary connection between characteristics of trustees and the method a trustor uses to make a reliance judgment confuses "process" with "content" questions.[2]

Some conceptualizations go further and assume "trustworthiness" can be, itself, demarcated by the object of trust (above) *and* how the relevant information regarding that object is processed (e.g. Huemer, von Krogh, & Roos, 1998). It is possible certain criteria can emerge from a class of entities given their influence on the cognitive processes underlying a person's reliance on them. However, this must be empirically established rather than theoretically postulated. Presuming such connections at the start—for instance, that "passionate trust" emerges from the criteria of "physical affection" as produced in prior encounters within "intimate" relationships—is not warranted.

2.3 | Process typologies

The reconceptualization we will propose is closely aligned with typologies of trust based on the *cognitive process* involved in its production—which is most commonly used in the psychology and business literature (see Figure 2). In our synthesis we use existing tendencies in this literature to coalesce

around two distinct types of trust as preliminary evidence in favor of the dual-process model we will propose. However, we criticize existing typologies for making rather superficial assumptions about the cognitive foundations of trusting. We attempt to move this literature forward by incorporating recent developments in social and cognitive psychology. Most process typologies, however, remain unclear whether trust is to be conceived primarily as a deliberate or intuitive process.

2.3.1 | Cognitive versus affective trust

A common strategy, one we find problematic, is to distinguish between "cognitive" and "affective" trust. From our review, we find this distinction is particularly pervasive in the management and organizational literature. The "cognitive" dimension considers, for instance, "the level of trust [as] an indication of the amount of risk that one is willing to take" (Schoorman et al., 2007, p. 346), whereas "affect-based trust refers to trust from the heart, a bond that arises from one's own emotions" (Chua, Ingram, & Morris, 2008). Cognitive trust is considered a more rational, instrumental, calculative, strategic, and reasoned process in the decision to rely. Affective trust emerges as a residual category, encompassing everything else that might motivate a decision to rely, such as emotion, norms, bias, passion, love, values, morality, relationships and so on (Chua et al., 2008; Johnson & Grayson, 2005; McAllister, 1995). Some scholars posit an adversarial relationship between these two trust processes arguing that "trust emotions block rational assessments of the advisability of trusting another" (Hill & O'Hara, 2006, p. 1734). For instance, Mizrachi, Drori, and Anspach (2007, p. 147) argue "applying a calculative form of trust to marriage and seeking a prenuptial agreement can reduce economic uncertainties, but it can also threaten the emotional foundation of the marriage."

There are several problems with contrasting so-called "cognitive" and "affective" dimensions of trust. These issues emerge in sharper relief in light of recent work in cognitive social science. First, "cognitive" is a term which applies to myriad procedures via which persons engage the world—meaning it cannot be reduced to "calculative" thinking in the traditional (e.g. symbol-manipulation) sense. These processes may involve processing information and producing outputs, relying on a variety of external scaffolds and technologies, which may be conscious or unconscious. Even traditional cognitive processes (such as reasoning or decision making) require affective inputs throughout (Bechara, Damasio, & Damasio, 2000; Phelps, 2006, p. 46; Schwarz, 2000). Affect, on the other hand, has a cognitive (knowledge gathering) component (Thagard, 2008). The key point is "cognitive" is not the opposite of "affective." From this perspective, "affect" is a physiological response entwined with the perception of a situation—it is something the body *does* (Damasio, 1999). Memories involving variation in affective arousal or valence can later be informational "content" for decision-making at both a deliberate or automatic level. While trust research should incorporate affect, it is not suitable to presume it founds an altogether distinct form of trust.

2.3.2 | Evidence-based versus blind trust

Hart (2000, p. 187) proposes a related typology, arguing faith-trust-confidence is a continuum based on the degree to which one depends on "evidence of the senses." On this continuum, "faith requires no evidence," while confidence is based on "substantial evidence or logical deduction," with trust falling somewhere in between. The "evidence" criterion, however, is a problematic foundation for a process based typology of reliance. It is not accurate to assert that more deliberate decision-making process are more attentive to evidence than are more spontaneous,

intuitive processes, as the now large literature on motivated reasoning attests (Kunda, 1990). In addition, a large body of evidence points to the fact that persons can consider, in their goal directed actions, large swaths of evidence they are unaware of having considered (Bargh & Chartrand, 2004). In this respect, Hart's "faith" can be as evidenced-based (if not more evidence-based) as "confidence."[3]

2.3.3 | Niklas Luhmann: Trust, confidence, and familiarity

Two closely related dichotomies—both attributed to Niklas Luhmann—are those differentiating between trust and *confidence*, and trust and *familiarity* (Luhmann, 2000). For Luhmann, familiarity is not a process that undergirds reliance, but rather a description of phenomenological experience:

> We arrive [i.e are born] in an unmarked space. We execute the first command: draw a distinction! In doing this we are forced to indicate which side of the distinction we mean...We tend to repeat that indication...Through condensation the indicated side will assume not simply the logical quality of sameness but, in addition, the metalogical quality of familiarity (2000, p. 95).

Unless, however, familiarity refers to how such "repeated indication" and "condensation" is constructed and stored in memory, it does not help us in theorizing reliance. Confidence, in contrast, provides a productive counterpoint to trust. For Luhmann, confidence and trust have in common the fact they refer to expectations that could be disappointed. Where trust differs from confidence is that confidence is directed at entities or states of affairs that do not involve a *choice* by the focal actor. Luhmann is perceptive in that acknowledging that trust often involves, at least, a consideration of alternative possibilities. His use of confidence (contra Hart's) can accommodate situations in which decision-makers not only *don't* consider their supposed "substantial evidence" through "logical deduction," but they don't consider the possibility of alternative outcomes *at all*. As far as the actor is concerned, they are *certain* betrayal or failure will not happen for that moment.

Trust requires a "previous engagement" by the actor (Luhmann, 2000). Thus, we can have confidence in the economy, or the stability of the housing market, but we have to trust our realtor. Trust thus requires a consideration of alternatives and a choice of one action over another. The primary function of trust is therefore simplification of the world so a decision can be made. In contrast to "rational expectations" models of trust, Luhmann notes that trust requires the assumption of substantial risk or damage, otherwise actions would follow mechanically from a rational utility calculus (Nickel, 2009). By way of contrast, trust requires the assumption of personal *responsibility* to engage in the act, and is thus ineluctably connected to the modern notion of "risk." This also means situations can change from one of confidence to one of trust if the element of choice, involvement, and responsibility changes. The more entities move from being a non-negotiable part of life for the actor to one in which the actor may make a reliance choice, the more we move from confidence to trust.

For Luhmann, the emphasis of modern liberal ideology—to make things once "taken care of" by impersonal/external systems now a matter of choice between alternatives—makes things that used to be a matter of confidence now a matter of trust. Modern individuals are thus now asked to "trust" a whole set of entities and actors (e.g. politicians, banks, insurance companies) they were previously only asked to have confidence in. This means, in functionally differentiated societies, confidence and trust enter a mutually supportive dialectic. The increase of choice-situations

individual's life-course (e.g. what school to attend) increases the importance of trust in social life. However, where these sorts of voluntary risk-taking are underpinned by increasingly complex institutional backdrops, the individual is induced to give confidence on a variety of corporate actors and processes. This also means any major institutional breakdown (e.g. a system-wide economic crisis) not only results in a substantial decline in confidence, but where it affects the capacity of individuals to make important life choices, also results in an overall decline of trust.

2.3.4 | Anthony Giddens: Trust in abstract systems

Like Luhmann, Giddens rejects conceptualization of trust that reduces it to a rational calculus or require the development of probabilistic expectations regarding future events or the behavior of other people. Instead, trust emerges precisely because persons are required to act under conditions of partial understanding (Giddens, 1991, p. 46). Unlike Luhmann, which still retains a decisionist approach to trust involving the assumption (and weighing) of risks, Giddens makes a differentiation between trust and confidence, except that in his account, confidence refers to behavioral decisions made based on "weak inductive knowledge" of past behavioral trends. Confidence of this sort is necessary but not sufficient to define a trust relation. Giddens conceptualizes the phenomenology of the trusting agent as coming close to the Simmelian conception of taking a "leap of faith" discussed previously, which he sees as an irreducible (quasi-religious) aspect of the phenomenon.

Giddens sees this "reflexive" type of trust, involving conscious decision-making, as a marginal member of the category that requires special explanation (e.g. changing institutional features of modernity). The "prototypical" form of trust, in contrast, does not involve calculation but involves taking certain stances based on faith. In this respect, Giddens's core concept of trust comes closer to Luhmann's confidence. Given this, the decision to trust is intimately tied with what Giddens, drawing on Eriksonian ego-psychology, refers to as *ontological security*. This stance is premised on the development of secure relationships with primary caretakers which generate a sense of "basic trust" and which is a precondition for the likelihood of entering trusting relations: Trust is a "'protective cocoon' which stands guard over the self in its dealing with everyday reality" (Giddens, 1991, p. 3).

A key issue for Giddens is that the prototypical *object* of trust changes as we experience a transition from traditional to "modern" forms of social organization even if its underlying quality stays the same. Giddens follows a standard line of social theory in seeing traditional societies as held together by regimes in which interpersonal trust reigns supreme. The key to modernity is the emergence of a variety of "disembedding mechanisms" (primarily symbolic media and expert knowledge) that extend the structuration of social systems in time and space by compressing action along these dimensions. People are thus induced to rely (and thus take *on faith*) various institutional embodiments of these mechanisms, which come to colonize everyday decision-making (e.g. what food to eat, what television program to watch, what school to attend to, etc.). Expert systems enhance security but also dialectically generate a variety of new "risks" which increase the role trust plays in everyday dealings. This is another convergence with Luhmann on the functions of trust in differentiated societies.

2.3.5 | Luhmann and Giddens: An assessment

Both Luhmann and Giddens combine process and object typological criteria in ways that should remain separate. For instance, Luhmann's conception of confidence begins with a delineation of the usual set of entities people have confidence in: large-scale macro-structural realities not

changeable via acts of choice. From here Luhmann surmises that confidence operates primarily via a "taken-for-granted" sense that institutions will remain operational and predictable. Giddens also points to a similar phenomenon, except he views this general stance as the core essence of trust. What changes in late modernity is that trust is now directed at a new set of objects (expert systems and symbolic media). In terms to be elaborated below, Luhmannian confidence and Giddensian trust are "Type I" intuitive processes. Both operate at implicit level in situations in which we need not anticipate in a deliberate way the potential consequences of relying on an entity, but rather take it on *faith*.

Because Luhmannian trust requires choice, the consideration of substantial personal loss, and the weighing of alternatives, it has to operate via an explicit, reflexive process. It seems, therefore, that the Luhmannian distinction between confidence and trust resolves itself into two different types of reliance operating via distinct processes keyed to the modal situations in which they are elicited. Giddens, as we have seen, refers to this reflexive process using the Simmelian term of "weak inductive inference" and considers it secondary to his core intuitive conception of trust as faith. This does not change in modern conditions, which while enhancing the number of situations in which persons are forced to be reflective (and even consciously weighing risks) still depend on a fundamental sense of basic faith in the operation of expert systems.

In spite of their great influence, the theories of trust of Giddens and Luhmann remain conceptually incompatible and analytically unstable. What one refers to as trust the other refers to as confidence, and both mix process and object considerations that a more robust theory would see as analytically separate. However, both seem to point towards the fact that any coherent conceptualization of the relevant phenomena has to take into account the dual nature of trust/confidence as implying sometimes reflexive and calculative stances versus more intuitive and "faith-like" processes.

3 | A DUAL PROCESS MODEL OF RELIANCE

The above literatures—whether centering on trust causes, outcomes or processes—make assumptions about cognitive processes (DiMaggio, 1997). While those explicitly conceiving of trust as a cognitive process propose broad distinctions between "calculative," and "normative/affective" forms of trust, we argue these can be reconciled in a more encompassing model. Dual-process models of cognition offer just such a resource, providing a coherent foundation to organize extant theory and findings and move trust research forward. In an encouraging note, some authors have begun to rethink interpersonal trust from a dual process perspective (A. M. Evans, Dillon, Goldin, & Krueger, 2011; Murray et al., 2011). In this paper, we generalize this approach to include the entire gamut of entities upon which humans rely (inclusive. of institutional objects and orders) showing how this model fits into extant accounts across in the cognitive social sciences.[4]

Dual process theory proposes that there are two "types" of thinking, which, following now standard convention, are usually referred to as Type I and Type II cognition (J. S. B. T. Evans & Stanovich, 2013; Sloman, 1996).[5] Type I is "intuitive" cognition, following a fast, effortless, associative process involving pattern recognition and pattern filling to generate outputs. Type II is "deliberate" cognition, following a slow, effortful process of matching inputs to explicitly represented rules to generate outputs (such as judgments of trustworthiness). Deliberate cognition, occurs at (relatively slow) time-scales allowing for conscious monitoring and access at each step, while intuitive cognition can be "implicit" because it is deployed at time scales that fall below conscious access to the process that produces the output (e.g. a judgment). Often intuitive

and deliberate processes can produce parallel solutions to the same pragmatic tasks (e.g. formulating an attitude towards an object) resulting in sometimes concordant but sometimes discordant outputs (Sloman, 1996).

As noted by Smith and DeCoster (2000) the two types of thinking are distinguished by their asymmetric connection to underlying memory systems. One memory system is in charge of "slow learning" processes capable of extracting holistic, schematic patterns from experience while discarding the details and thus requiring a large sample of repeated exposures. The other is a "fast-learning" memory system capable of storing explicit knowledge after a small set of (in the limiting case, a single) exposures. Fast-learning (declarative) memory systems allow for reconstruction of representations based on abstract rules (semantic), recollection of events (episodic), or personal contingency of experiences (autobiographical); it is usually the memory process allowing us to "know *that*" (Tulving, 1985). Slow-learning memory systems are often referred to as "procedural" or "nondeclarative" memory because it allows for "know *how*" to do something without being capable of retrieving explicit rules or algorithms for performing the action or task (Tulving, 1989). In this respect, nondeclarative memory comprises several neural and sensorimotor subsystems which are activated by cues in the environment at time-scales that are too fast for conscious access (Squire, 2004).

Intuitive cognition, being a pattern-completion process, relies on the slow-learning schematic knowledge stored in non-declarative memory. Deliberate cognition relies on symbolically (e.g. linguistically) represented knowledge mainly stored in declarative memory, although deliberate cognition may also draw on the slow learning system with frequently encountered explicit rules (Smith & DeCoster, 2000). In addition, the two sets of processes are not symmetric in terms of their "dominance" regarding a task or judgment. While deliberate cognition can override and even reorient intuitive cognition (e.g., Cunningham, Zelazo, Packer, & Van Bavel, 2007; Patterson, Rothstein, & Barbey, 2012), it cannot completely inhibit, or substitute for, this process (Sloman, 1996). This is because the intuitive process starts automatically and usually "finishes," given its greater efficiency over the deliberate process, first. In this respect, all judgments, however deliberate, contain trace input from intuitive cognition. In this sense, the intuitive process can "rapidly identify and retrieve explicit knowledge for conscious processing" (J. S. B. T. Evans, 2008, p. 271), which means deliberate cognition is supported (or disrupted) by intuitive cognition, but not the reverse. Intuitive cognition can operate independently of deliberate cognition, especially when resources necessary for the operation of the latter are taxed or stretched to the limit (Bargh, Schwader, Hailey, Dyer, & Boothby, 2012; McBride, Boy, Husain, & Sumner, 2012; van Gaal, de Lange, & Cohen, 2012).

As shown in Table 1, the dual process model suggests that reliance on a particular entity, in a particular moment, could be explained *either* by recourse to deliberate, rule-based cognition using declarative memory (i.e. trust), or faster intuitive, associative cognition using nondeclarative memory (i.e. faith).[6]

TABLE 1 The Dual Process Model of Reliance

Cognitive Mode	Type of Information Processing	Memory System	Type of Knowledge	Process Underlying Reliance
Type 2: Deliberate	Sequential/ Rule-Based	Declarative	Semantic/ Conceptual	Trust
Type 1: Intuitive	Parallel/ Associative	Non- Declarative	Embodied/ Pragmatic	Faith

3.1 | Deliberate trust

3.1.1 | The nature of deliberate trust

In deliberate trust cognition, there is conscious reconstruction of pertinent information and sequential manipulation of an explicit "world model"—Simmel's "hypothesis of future conduct" (1906, p. 450)—outlining the potential consequences that would follow from a certain judgment. In trust research, as in other work in social and cognitive psychology (Bargh & Chartrand, 2004), this is the primary process presumed to underlie trust decision-making (Bechara et al., 2000).

Our dual process of reliance suggests that two important aspects of deliberate cognition are often overlooked in trust research. First, the specific content (pertinent criteria) of the reasoning does not change the nature of the underlying cognitive process—deliberate trust could use, for instance, numerical, moral, or emotional information to generate a trust judgment. This renders object-based typologies theoretically suspect, since the same trust process can operate over a heterogeneous set of objects.

Second, as noted above, deliberate cognition uses more effort and time than intuitive cognition. This has three implications for trust research. First, deliberate trust will be a "limited resource" in Baumeister, Bratslavsky, Muraven, and Tice's (1998) sense. It requires effort, attention, and may be easily disrupted by the exigencies of the situation or by the pursuit of competing (and thus attention demanding) goals. Second, deliberate trust should be less common empirically compared to intuitive faith, since people would prefer to rely on the more efficient, less-resource-demanding process, especially given its attunement to the structure of experiences (Bourdieu, 1990). Finally, deliberate trust should be more likely to be used for relatively simple judgments of reliance since these are less likely to require a lot of cognitive resources. Intuitive faith is likely to be more efficient for more complex judgments requiring pattern recognition and matching across multiple dimensions (Dijksterhuis & Nordgren, 2006).

When generating a trust judgment via deliberate processes, persons must retrieve linguistically encoded information from the requisite memory systems and integrate them with perceived features of the current situation (Glenberg, 1996). Pertinent criteria can either be derived from the current situation, or reconsolidated from declarative memory (either semantic, episodic, or autobiographical). When retrieving a memory to make a deliberate decision to rely on an entity, persons must recall relevant explicit propositions from semantic memory (e.g. all police officers can be trusted), a specific event from episodic memory (e.g. I have seen police officers be helpful before), or a personal memory from autobiographical memory (e.g. a particular police officer was helpful when I was in trouble). Therefore, deliberate trust may operate using either "impersonal" abstract or imposed rules (semantic memory), using personal information that is generalized to unfamiliar entities (episodic), or using "personal" experience with a particular other (autobiographical). This means, *deliberate trust is not inherently more personal or impersonal, general or particular*. This renders typologies using a personal/impersonal dimension to classify trust processes suspect.

3.1.2 | The limits of deliberate trust

In much of the contemporary trust literature deliberate cognition is taken as the paradigmatic process. Deliberate trust is taken to underlie decision-making along three dimensions: (1) willingness, (2) vulnerability, (3) expectations. For instance, one of the most cited interdisciplinary definitions of trust is a "willingness to accept vulnerability" (Mayer et al., 1995, p. 712). Related

definitions add the condition that this "willingness" be based on "positive expectations" towards another (Rousseau, Sitkin, Burt, & Camerer, 1998, p. 395; see also Barber, 1983). Another widely cited definition is explicit about this: trust is "the conscious regulation of one's dependence on another that will vary with the task, the situation, and the other person" (Zand, 1972, p. 231). Besides positive expectations and willingness, many argue that "vulnerability"—awareness of risk, or the possibility of betrayal/failure—is an important defining feature of trust (e.g. Gambetta, 2000; Heimer, 2001; Sztompka, 1999). In these formulations, trust is deliberate (i.e. people are aware of making a trust judgment), based on a consideration of an imagined possibility of betrayal or failure (i.e. they willingly accept vulnerability). Persons are also aware of manipulating simulations of another's behaviors (i.e. forming expectations). Accepting the basic premises of this research, we argue that deliberate trust, as a cognitive process leading to reliance, occurs whenever a *willing* actor is conscious of *vulnerability*, considers their *expectations*, and do so *prior to* relying on an entity.

Because there are limits to deliberate cognition (Baumeister et al., 1998; Glenberg, 1996) deliberate trust must also be limited (A. M. Evans et al., 2011; Murray et al., 2011). For one, the possibility of being aware of one's vulnerability requires pertinent information, which may not be available, or if available may be faulty or incomplete. Previous work (Khodyakov, 2007; Kramer, 1999, p. 573) makes similar arguments against calculative approaches by referencing Simon's (1982) "bounded rationality." The limitation highlighted here, however, is not that rationality is bounded, but on the contrary, the proportion of times we are *aware* of our ignorance and yet still trust is quite limited. This awareness does not rest on the fact that *epistemically* humans can never predict the future with certainty. Rather it is whether, *phenomenologically*, an actor perceives their vulnerability. This need not align with scientistic calculation of risk, and in fact, remains a problematic conflation in explicitly anti-calculative approaches to trust (see especially Möllering, 2006, pp. 51–71). This leads us to the question: under what circumstances and toward what objects people consciously perceive vulnerability?

The next limitation relates to both the criteria of "expectations" and that the decision must occur "prior to" the actions. If we conceive of decision-making "as a serial process of analysis carried on along a single line by a single processor," than for "complex yet familiar tasks such processing would be impossibly clumsy and lengthy" (Bloch, 1991, p. 191). It does not depend on conscious recollection and simulation to rely on every entity, or even the majority, we encounter. Deliberate cognition is limited because it takes *effort*, which is a finite cognitive resource (Hagger, Wood, Stiff, & Chatzisarantis, 2010), but also because it takes too much *time*. Not only must a person be sufficiently motivated to spend the effort, and have the cognitive effort to spend, but they must also have the time to bypass the intuitive system and make a deliberate decision *prior to* the act.

3.2 | Intuitive faith

3.2.1 | The efficiency of intuitive faith

Intuitive cognition is relatively effortless, allowing persons to react quickly to environmental cues with appropriate responses. These responses emerge via repeated practice within similarly shaped contexts (Bourdieu, 1990). This cognitive process is opposed to the linear, decision-making model following a single line of rule-based reasoning characteristic of rational and "reasoned" action approaches (e.g. Fishbein & Ajzen, 2011). Rather than following a "serial" logic, intuitive cognition follows a "associationist" logic whereby we "access knowledge, either from memory or as it is conceptualized from perception of the external world, through a number of processing units which work in parallel and feed in information simultaneously" (Bloch, 1991, p. 191).

The intuitive *process* resulting in an act of reliance whose *origins* (but not necessarily its *outputs*) lie outside conscious evaluation and justification. When people rely on an entity intuitively, they are taking it on *faith*. In contrast to folk conceptions of the notion of faith this reliance is not necessarily "unreasonable" although its actual reasons may not be available for linguistic articulation. After the fact, persons may bypass the process and offer deliberate *justifications* for their acts of reliance. These post hoc justifications may or may not correspond to its actual bases (Nisbett & Wilson, 1977). Although the vast majority of research on trust takes deliberate cognition as the paradigmatic process of decision-making, our dual process model of reliance recovers the insight, central to classical social theory and contemporary institutional theory, that intuitive faith is larger in proportion and far more significant for processes of cultural persistence (Zucker, 1977). As Simmel notes: "Without the phenomenon we call faithfulness, society could not exist, as it does, for any length of time" (1950, p. 379).

There are three reasons we should expect persons to handle the majority of entities to be potentially relied on via the intuitive process. First, some entities never motivate deliberate cognition or require semantic rules. We may learn to rely on entities via repetitive, practical engagement with the world, rather than by deliberately learning about abstract qualities and rules prior to engaging these entities. Through the process of "embodied simulation" or "mimicry" (Bargh & Shalev, 2012; Leander, Chartrand, & Bargh, 2012) people are able "to match the embodied representations of others' actions to our own proprioceptive body schema" (Lizardo, 2009, p. 721). Such simulation can produce and reinforce the connection between intention, actions, and objects—and the evaluation that entities can be relied on for specific intentions—at a *pre-reflexive*, intuitive level. For instance, Chartrand and Bargh (Chartrand & Bargh, 1999) find even being intuitively mimicked by a stranger can create feelings of bonding toward that stranger. Because of this process of bodily attunement, humans are predisposed to take many entities on faith, based on substantial embodied evidence processed at an intuitive level.

Second, repeatedly scrutinized entities might become so familiar as to no longer motivate deliberate cognition. This is the process of the *automatization of trust* (Logan, 1988). This process maps onto more traditional notions of learning a new skill (Dreyfus & Dreyfus, 1980). To be "familiar" with an entity, however, does not mean we only have semantic knowledge of the entity (in declarative memory). Having semantic knowledge of an entity is a shallow form of "familiarity," especially if it is not complemented with implicit knowledge held in nondeclarative memory. Rather, it means, our practical engagement with the entity has produced the accumulation of procedural knowledge, held in nondeclarative memory. This procedural knowledge is non-negotiably reactivated when re-encountering the entity (or a similar entity (Gawronski & Bodenhausen, 2011), and now "affords" reliance, effortlessly, for a person. In both cases, *practice* plays an essential role in the production of intuitive faith. People are always practically engaging the world in particular contexts with particular entities. As we become "enskilled" in these contexts, we can intuitively rely on entities relevant to those contexts even when unaware of this reliance at a reflexive level (e.g. Murray, Holmes, & Pinkus, 2010). This skill can then apply to different entities in similar contexts.

This skill-acquisition account diverges from much of the sociological and economic research on trust. This research recreates the age-old dichotomy between the "harmful passions" and the "innocuous interests" (Hirschman, 1997) by presuming that intuitive processing is necessarily inaccurate, irrational, or biased (Cook et al., 2007, pp. 26–31) or founded on "no evidence" (e.g. Hart, 2000). For instance, Hardin (and colleagues) argue that the "noncognitive dispositional view [i.e. intuitive] can only be part of the story of trusting, the cognitive elements [i.e. deliberate] must play another part. The alternative is for trust to be blind and ungrounded, and often

self-destructive" (2001, p. 5). The dual process model of reliance, in contrast, notes that the procedural knowledge underlying intuitive faith is not deficient, and may sometimes be superior, as it relates to deliberate trust—since it is based on practical experience and hard-won skill.

Finally, because of the production of intuitive reliance through our practical engagement in everyday life, humans may also take on faith a large infrastructure the detailed workings and underpinning of which they must remain perforce *ignorant*. However, this should not be overstated. Many entities are "black boxes" which we might know to produce a particular outcome, but we might not know *why* it does so. For instance, the complex financial regulations, banking policies, and technological security measures might elude our ability to engage with them practically or deliberately. Our continual reliance on the product of this unseen infrastructure (i.e. retail banks) presumes that we must take this infrastructure on faith. When Barber discuss "trust as the expectation of technical competence" (1983, p. 14), often this is an instance of intuitive faith in a credentialing system. This is one reason we should expect intuitive faith to increase in tandem with societal levels of institutional complexity and interdependence (Habermas, 1984).

3.2.2 | The ubiquity of intuitive faith

A key implication of the dual process model of reliance is that, while it is possible for a situation to be absent of all deliberate trust, it is not reasonable to presume a situation can be absent of all intuitive faith (Giddens, 1991). This may seem counter-intuitive, especially when distrust and skepticism is the default starting point for analysts. In fact, when Luhmann says "chaos and paralyzing fear" (Luhmann, 1979, p. 4) results from an absence of trust, our model suggests, that the statement can only apply to an absence of intuitive faith. This better-describes the removal of "ontological security" in Giddens's (1991) terms. Likewise, Garfinkel refers to intuitive faith when noting that the ability of a person "to act deliberately… depends upon the person being able to take for granted, to take under trust, a vast array of features of the social order" (1967, p. 173). Although, perhaps epistemically, "the world presents itself as unmanageable complexity," (Luhmann, 1979, p. 4), intuitive faith solves this problem. This is because intuitive faith is reinforced cognitive schemas emerging from concrete experience, and amount to well-founded evaluative associations and ingrained "expectations of persistence" (Barber, 1983, pp. 10–11). Even when certain entities in a situation invite our effortful scrutiny, our decision to deliberately trust will always incorporate and rest upon further entities, a diffuse social penumbra, which we will take on faith. The infinite regress set off by the process of deliberate trust must be grounded in form of taken for granted intuitive faith. Something also observed by Simmel: "Life stands on a thousand presuppositions the causes of which the individual cannot at all trace and verify, but which must be taken on faith" (2009, p. 312).

3.3 | Variation in the influence of deliberate trust

Although the great majority of trust research takes deliberate cognition as the standard, at no point do humans ever encounter a situation involving deliberate trust alone. Situations do, however, vary in the extent to which they invite more or less deliberate cognition. In the same way that entities previously relied on through a process of deliberate trust might eventually be taken on faith, entities which previously were taken on faith might suddenly invite scrutiny for many reasons. A useful example of this dialectic is the comparison between American and Russian credit card markets by Guseva and Rona-Tas (2001). Their analysis shows that whereas American banks can take on faith, the various institutions which provide standardized information necessary to calculate an individual's creditworthiness, Russian banks must use an evaluation

of trust in social ties. Thus, assessing creditworthiness in Russia would be expected to be a more cognitively effortful process of deliberation.

4 | IMPLICATIONS OF THE DUAL PROCESS MODEL OF RELIANCE

Our dual process model of trust offers two revisions to the contemporary social scientific approach to trust and decision-making, and two suggestion for future research. First, we question the largely taken for granted premise in trust research that *epistemic* uncertainty is equivalent to *phenomenological* uncertainty. Although there is always "uncertainty regarding whether the other intends to and will act appropriately" (Rousseau et al., 1998, p. 395), it is unlikely that actors always know of this uncertainty. Were this actually the case, actors would be likely be gripped in Luhmann's "paralyzing fear" (Luhmann, 1979, p. 4) and rendered unable to deliberate determine what or whom is to be trusted. Second, as the bulk of our interactions in the social, physical, and institutional world rely on non-deliberate forms of trust, institutional reliance is produced largely by intuitive faith. This premise leads to a rejection of the idea that institutional life is inherently precarious, or it is becoming more uncertain in late modernity. Overall, the notion that trust in the broad sense is fragile or constantly under threat is largely overstated. Rather than totalitarian hierarchies, the evolution of incentive structures, or networks of social relations, intuitive faith provides a starting foundation for the various "problems of order" postulated in classical social theory (Heritage, 1984).

4.1 | Suggestions for future research

First, as it relates to macro-level considerations of trust, analysts have defaulted on the assumption that "late modern" societies require an ever expanding need for rational deliberation (Habermas, 1984). In contrast, future research should consider the premise that denizens of the rich Western democracies are standing on, as Simmel puts it, "a thousand presuppositions the causes of which the individual cannot at all trace and verify, but which must be taken on faith" (2009, p. 312). Therefore, focus on deliberate trust by researchers is disproportionate to its significance for social life, and leave a wide swath of social experience to be explored. Here we break with the premise, as stated previously, that the increase in institutional interdependence and complexity associated with "modernization" processes entail an allied psychosocial transition from implicit, intuitive trust in concrete others to deliberate, consciously realized trust in "abstract systems," which put psychological strains on the agent (Giddens, 1991). We argue instead that modern "complex" institutions are more likely to elicit intuitive faith. Deliberate trust should be relatively rare, but not entirely absent, and may be specific to certain fields rather than a general social phenomenon. Therefore, future research should explore either situations in which the presence of deliberate trust is itself institutionalized, or situations in which the presence of deliberate trust is evidence of institutional breakdown.

Relatedly, at the micro-level, we suggest that the paradigmatic model of decision-making, involving conscious deliberation over whether to trust an entity or not, does not represent the "modal" trust situation and should thus be de-emphasized. The reason for this is not because we are distrustful animals, but because we are intuitively faithful animals. Therefore, the key theoretical issue is not what are the situational, institutional or psychosocial factors that lead people to increase their trust (with the presumption that distrustfulness is the default). Instead, the key puzzle is the reverse: when and why is an entity *not taken on intuitive faith,* but rather

scrutinized as an object of deliberate trust? This latter situation is the exception to the rule and should be the subject of special explanatory efforts and theory building.

5 | CONCLUSION

In this paper, we have argued that the social scientific study of trust displays a tendency to segregate the study of trust into two domains: that of "rational" calculation and that of irrational "affective" or normative motivations. To some extent, this provides evidence that analysts are already working with a (however rudimentary) dual-process understanding of human cognition. However, this research continues to rely on various pernicious premises. These include the conflation of calculative thinking with deliberate cognition (ignoring that calculation may also occur via intuitive pattern completion) and the presumption that deliberation in trust decision-making is both prototypical and more accurate than other processes. This implies that those realms of trust that are consigned to the normative/affective domain are ipso facto presumed to be residual or inaccurate. As we have shown, these assumptions do not hold up to the current consensus in cognitive science. By applying a dual-process model to all forms of reliance, we can move trust research forward, while providing sound footing for a key sociological insight: that reliance on the normal social order is both the cognitive default and based on substantial (embodied) evidence.

ENDNOTES

[1] Here we exclude those articles which did not adopt an approach (e.g. reviews of the literature), and those articles which offered no identifiable typology or definition.

[2] For instance, "numerical" or "arithmetical" criteria is not necessarily processed differently from "moral" or "aesthetic" criteria (Logan, 1988; Strauss & Quinn, 1997, p. 58).

[3] Related to this is the contrast between calculative trust, again, and "normative" trust. This is the idea that trust can be *either* based on instrumental, calculative, and rational considerations, *or* based on shared norms, values, and meanings. For similar reasons, this dichotomy does not do much theoretical work for us. "Values" or "norms" can just as easily be the object of conscious intentions within a rational means-ends framework. There is nothing about a normative commitment that is obviously distinct from an instrumental commitment.

[4] Dual process models have been applied to many domains in cognitive and social psychology (J. S. B. T. Evans, 2008; J. S. B. T. Evans & Stanovich, 2013; Smith & DeCoster, 2000). More recently, dual-process models have been imported into sociological accounts of cultural processes (Cerulo, 2010; Lizardo, 2017; Lizardo et al., 2016; Lizardo & Strand, 2010; Martin & Desmond, 2010; Vaisey, 2009; Vaisey & Lizardo, 2010).

[5] In what follows we will use the term "deliberate cognition" to refer to the Type II process and "intuitive" cognition to refer to the Type I process.

[6] The ultimate output may also be explained by an iterative recycling through bouts of intuitive and deliberate processes, resulting in a final judgment that combines outputs from the two systems (Cunningham et al., 2007).

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