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The Essential Role of Ritual in the  
Transmission and Reinforcement of Social Norms

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## Abstract

Social norms are communally agreed upon, morally significant behavioral standards that are, at least in part, responsible for uniquely human forms of cooperation and social organization. This paper summarizes evidence demonstrating that ritual and ritualized behaviors are essential to the transmission and reinforcement of social norms. Ritualized behaviors reliably signal an intentional mental state giving credibility to verbal expressions while emotionally binding people to each other and group-based values. Early ritualized infant-caregiver interactions and the family routines and rituals that emerge from them are primary mechanisms for transmitting social norms vertically from parent to offspring, while adult community rituals are a primary mechanism by which norms are reinforced horizontally within the community.

Key words: cooperation, imitation, intentionality, ostensive signals, ritual, social norms

## The Essential Role of Ritual in the Transmission and Reinforcement of Social Norms

Anthropologist Roy Rappaport (1999, p. 24) defined ritual as the performance of formal, invariantly sequenced and traditionally transmitted actions and utterances, such as what occur at weddings or initiation rites. He further argued that ritual played a critical role in making us human. Human society required trust and ritual was necessary to create that trust because, unlike language, ritual was indexical. This meant that it was a reliable indicator of one's state of mind. Words could too easily deceive. Anyone could claim to be a loyal and brave tribe member, but willingly enduring a painful initiation rite put credibility behind one's words. Similarly in a more modern context, one's willingness to participate in a nuptial ceremony or a fraternity initiation serves as a public indicator of one's commitment. While no indicator is perfect, enduring rituals typically exact a high enough personal cost to deter casual pretention.

Learning a society's normative standards – that is, the attitudes and behaviors leading to social approval – could be risky if based solely or even predominantly on verbal instruction. In our evolutionary past, those who did so would have been at far greater risk of social manipulation (and therefore at a fitness disadvantage) compared to those who critically evaluated words relative to actions (Henrich, 2009). Furthermore, the most informative actions would have been those that reliably reflected the actor's true intentions and belief commitments. Ritual actions fit this criterion. Ritual actions are not accidental or thoughtless. Instead, by their very nature, they are deliberate, meticulously executed intentional behaviors. Moreover, when ritual actions are costly in terms of time, energy, or physical endurance, they reliably indicate commitment to certain ideals or beliefs (Henrich, 2009). In this way, ritual becomes the mechanism by which words gain or lose credibility.

That people often treat verbal exhortations skeptically is long established in social science research. For example, self-interested arguments are significantly less persuasive than ones that appear contrary to the arguer's interests (Walster, Aronson & Abrams, 1966). To ensure that words actually reflect a person's true state of mind, observers – especially children – look for credibility enhancers such as relevant behavior (Henrich, 2009). For example, Harper and Sanders (1975) had a female experimenter go into the homes of children ages 14 to 48 months. The experimenter played with the child until he or she was comfortable with her (about 20 minutes). The experimenter then placed a novel food item within the child's reach and either announced "something to eat," or made the same announcement while also sampling some of the food herself. Seventy-five percent of the children took some of the food in the second condition compared to only 25% in the first. Children were clearly given permission to eat in either condition and often did so when their mothers verbally offered them food without sampling it. This suggests that children were not just "politely" waiting to eat until the adult had first done so. Instead, this result supports the notion that from a very early age children are far more likely to trust another's words when those words are reinforced by relevant deliberate actions.

Similar findings have been reported regarding charitable behavior (Bryan, Redfield, & Mader, 1971; Bryan & Walback, 1970a, b; Grusec, Saas-Kortsaak, & Simutis, 1978; Rice & Grusec, 1975). These studies have typically employed a game situation where the child could earn tokens which could be exchanged for toys. Present in the room was a charity jar to which the child could contribute some of his or her winnings in order to help "poor children." When the experimenter used verbal exhortation alone to encourage charitable behavior ("one ought to donate...") it had little effect on the children. However, when the experimenter actually donated some of his or her winnings to the jar, children's donations increased significantly.

The message of these studies is not that verbal expressions are irrelevant when teaching others or in influencing their behavior. Indeed, verbal exhortations can provide important details about the actions (who needs charity, why they need it etc.) and they can broaden the range of contexts to which those actions apply (Grusec, et. al., 1978). However, in the absence of credibility-establishing actions, words alone have considerably diminished impact on subsequent behavior.

Experimental studies routinely use unfamiliar adults as models, leaving open the possibility that the words of parents, relatives, and familiar caregivers are more trusted and therefore less in need of credibility-enhancing actions. Often, this is true especially when positive emotional attachments are present (Corriveau & Harris, 2009; Ainsworth, Blehar, Waters & Wall, 1978). This greater trust, however, is not unconditional. Children have been found to assess the veracity of even a familiar caregiver's verbalizations and will mistrust him or her if that information is inaccurate (Corriveau & Harris, 2009). For example, if a familiar caregiver is seen verbally mislabeling an object, four- and five-year-olds (but not three-year-olds) will later show less trust in the familiar caregiver and five-year-olds will even transfer greater trust to an unfamiliar adult who was seen accurately labeling objects.

Humans have a powerful "need to belong" (Baumeister & Leary, 1995). Failure to achieve social acceptance can have serious negative consequences on one's psychological and physical health. In our ancestral past, social ostracism was a virtual death sentence. Thus, acquiring a society's normative standards was (and remains) a critically important task, especially for children. Undoubtedly, language and action interact in this process. However, by virtue of its credibility-establishing function, action – specifically ritual action – possesses an evolutionary and ontogenetic priority. This paper explores the nature of that priority. By what

means does ritual establish the essential pre-conditions for the creation and transmission of social norms?

This paper's argument is organized as follows:

- (1) Social norms are defined and evidence is presented showing that they are unique to humans and critical for the sophisticated forms of cooperation found only in our species.
- (2) Ritualized behavior is defined and evidence is presented showing that it serves two important functions in transmitting social norms: (a) the signaling of intentionality and (b) the emotional binding of people to one another and to group normative values.
- (3) Evidence is presented showing that early infant-caregiver interactions are ritualized interactions where intentionality drives imitation and imitation reflects the acquisition of emotion-laden social rules. It is upon the foundation of emotionally-charged social rules that more linguistically-based reasons for the moral correctness of these rules can subsequently be added.
- (4) Ritual is defined and evidence is presented for three important normative transmission functions: (a) sustaining and magnifying the emotional connection of people to normative values, (b) signaling value commitments, and (c) representing and reminding people of normative values.
- (5) Evidence is reviewed demonstrating that during childhood, ritualized infant-caregiver interactions broaden into family rituals which transmit normative values vertically from one generation to another.
- (6) Evidence is reviewed demonstrating that adult community rituals transmit and reinforce norms horizontally within the community.

### **Social Norms are Uniquely Human**

Social conventions and social norms share considerable conceptual overlap. A convention is a mutually-agreed-upon, expected-to-be-followed behavioral regularity that solves a coordination problem (Bicchieri, 2006; Lewis, 1969). For example, in Oberlin, Ohio in the late 1960's, phone calls were often unexpectedly cut off after three minutes. A regularity developed under these circumstances whereby the original caller would initiate a new call after the cut off so that the conversation could continue. The original recipient would wait. This regularity developed into a convention because: (a) it solved a coordination problem allowing people to resume their conversations efficiently, (b) everyone followed the regularity, and (c) everyone expected others to follow the regularity when the need arose (from Lewis, 1969, p. 43). Other examples of conventions might include: driving on the right side of the road, ladies or elders first when two arrive at a door simultaneously, and raising hands to be recognized in a group.

Social norms are a type of convention and the border between the two is fuzzy (Bicchieri, 2006, pp. 37-39; Lewis, 1969, pp. 42-43). Indeed, there may be controversy within a society as to whether something is normative or conventional. For example, some may see driving on the wrong side of a deserted street as a mere convention violation, while to others it reflects a serious disregard for an important safety norm worthy of eliciting "road rage."

A key distinction between convention and norm is the degree of moral weight something is given. Norms carry a heavier moral weight than conventions. Conventions are behavioral regularities that people *should* follow, while norms are regularities that people *ought* to follow. Because of their greater moral weight, norm violations usually result in more severe social sanctions. Convention violators fail to coordinate with others. Norm violators displease others to the point where their good character and personal reputations are at risk. Since conventions solve

coordination problems, it is usually in everyone's interest to follow conventions. In other words, conventions conform to individual self-interest. Norms usually require suspension of immediate self-interest in lieu of larger group interests. Despite this, however, people are often intrinsically motivated to follow norms (Sripada, & Stich, 2006). That is, they treat them (and expect others to treat them) as important ends themselves rather than simply means to ends.

Thus, keeping promises, taking responsibility for one's actions, repaying favors, and the like are usually thought of as norms because they carry a moral and social importance beyond just allowing people to work efficiently with and around each other. They involve gaining others' acceptance, respect, and love. Norms are a human universal and while their specifics often vary considerably across cultures, general themes are present such as regulating sexual and aggressive behaviors, sharing resources, and encouraging reciprocity and charity (Sripada & Stich, 2006).

Social norms are unique to humans. Cooperative behavior among other animals is largely explainable under inclusive fitness theory (Hamilton, 1964). In this view, cooperation is based on kin-selection, reciprocity, and possibly indirect reciprocity (Alexander, 1987; Dugakin, 1997). In kin-selection, cooperative acts occur among relatives for the purpose of propagating gene copies shared across individuals. In reciprocity, non-relatives exchange favors benefitting them and their genes (Trivers, 1971). Indirect reciprocity involves reputation-building where generous acts in an immediate context lead to later-reaped fitness enhancements through increases in social status and reputation (Alexander, 1987). Evidence, to varying degrees, has been found for all these processes in animals and humans.

Recently, a number of researchers have both argued and gathered evidence for the proposition that human cooperativeness extends beyond what can be explained by kin-selection,

reciprocity, and indirect reciprocity (Boyd, Gintis, Bowles, & Richerson, 2003; Fehr & Henrich, 2003; Gintis, 2000; Richerson & Boyd, 2001; Sterelny, 2003). Human cooperativeness also involves what some have termed *strong reciprocity* – that is, a tendency to follow and enforce group norms of behavior even when doing so incurs a fitness disadvantage. In paradigms such as the prisoner’s dilemma, ultimatum, dictator, and public goods games, subjects show a level of cooperation not predicted by inclusive fitness theory (Carpenter, Burks & Verhoogen, 2005; Cooper, DeJong, Forsythe & Ross, 1996; Fehr & Fischbacher, 2004; Fehr & Gächter, 2002; see review in Henrich & Henrich, 2007, pp. 110-115).

For example, in the ultimatum game, one player (the proposer) is given a sum of money that he or she is allowed to divide in any way desired with a second player (the responder). Thus, if the proposer is given \$10, he/she could keep all the money, give all the money to the responder (which no one ever does), split it equally (\$5 for proposer, \$5 for responder) or anything in between. The responder can either accept or reject the proposer’s offer. If the responder accepts, both keep their money. If the responder rejects, neither player keeps any money. In terms of pure self-interest, the proposer should divide the money such that it maximizes his/her gain (e.g. \$9 for proposer, \$1 for responder), while the responder should accept any non-zero amount (since acceptance always leads to greater monetary gain than rejection).

The critical finding is that even in anonymous one-off interactions where both reciprocity and reputation are irrelevant, both proposers and responders show unexpectedly high levels of cooperation (Carpenter, et al., 2005; Fehr & Fischbacher, 2003; Forsythe, Horowitz, Savin, & Sefton, 1994; Marwell & Ames, 1981; Roth, Prasnikar, Okuno-Fujiwara, & Zamir, 1991). Proposers tend to offer 30-45% of the money and responders tend to reject offers lower than this. This suggests that both parties operate using a norm of fairness and are willing to forgo selfish

gains in order to adhere to this norm. Furthermore, cross-cultural studies show that average splits offered by proposers and acceptance/rejection thresholds of responders show predictable variation depending upon their culture's norm of fairness (Henrich, McElreath, Barr et al., 2006; Henrich, Boyd, Bowles, et al., 2001). Similar findings indicative of norm following have been found in the prisoner's dilemma, dictator, and public goods paradigms as well (Carpenter, et al., 2005; Cooper et al., 1996; Fehr & Fischbacher, 2004; Fehr & Gächter, 2005; Henrich & Henrich, 2007, 110-115; Thaler, 1992). Lab studies showing the costly enforcement of group norms have been complemented by real-world observations. Anthropologists Natalie and Joseph Henrich (Henrich & Henrich, 2007) have shown how the same adherence to and enforcement of group norms are demonstrable in the daily lives of Chaldean community members of Detroit, Michigan (USA).

In all likelihood, human social norms are evolutionary extensions of primate social regulatory mechanisms. These mechanisms include deference to social hierarchy, avoiding others who are uncooperative or unhelpful, and retaliating against those (or their kin) who have caused personal harm (Melis, Hare, & Tomasello, 2006; Tomasello, 2009, pp. 182-183.) Some studies have suggested that these mechanisms may include social norms (Bronson & deWaal, 2003; Bronson, Shiff, & deWaal, 2005). However, more recent lab studies have cast doubt on this (see discussion in Tomasello, 2009, pp. 31-34).

For example, a chimpanzee is more likely to reject a low quality food reward (cucumber) if he or she just witnessed another receiving a high quality food reward (a grape). One interpretation is that this rejection is motivated by a norm of fairness – the chimpanzee does a social comparison of what another received relative to themselves. However, simply showing the chimpanzee a high quality reward (without it being offered to another) leads to the same

rejection suggesting that a food comparison, not a social comparison, accounts for it (Brauer, Call, & Tomasello, 2006).

Chimpanzees have also been tested using a species-adapted form of the ultimatum game (Jensen, Call, & Tomasello, 2007a). In the chimpanzee version of the game, the proposer was faced with food items pre-divided between two trays – for example, eight raisins in one tray and two in the other. The proposer made an “offer” by pulling a rope which moved the trays halfway toward both the proposer and responder. The responder could “accept” the offer by pulling on a rod which came into reach as a result of the “offer.” By pulling the rod, both trays were drawn the rest of the way toward both apes and thus within reaching distance. Failure to pull the rod was considered a “rejection.”

Human responders consistently reject unfair offers. Knowing this, human proposers rarely make them. Not so with chimpanzees. Chimpanzee proposers consistently made unfair offers (such as eight raisins for the proposer, two for the responder) and responders accepted nearly all non-zero offers. This finding supported the hypothesis that chimpanzees were operating by a selfish rational maximizing principle rather than by a norm of fairness.

Additionally, Jensen, Call, and Tomasello (2007b) have shown that, like humans, chimpanzees will engage in the costly punishment of another who has caused direct personal harm. However, unlike humans, chimpanzees do not punish those who have gained an unfair advantage through no direct action of their own (they just got lucky). Thus, they are vengeful when personally harmed, but not spiteful when another (in human terms) has flouted a rule of equity. Expecting others to follow a norm of equity and becoming morally outraged when they don't, are significant human traits that appear to play a critical role in establishing and stabilizing levels of cooperation unique to our species (Fehr & Schmidt, 1999; Dufwenberg & Kirchsteiger,

2004). Collectively, these studies indicate that social norms are unique to humans and play a pivotal role in our hyper-cooperative tendencies. Understanding how social norms are established and followed in human groups provides a key piece of the theoretical puzzle regarding our social nature.

### **Ritualized Behavior**

Ethologists define ritualization as an evolutionary process whereby an incidentally informative behavior becomes isolated and specialized to be socially informative (Tinbergen, 1952). For example, horses attack one another by turning their backs and kicking each other. The attack posture includes lowering of the head and flattening of the ears. Within horse social groups, this attack pattern quickly gets reduced (conventionalized or formalized) to simple displays of a lowered head or flattened ears. For a dominant horse, this is usually sufficient to get a submissive response (Givon, 1995). Ritualized behavior is widespread in the animal world and essential for regulating social interactions (Eible-Eibesfeldt, 1975, pp. 115-124; de Waal 1990; Goodall 1986). As highly social animals, our primate relatives have a variety of ritualized behaviors for greeting, mating, settling disputes, and reaffirming the dominance hierarchy (Richman, 1987; van Roosmalen & Klein 1988, p. 515).

The process of ritualization involves both emancipation and formalization (Armstrong & Wilcox, 2007 pp. 62-76; Haiman, 1994). Emancipation is when the most critically informative element (or elements) of a larger set of instrumental behaviors becomes isolated from the full behavioral expression. This isolated component then becomes formalized, or more restricted and stylized in its execution in order to more effectively transmit a meaningful signal. For example, a young child wanting to be picked up will often reach up, grasp at a caregiver and begin physically climbing on him or her. Eventually, arm extension alone is enough to signal the

child's desire to be picked up and the caregiver reacts accordingly. Arm extension thus becomes segregated or emancipated from the complete array of climbing behaviors and is concurrently simplified or formalized (possibly with hands waving to attract attention, but without grasping or climbing motions). The full-blown instrumental action is reduced to just the most informative element(s) which is (are) then emphasized, stylized or exaggerated in expression.

In addition to emancipation and formalization, ritualized actions also typically include: (1) rule-governance – they must be executed in a prescribed manner; (2) repetition – they are often repeated to attract and hold attention and effectively transmit information; and in humans especially (3) goal demotion – the acts are ends themselves and not necessarily associated with the achievement of some instrumental goal (ritualized washing is not necessarily to clean something; Bell, 1997; Rappaport, 1999).

It is important to distinguish ritualized behavior from ritual. Ritualized behavior refers only to the emancipation, formalization, and rule-governed repetition of elementary gestures. Ritual is a broader term referring to a variety of scripted, ceremonial, and symbolic activities (Bell, 1997). Many animals have ritualized behaviors, but only humans have rituals. Rituals usually include ritualized behaviors but other important features are present as well such as sacredness, symbolism, traditionalism, and performance (Bell, 1997, pp. 138-169). In human rituals, the ritualized behaviors are embedded within the larger ritual itself. For example, mosque worship involves ritualized prayer actions such as bowing with the palms held upwards and kneeling with the forehead intermittently touched to the ground. These actions, however, are surrounded by ceremonial washing, the symbolism of the mosque and of facing toward Mecca, and other cultural elements that add to the ritual's impact.

Ritualized behaviors are widespread in the animal kingdom and present among relatively unsophisticated creatures (e.g. snapping shrimp). This suggests that the ritualization process need not entail complex cognition. Most ritualization results from a progressive shortening of a full behavioral pattern where the shortened form produces the same response as the complete sequence (Tomasello, 2008, pp. 22-23). This process, known as ontogenetic ritualization, requires only that the recipient be able to predict the completion of an action sequence based on a partial realization of it. Ontogenetic ritualization probably accounts for most social rituals found in chimpanzees and young children.

Humans, however, have the (probably unique) capacity to consciously ritualize actions. This requires the ability to focus attention on the elemental gestures of a larger behavioral sequence apart from its utilitarian aim (Boyer & Lienard, 2006). For example, in ritual washing the specific wiping gestures become the focus of attention, not the cleaning of the object. The important signal is contained within the proper execution of the gestures themselves. Thus, when someone ritually washes an object using precisely executed gestures (three wipes up, three down), the person communicates reverence for the object, not the importance of hygiene. Committed bipedalism (which, among other things, allowed for greater visual control of hand movements) and the demands of stone tool manufacture have produced anatomical and neurological changes leading to greater conscious control of movement (Pelegriin, 2005; Stout, Toth, Schick & Chaminade, 2008). This gave our hominin ancestors an increased capacity to ritualize actions, producing intentional gesture-based social signals (Corballis, 2002; Donald, 1991; Noble & Davidson, 1996).

Ritualized behaviors are emancipated, formalized, repetitious, attention-grabbing, rule-governed actions where important social information is conveyed. Social norms are morally-

weighty, communally agreed upon behavioral regularities that people are expected to follow. A core theoretical argument of this paper is that the ability to consciously ritualize actions created the necessary conditions for the creation, transmission, and reinforcement of social norms. These necessary conditions are pedagogical and emotional – that is, ritualized actions teach normative content and emotionally bind people to that content. Ritualized actions are effective for this purpose because they signal an intentional state of mind which the observer uses to extract social rules. Furthermore, these intentional signals are embedded within an emotion-laden social interaction which serves to bind participants to each other and to the values of their social group.

### **Ritualized Infant-Caregiver Interactions**

The earliest social exchanges between infants and caregivers can be understood as ritualized interactions (Dissanayake, 2000). These interactions are characterized by rule-governed, invariantly sequenced, formalized, repetitious, attention-directing acts. For example: (1) Early “turn taking” bouts between infants and caregivers are typically initiated by an attention-getting signal such as an imitative act (either by the adult or infant) or a “call” where either the infant directs a vocal signal at the adult or the adult leans in toward the infant and vocalizes using infant-directed speech or “motherese” (Nagy & Molnar, 2004; Reddy, 2008, pp. 52-55; Tronick, Als, & Adamson 1979). (2) The interactions are repetitive and follow a strict sequence described by Tronick et al. (1979) as:

- a. Initiation: where either participant engages the attention of the other.
- b. Mutual orientation: where the infant’s initial excitement calms and the caregiver’s vocalizations become soothing.
- c. Greeting: characterized by the infant smiling and moving his or her limbs and the caregiver becoming more animated.

d. Play dialogue: where the infant and caregiver take turns exchanging sounds and gestures.

The dialogue phase involves mutual turn-taking which has been called “proto-conversation” because of its close resemblance to adult verbal interactions (Keller, Scholmerich & Eibl-Eibesfeldt, 1988). (3) Proto-conversations between infants and caregivers are rule-governed exchanges as demonstrated by the results of the “still-face” paradigm. When the implicitly understood rules of proto-conversation are violated, infants protest. (4) Finally, formalization is seen in the social games that occur between infants and caregivers, such as peek-a-boo, where restricted, stylized gestures (hands over the eyes representing a hidden face) are commonplace. Formalization is also seen more generally in that most infant-caregiver interactions over the first few months feature simplified, exaggerated, repetitious movements and facial expressions (called “motionese”) and similar-type vocal utterances (Brand, Baldwin, & Ashburn, 2002; Shelde & Hertz, 1994).

As infants mature, both the motionese and infant-directed speech aspects of infant-caregiver interactions continue to be highly salient in situations where adults model behavioral skills to toddlers and young children. Learning to use utensils, picking up toys, tying shoes, and the host of other practical skills that children must acquire are typically demonstrated to children by adults using attention-getting, repetitious, exaggerated gestures and vocalizations (such as “sing-song” melodies) that model and describe the necessary behavioral actions.

This paper proposes that there is an important connection between ritualized infant-caregiver interactions and the acquisition of social norms. The argued connection is as follows: (1) ritualized actions signal intentionality and infants base their imitation on intentionality. (2) Infant’s imitation reflects the acquisition of abstract generalized social rules. (3) Infants and

young children invest significant emotional energy in both following and enforcing acquired social rules suggesting they have an emotional attachment to them. These early emotionally-charged social rules are argued to be the affective foundation upon which social norms (understood as consciously-represented socially-agreed upon behavioral standards) are based. The next sections unpack the three elements of this process and provide evidence for each.

### **Ritualized Actions, Intentionality, and Imitation**

Early ritualized infant-caregiver interactions are especially effective at transmitting social norms for two reasons: (1) they are teaching events (i.e. ostensibly marked pedagogical episodes) where an adult's intentional actions both highlight the presence of important social information (of which norms are a prominent part) and trigger active searching behaviors on the part of the infant. (2) They are emotional bonding events where shared movements are used to share emotions and mental states. As an object of emotional attachment, the caregiver embodies social/cultural values to which the infant also becomes emotionally committed. From early ritualized social interactions, infants and children extract general emotion-laden rules and expectations regarding how to behave toward both objects and people. The infant's emotional connection to these rules suggests that they carry an incipient moral "weight," upon which consciously understood reasons for their moral correctness can be added later. In other words, the moral significance that makes an attitude or behavior normative is first *felt* and this feeling is transmitted *ritualistically*. The more intellectual reasons for the normative status of an attitude or action are acquired later and it is here that language undoubtedly plays a more prominent role.

Ritualized infant-caregiver interactions involve formalized, exaggerated, attention-getting rule-based vocalizations (infant-directed speech) and gestures (motionese). In a series of recent studies, Gergely and Csibra (Csibra, 2010; Csibra & Gergely, 2006; Gergely & Csibra, 2005;

Southgate, Chevallier, & Gergely, 2009) have demonstrated that these actions serve as ostensive signals which attract and direct attention to the presence of socially important information. The ostensive signals they identify are eye contact, infant-directed speech, and contingent reactivity (turn-taking). These signals overlap considerably, if not perfectly, with the ritualized behaviors characteristic of early infant-caregiver interactions (Dissanayake, 2000; Reddy, 2008, pp. 52-55; Tronick, Als, & Adamson 1979). Furthermore, the deliberate, exaggerated, simplified actions (motionese) commonly used by adults when interacting with infants and children coincide with what Gergely and Csibra (2005 p. 479) identify as the ostensive manifestation of motor skills used when experts (such as adults) teach novices (such as infants and children) a new skill. Motionese is effective in drawing and maintaining an infant's attention when motor skills are being demonstrated (Brand & Shallcross, 2008).

Human infants appear to be especially sensitive to ostensive cues and use them as a basis for imitation. One of the most basic imitative behaviors dependent upon ostensive cuing is gaze-following. In gaze-following, the infant uses the adult's attentional focus as an indicator of where his/her own attention should be directed (Baldwin & Moses, 1996). However, infants as young as six months are significantly more likely to follow an adult's gaze shift when that shift is preceded by an ostensive cue such as direct eye contact or infant-directed speech (Farroni, Massaccesi, Pivitori, Simion, & Johnson, 2004). Once shared attention is established, ostensive cues continue to play a critical role in directing imitative behavior by signaling intentionality.

A number of studies have shown how the imitative behavior of infants and toddlers is "rational" in the sense that they copy what appear to be a model's intentional actions rather than accidental or circumstantially necessitated ones. For example, Carpenter, Akhtar and Tomasello (1998) had 14- and 18-month-olds watch an adult deliberately spin a wheel (while announcing

“There!”) then subsequently accidentally catch her hand on a lever which illuminate some lights (while announcing “Whoops!”). Later the infants reproduced the wheel spinning action but not the lever-pulling-light-illuminating action. Similarly, Schwier, van Maanen, Carpenter and Tomasello (2006) found that 12-month-olds would reproduce the means of getting a toy dog into a toy house (via the chimney), when it appeared to be freely chosen (the door to the house was wide open). However, infants used a more direct means of getting into the house (the door) if the means demonstrated by the adult (down the chimney) was circumstantially necessitated by the door being locked.

Infants imitate intentional acts and ostensive cues serve as indicators of intentionality. For example, Brugger, Lariviere, Mumme, and Bushnell (2007) had a model demonstrate both causally relevant and irrelevant acts to 15-month-old infants. The model lifted a latch that did (causally relevant) or did not (irrelevant) secure a lid on a box, after which the lid was opened. Researchers found that infants were more likely to imitate the latch-lifting, even when it was causally irrelevant, if the act was ostensively cued prior to it being demonstrated. The cueing involved establishing eye contact with the infant and verbally addressing him/her using infant-directed speech. The cueing advantage held true even when infants were equally attentive to the action in the non-cued condition. Thus, cueing and watching an irrelevant act led to imitation of the act, whereas simply watching the irrelevant act did not.

Gergely, Bekkering, and Király (2002) report a similar finding. They found that 14-month-olds were more likely to imitate an “irrational” act if the act appeared to be intentional. In a follow-up study (Gergely & Csibra, 2005), ostensive signaling was found to be critical to inferring intentionality. They exposed infants to a model who used her head to turn on a light (from Meltzoff, 1988). In one condition, the model’s hands were occupied (holding a blanket

tightly around her cold body) and thus using the head was rational. In the other condition, the model's hands were free and thus using the head to turn on the light seemed irrational (but obviously intentional). Results showed that imitating the head action was more likely to occur in the hands-free condition. This supported the hypothesis that infants do not blindly imitate, but instead imitate what appear to be intentional actions. Results also showed that infants were equally unlikely to imitate the head action when either the hands-free or hands-occupied conditions were presented incidentally. This supported the notion that in the absence of ostensive cues, the head action was no longer understood as intentional even in the hands-free condition.

Often the causally-irrelevant actions that infants and children imitate are ritual-like and by their very nature signal intentionality. For example, Lyons, Young, and Keil (2007) found that three- to five-year-olds would readily imitate stroking a feather on the side of a jar before removing the lid to retrieve an object. Similarly, Nielsen and Tomaselli (2010) found that two to 13-year-olds imitated rotating a stick three times on the top of a box or wiping a stick three times from front to back over a box before opening the box. Imitation of these actions persisted even after one group of children was allowed to discover how to open the boxes directly by hand (without using sticks). Thus, understanding that the stick motions were not *physically causally* necessary to opening the boxes failed to deter the children from reproducing the stick-rotating or -wiping actions. However, by virtue of their formalized, repetitious, rule-governed (thus ritualized) nature, the actions were obviously intentional and this compelled the children to treat them as somehow integral to box-opening. The Nielsen and Tomaselli study is also notable for the fact that some of children involved were Kalahari Bushman, demonstrating the culturally robust nature of over-imitation (imitating causally-irrelevant acts).

Finally, Southgate, Chevellier, and Gergely (2009) provide evidence that ostensive signals encourage recipients to adopt a “pedagogical stance” where they actively search for novel and relevant information from the sender. They showed 18-month-olds two ways of achieving the same outcome (a toy animal either slid or hopped into a house). The action sequence was always preceded by an ostensive signal (“Look, I’m going to show you what the [animal] does”). They found that infants were more likely to imitate the particular action style (hopping vs. sliding) if while observing the demonstration the infants already knew what the outcome was. In other words, for those who knew the outcome (animal goes into the house) the novel, relevant information occurring subsequent to the ostensive cue was the means of achieving the goal. For those infants who did not know the outcome, the entire action sequence (both means and outcome) was novel. Thus, they gave priority to the outcome – reliably imitating it but not the specific means.

Ritualized actions thus serve as ostensive signals indicating intentional behaviors that carry important social information. When a caregiver shows an infant how to use a spoon using exaggerated simplified gestures or engages the infant in a rule-governed proto-conversation using infant-directed speech, the caregiver is signaling to the infant the intention to communicate socially important information. Furthermore, these ritualized ostensive signals trigger the infant to adopt a “pedagogical stance” where the infant actively searches for novel and relevant information during the social exchange.

### **Imitation and the Acquisition of Social Rules**

Additional studies have shown that infants’ imitative learning resulting from an ostensively cued social interaction is not just an implicit motor procedure tied to a specific condition. Instead, infants’ learning possesses two additional qualities relevant to norm

acquisition: (1) it is generalized to an entire category of circumstances, and (2) it involves the acquisition of abstract rules, not just implicit motor procedures. These qualities are critical because social norms are generalized abstract rules about how one ought to behave under an entire category of circumstances (e.g. one should be respectful to all elders not just one's genetic relatives).

Lyons et al. (2007) showed that young children's imitation of causally irrelevant acts ("over-imitation") was highly robust occurring outside of the experimental situation after considerable delay and in the face of contrary social reinforcement. Two additional studies demonstrated similar generality of learning in much younger subjects and tied it directly to ostensive cueing (Casler & Kelemen, 2005; Gergely, Egyed & Király, 2007).

In the Gergely et al. (2007) study, for example, 14-month-olds watched as a model expressed either positive or negative emotions while interacting with an object (note: before interacting with the object, the model ostensibly cued the infant by looking directly at him/her with raised eyebrows and tilted head). Using a looking time measure, the researchers showed that once a certain emotional valence was associated with a particular object ("good object," "bad object") infants expected other adults to treat the object in accordance with that emotional valence. Thus, they were surprised if a different adult (not the model) approached a "good object" expressing negative emotions. The fact that infants tended not to make this same generalization in the absence of ostensive cues indicates that it is only when the ostensive signal is present that infants interpret emotional valence as a general characteristic of the object and not an idiosyncratic reaction tied to a specific individual or circumstance (Csibra, 2010).

Similarly, Casler and Kelemen (2005) found that once an adult had demonstrated that a certain tool was for a particular purpose, both two- and five-year olds expected it to be used only

for that purpose even if the tool's physical properties allowed it to be used equally well for a different one. Critically, they expected others (who were not privy to the demonstration) to use it only for that purpose as well. Thus, what infants and children learn from their ostensibly cued observations is that certain attitudes and behavioral dispositions apply generally to all people and situations of a relevant category.

Johnson, Dweck, and Chen (2007) report a similar finding using an habituation paradigm with securely and insecurely attached 12- to 16-month old infants. They presented videos to the infants where a "mother" geometric form either heeded her "child's" cries for attention or ignored them. Securely attached infants were surprised by the mother's inattentiveness, while insecurely attached infants were surprised by the mother's attentiveness. Thus, infants in this study appeared to assume that mothers, in general, should behave in a particular way toward infant distress.

Two other studies show that this general knowledge takes the form of abstract rules and not just implicit motor procedures (Kenward, Karlsson, & Persson, 2010; Williamson, Jaswal, & Meltzoff, 2010). Williamson et al. (2010) had three-year-olds observe an adult engaged in a sorting task. The adult took different items from a single pile and sorted them into separate containers either by color (a perceptually obvious quality) or the sound made when shaken (a perceptually non-obvious quality). Simply by observation, the children learned to sort objects on both the perceptually obvious and non-obvious criteria. Children, however, failed to correctly sort objects in two control conditions. In one, they were simply shown the end states achieved after sorting was completed (two piles of pre-sorted objects). In the second, they were shown the end states along with equivalent sorting movements (pre-sorted piles plus motor movements used when sorting). The authors argued that if the children simply learned a motor procedure there

would have been equivalent sorting performance in the end state plus motor movement condition since both the final sorted state and the motor movements used to achieve the state were modeled (the motor movements, however, did not actually produce a transformation in object groupings). Instead, children must have learned something more abstract relating to the transformational rule embodied in the sorting actions.

Kenward et al. (2010) offer further support for this finding. They found that young children's over-imitation was based on a flexible declarative belief and not a behavioral procedure. In this study, four and five-year-old children were shown how to use a stick to retrieve objects from a box. As part of the demonstration, the stick used to retrieve the items was first placed into a dial at the top of the box and the dial was rotated. When children were given an opportunity to retrieve items, nearly all executed the causally irrelevant act of turning the dial with the stick before using the stick to retrieve the items (thus demonstrating over-imitation). To determine if the over-imitation was the result of a flexible declarative belief or an implicit procedural rule, the experimenters ran a second condition where before handing the stick to the child the experimenter placed the stick in the dial and turned it. Once given the stick, most of the children proceeded to use the stick immediately to retrieve items from the box, thus demonstrating that they understood that the dial-turning needed to be done, but not necessarily by the child.

This, the experimenters argued, was more compatible with the idea that the child's over-imitation was due to a flexible declarative belief ("the dial must be turned before retrieving the items") rather than an implicit procedural rule ("execute the motor routine of putting the stick in the dial and turning, then insert the stick in the box"). Thus, the child understood that the

irrelevant act was necessary (though the child did not know why) but it did not have to be done by the child himself.

The Kenward et al. (2010) study specifically implicated norm-learning in children's tendency to over-imitate. Their study found little evidence supporting the notion that children suffered from distortions of causality (incorrectly thinking that the irrelevant behavior was causally efficacious). Only 10% of children reported that the irrelevant act caused item retrieval (this proportion increased, however, as tasks became more complicated and the causality of actions less clear). Instead, their findings supported the hypothesis that children over-imitate because they believe that a clearly intentional behavior ought to be reproduced even if that behavior's causal relevance is unclear. It is this assumption that an action "ought to be done" even in the absence of a clear reason why that implicates norm-learning. Norms are actions done simply because they ought to be in order to please to others.

In sum, the studies reviewed so far indicate that ritualized infant-caregiver interactions and skill demonstrations involving motionese are teaching events where ritualized behaviors serve as ostensive cues marking intentional acts. Intentional acts drive imitation and imitation reflects the acquisition of social rules. These rules provide information about behaviors that "ought" to be executed under a general category of circumstances.

The next sections provide more evidence of the acquisition of social rules, while adding a second critical element: the emotional investment infants and children make in both following and enforcing rules. Infants respond to rule violations with distress and emotional protest. The basis for this emotional attachment is found in the very nature of ritualized infant-caregiver interactions – they are not just pedagogical events, but also powerful emotional bonding events.

### **Ritualized Caregiver-Infant Interactions as Emotional Bonding Events**

Early ritualized infant-caregiver interactions are powerful emotional bonding events (Bruner, 1999; Stern, 1985; Tronick, 1981). Infants become emotionally bonded to their caregivers and to the social rules they embody. This is critical to effective norm transmission because norms are not cold, detached rules of conduct. They are emotionally charged behavioral “oughts” that people are intrinsically motivated to follow. The deep emotional bonding present in infant-caregiver interactions is an outgrowth of our species’ unique capacity for cognitive and emotional sharing.

Among humans, infant-caregiver interactions involve both proto-conversational “turn taking” and joint attention (where infant and caregiver share attention on a third object such as a toy). These features are very likely unique to humans. Evidence for both joint attention and proto-conversation in nonhuman apes is weak (Bard & Vauclair, 1984; Carpenter, Tomasello, & Savage-Rumbaugh, 1995, Tomonaga et al., 2004). While infant chimpanzees can follow another’s gaze (Okamoto, Tomonaga, Ishii, Kawai, Tanaka, & Matsuzawa, 2002), their ability to translate this into bouts of joint attention or proto-conversation is limited at best, possibly non-existent (Carpenter et al, 1995; Tomasello & Carpenter, 2005; however see Plooij, 1984, p. 142).

The behavioral turn-taking found in proto-conversation involves interpersonal synchrony where gestures and vocalizations are coordinated in time. Greater interpersonal behavioral synchrony has been shown to create positive emotions between participants (Hove & Risen, 2009). The positive emotions generated within ritualized infant-caregiver interactions are but one element of a larger uniquely human cognitive/emotional sharing that also includes shared attention, intentions, and goals (Tomasello, Carpenter, Call, Behne, & Moll, 2005).

For example, if a caregiver and infant are playing with a toy, then the toy (and not other things in the room such as diapers, baby wipes, etc.) is the object of their shared attentional state. If the caregiver begins reaching for the diaper-changing equipment, baby very likely breaks attention away from the toy and begins looking for the wipes and moving to the changing table. Furthermore, through social referencing infants use their interactions with caregivers to regulate their emotional states by bringing their state into conformity with the caregiver (Haviland & Lelwica, 1987). Thus, unlike other apes, human infants are strongly motivated to establish a common cognitive/emotional ground with others – “What are *we* paying attention to?” “What activity are *we* engaged in?” “How do *we* feel about this?”

Over time, shared attention and shared emotional states are augmented by shared intentions and goals as social games (e.g. peek-a-boo) and other more sophisticated interactions emerge. Even very young children understand the cooperative roles required to complete a task or play a game and protest when a partner fails to fulfill his/her role – something chimpanzees never do (Warneken, Chen, & Tomasello, 2006). It is this jointly-committed, “we” form of cognition (shared emotions, goals, intentions, etc.) that composes the ontogenetic basis for the shared ideas, history, customs, and institutions of adult social life – of which norms are a part.

This deep cognitive/emotional intimacy between infants and caregivers means that infants become emotionally committed not just to the person of caregiver, but to the embodied cultural values of the caregiver as well. Thus, violations of caregiver’s embodied “social rules” can be as emotionally distressing to the infant as personal rejections.

### **Emotional Attachments to Social Rules**

One of the first rules that infants extract from their early social interactions is that face-to-face encounters should involve mutual turn taking. Violating this rule causes infant distress.

Evidence for this has been found in the classic “still face” studies. By two months of age infants are already engaging in proto-conversations with their caregivers (Hobson, 2004, pp. 33-39; Reddy, 2008, pp. 71-82). These reciprocal turn-taking exchanges follow a general script and infants develop behavioral expectations based on that script. In the “still-face” paradigm, after the caregiver has established a turn-taking interaction with the infant, she assumes a non-responsive emotionally blank facial expression (Ross & Lollis, 1987; Tronick, 2003; Tronick, Als, Adamson, Wise, & Brazelton, 1978). The effect has been repeatedly described as “dramatic” (Hobson, 2004 p. 36; Reddy, 2008, p.73). The infant’s mood quickly switches from spirited chattiness to sober unease. The infant will often look away, then attempt to reengage the caregiver with a wary smile. When these attempts fail, the infant withdraws entirely. Tronick et al. describe the typical reactive sequence as sobering, wariness, checking, and eventual withdrawal, with greater agitation occurring when the still face remains oriented toward the infant. The situation is distressing to the infant not just because of the caregiver’s unexpected unresponsiveness but because it violates “conversational” rules (Beebe & Lachman, 1998; Tronick, et al., 1978).

That rule violation lies behind the infant’s reaction to the still face has found support in studies using video mediated interactions between mothers and infants (Murray & Trevarthen, 1985; Nadel, Carchon, Kervella, Marcelli, & Reserbat-Plantey, 1999). In these studies, mothers and infants see and hear each other on live video displays. However, after a turn-taking interaction between the two is established, a delay is introduced such that the mother’s gestures and vocalizations are no longer synchronized with those of her infant. The point of this is to determine if the infant’s distress to the still-face disruption is due to the mother’s

unresponsiveness or the “oddness” of her behavior, or if it is because of a perceived violation of conversational rules.

In the time-delay manipulation, the mothers continue to be responsive to their infants and their faces remain oriented toward their infants with smiles and positive vocalizations. Thus, the mothers are not emotionally rejecting their infants. However, the mother’s behaviors are no longer properly coordinated with their infants – the “turn taking” is disrupted. Again, infants as young as two months detect the change by demonstrating fewer smiles, more looks away, more closed mouth expressions, and more general puzzlement and confusion. Thus, it is not just the mother’s unresponsiveness or her failure to orient toward the infant that causes the infant’s distress. It is her failure to conform to the expectation of contingent behavioral exchange – an expectation which the infant has already acquired by two months of age (see also Reddy, 2008, pp. 75-76).

Infants’ social expectations are further influenced by the qualitative nature of their ongoing interactions with their caregivers. For example, whether turn-taking interactions should involve the sharing of emotional states (“affective sharing”) depends on how involved and emotionally sensitive the caregiver is during infant-caregiver interactions. This was demonstrated in a study by Legerstee and Varghese (2001) where mothers were rated on “affective mirroring” during interactions with their infants. Affective mirroring involved three components: (1) the degree to which the mother actively encouraged the infant’s maintenance of attention by making reinforcing comments or questions (“are you looking at your toes?”), (2) the degree of warmth and sensitivity the mother displayed during social interactions, and (3) the degree of social responsiveness the mother displayed by imitating the infant’s smiles and vocalizations and modulating the infant’s negative emotions.

Results showed that infants whose mothers were high in affective mirroring were more emotionally sensitive to contingency in social interactions. When their mothers' responses no longer followed the rules of turn taking, they both detected this change (by gazing less at mother) and reacted negatively to it by reducing their smiling and cooing at mother. By contrast, infants whose mothers were low in affective mirroring detected their mothers' rule violations (they gazed less at mother), but showed no change in smiling or cooing. The researchers argued that infants of high affective mirroring mothers had developed an expectation that contingent social interactions should include affective sharing. When this expectation was violated they emotionally protested. But no such expectation was present for infants of low affective mirroring mothers. Thus, relational history plays an important role in the kinds of social expectations the infant develops.

This study has been complemented by another (Main & George, 1985) where one- to three-year-olds were observed for their reaction to peer distress. Half of the observed infants/toddlers were from abusive homes and half were not. While children from non-abusive homes gave the typical empathic reaction to peer distress (attention to the distressed peer, expressions of concern, acts of comfort), those from abusive homes typically showed no empathic concern and instead often reacted with anger, threats, and physical confrontation. These infants appear to have formulated social expectations based their past relational histories with their caregivers ("those in distress should be comforted," or "those in distress should be chastised") and their emotional reactions clearly aligned with these expectations.

The tendency to swiftly acquire and then vigorously enforce social rules has been studied both naturalistically and experimentally. Edwards (1987) analyzed over 100 naturalistic observations of Oyugis (Luo-speaking native Kenyans) children and their domestic caregivers

and concluded that by two and a half children were already active enforcers of social rules. This was true even though children were never specifically instructed to enforce rules. Instead, they were usually taught only what the rules were. Rakoczy and colleagues (Rakoczy, 2008; Rakoczy, Warneken, & Tomasello, 2008; Rakoczy, Brosche, Warneken, & Tomasello, 2009) report similar findings using laboratory procedures. In their studies, preschoolers learned the rules of simple games. Results showed that children quickly acquired the normative structure of the games and vigorously protested rule violations.

For example, Rakoczy, Warneken, and Tomasello (2008) had two- and three-year-olds play a game where two behaviors were demonstrated, each of which achieved the game's goal of getting an object into a hole. However, one of the actions was clearly labeled as part of the game and the other was not. Later, if another tried to achieve the game's goal using the behavior that was not labeled as part of the game, the children spontaneously and strongly protested, producing both normative protests ("No! It does not go like that") and indicative protests ("No! Don't do it that way"). Interestingly, children did not protest if prior to engaging in the rule-violating behavior the player made it clear that she was not intending to play the game but instead simply wanted to "do something" with the game materials. This shows that children were not only highly sensitive to the normative structure of the game, they also understood when that structure was applicable and when it was not. Other studies have produced similar results (Rakoczy, 2008; Rakoczy, Brosche, Warneken, & Tomasello, 2009).

These studies are notable for how rapidly and easily children extracted normative content from simple observation and how vigorously children enforced the rules once they were understood (see commentary by Tomasello, 2009 p. 38). While all of these studies included verbal directions pertaining to game procedures, Schmidt, Rakoczy, and Tomasello (2011) have

recently shown that intentional actions alone (without any normative language) are sufficient for children to both acquire norms and protest against their violation. They exposed three-year-olds to an adult model performing certain actions on objects, such as taking building blocks and pushing them across a board with another object. In one condition the adult performed the actions with gestures and non-linguistic expressions indicative of confident familiarity (signaling that the actions were the “right” ones for the given objects). In another condition the adult’s gestures and expressions indicated that the actions were improvised with uncertainty “on the spot.” Children were significantly more likely to both imitate the actions and protest against improper reproductions of them in the first condition. The authors argued that the intentionality of action was critical to the children’s assumption of its normativity.

#### **Anthropological Observations: Fitting in with one’s Culture.**

The effectiveness of a ritualized action in transmitting normative content is that it reliably displays intentionality within a context of powerful emotional bonding. These qualities ensure that attention is drawn to critical social information and that information is endowed with strong motivational significance. For infants and children especially, early ritualized interactions provide them with crucial information about how to please their caregivers and gain acceptance from family and kin. Establishing this love and acceptance is essential for survival.

Anthropological observations suggest that variations in early infant-caregiver interactions may be related to the inculcation of culturally appropriate behavioral traits and dispositions. These observations, however, are not experimental studies and should be interpreted cautiously.

Furthermore, in some instances the authors’ interpretations may be unnecessarily value laden.

From their earliest interactions with their mothers and other adults, infants learn how to please others by displaying culturally appropriate traits. For example, Bateson and Meade (1942)

noted that interactions between Balinese mothers and their infants were characterized by short-interval abruptly terminated encounters rather than extended exchanges. These encounters were typically initiated and ended by mothers, often seemingly sooner than what infants would have preferred. Bateson and Meade argued that this produced a “sense of distrust” in children which they associated with what they termed the “flat affect” characteristic of Balinese adults (p. 32 also see discussion in Goldschmidt, 1997 p. 236). Goldschmidt (1997) reported a related finding among the Sebei of Uganda, where his observations suggested that direct eye contact during mother-infant interactions was far rarer than what occurs in Western households. This, he suggested, played a role in what he interpreted as the “emotional disengagement” characteristic of Sebei social relationships (p. 237). He argued that this characteristic was also apparent in Sebei ritual life, where he noted a general reluctance to aggrandize Sebei society or social institutions.

Kilbride and Kilbride (1974, pp. 299-300) describe how among the Baganda (or Buganda) of Uganda self-control and deference to superiors are social expectations. This is reflected in early mother-infant social interactions where mothers insistently sought to elicit smiles from their infants. In addition, mothers also required their infants to sit up far more often than what is observed in Western and other households. This appeared to be related to a ritual that all three-month-olds participated in where sitting up during the ceremony was required in order to establish the child’s legitimacy and clan affiliation (Kilbride & Kilbride, 1974; Kilbride, Robbins, & Kilbride, 1970).

Goldschmidt’s observations of the Yurok (Native Americans) of the Northern California coast led him to conclude that self-control, industriousness, and ambitiousness were among their cultural values (Goldschmidt 1951, pp. 515-517). Erikson (1943) sought to associate these values

with their child rearing practices. While his hypothesis that toilet training was critical to the development of the Yurok personality was not confirmed, he did note other features of early mother-infant interactions that presumably were more connected to it. For example, new mothers were forbidden from breast-feeding their infants for the first ten days after birth and children were weaned much earlier than typical among similar Native American tribes. In addition, mother-infant interactions featured considerable amounts of rubbing and encouragement of movement and activity.

### **Infant-Caregiver Interactions: Summary and Proposal**

Based on the evidence just reviewed, the following is proposed: Ritualized action signals intention, intention guides imitation, and imitation reflects the acquisition of abstract, generalized social rules. These social rules carry with them an emotional commitment making them a fertile foundation upon which consciously articulated social norms can be based.

Laid out in somewhat more detail this proposal takes the following form:

1. Early infant-caregiver turn-taking interactions are ritualized interactions, rich in ostensive signaling and emotional bonding.
2. The intentionality inherent in these interactions guides infants' and children's imitative learning.
3. Infants' and children's learning reflect the acquisition of emotionally-charged social rules which form the affective foundation upon which consciously articulated norms can be based.
4. Acquiring, enacting, and enforcing these rules allow infants and children to please others and gain social acceptance in their cultures.

### **From Ritualized Behavior to Ritual**

As infants mature, language becomes more prominent in transmitting rules of conduct. However, as pointed out earlier, even young children interpret linguistic directives in light of relevant actions. Intentional actions serve a credibility-ensuring role for linguistic messages. Over the course of childhood, ritualized interactions continue to be a primary venue for signaling intentionality, such as when adults demonstrate behavioral skills to children using motionese. However, ritualized interactions increasingly become incorporated into full-blown rituals.

As discussed earlier, ritualized behavior and ritual are different. Over the course of their development, children move from the intimate world of ritualized interactions with caregivers to the larger world of family and community rituals. Rituals, both familial and communal, are a human universal (Fiese, 2006; Helman, 1994). These rituals incorporate ritualized behaviors and therefore share the intentionality and emotional bonding aspects of infant-caregiver interactions. However, family and community rituals differ from ritualized infant-caregiver interactions in three important ways: (1) they augment the emotional bonding function through scale magnification and symbol incorporation, and they add the additional functions of (2) the signaling of value commitments and (3) the representing and reminding of social values and norms.

#### **Rituals as Emotional Binders**

Infant-caregiver interactions are intimate, interpersonal exchanges where shared movements and mental states emotionally bind participants. Adult community rituals can emotionally bind participants as well; however, they can do so on a much grander scale. It is not uncommon that adult community rituals might include tens to thousands of people engaged in group singing, dancing, chanting, and marching. This can make these rituals powerful emotional

experiences. For an attitude or action to maintain normative status it must sustain its emotional grip on community members. The symbolic elaboration and scale magnification of adult rituals make them effective at both representing social norms and emotionally binding people to them. Thus, the ritualized context remains essential for reinforcing a social norm's moral status in the adult community.

A unique feature of human rituals is group mimesis. Group mimesis is where individuals synchronize and coordinate their actions together as in group dancing, chanting, or marching (Donald, 1991 p. 175-176). Moving in synchrony is present among nonhuman animals. For example, fireflies sometimes synchronize their flashing (Buck, 1988), frogs chorus their calling (Wells, 1977), and male fiddler crabs wave their claws in synchrony (Blackwell, Jennions, & Passmore, 1998). In most instances, however, this behavior is not cooperative but competitive – individual males seeking to attract females (Blackwell et al., 1998; Greenfield & Roizen, 1993). Cooperation may be present in some instances where groups of males act together to increase their signal strength in competition with other male groups (Buck & Buck, 1978; Wells, 1997). However, the phylogenetic distance of the creatures involved (crickets, fireflies, frogs, etc.) from humans suggests that if cooperation is truly present, it is probably implemented using different mechanisms from those found in humans (i.e. without emotional bonding among participants).

Among our primate relatives, the call-and-response duets of mated gibbons reflect a behavioral coordination that may serve to strengthen pair bond stability (Geissman, 2000; but see Brockelman, 1984), and/or territorial defense (Farabaugh, 1982; Mitani, 1985). A similar type of pant-hoot chorusing occurs in chimpanzees (Mitani & Brandt, 1994). However, moving in synchrony is rare, possibly nonexistent. A number of researchers have noted that among primates only humans seem capable of entraining their movements to a shared rhythm (Atran, 2002, p.

171; Brown, Merker, & Wallin, 2000; Williams, 1967). Kohler (1927, pp. 314-316) found that with some human assistance, his captive chimpanzees could march together to a rough beat, and bonobos occasionally synchronize their hooting calls (de Waal, 1988). But it seems that only in humans have these incipient capacities for shared movement been consciously cultivated into powerful exercises in group ritual. These shared movements are known to create powerful emotional bonding among participants leading to greater empathy, affection, and cooperativeness (Hove & Risen, 2009; McNeill, 1997; Wiltermuth & Heath, 2009).

People that move together emotionally bond together. Historian William McNeill has written extensively about how rhythmically regulated group actions such as group dancing, chanting, or marching produce a euphoric mental state and a “muscular bonding” among participants that serve to enhance group cohesion and cooperation (McNeill, 1997).

Experimental studies confirm that group coordinated and synchronized activities produce greater cooperativeness and endurance facilitating the achievement of collective goals (Cohen, Ejsmond-Frey, Knight, & Dunbar, 2010; Wiltermuth & Heath, 2009). Furthermore, these activities are linked to physiological changes such as the release of endogenous opiates and correlated patterns of ANS activation and deactivation (“linkage”) which are hypothesized to form the physiological basis for empathy (Frecka & Kulcsar, 1989; Keverne, Martinez, & Tuit, 1989; Levenson, 2003).

Emotionally compelling ritual promotes a strong sense of group identity. Examples of this is can be found where stressful initiation rites produce strong commitments among fictive “brothers” and “sisters” or the repetition of military drills creates a passionate sense of duty among soldiers (Aronson & Mills, 1956; McNeill, 1997, p. 3-4; 30; Mills & Mintz, 1972). In some instances, these emotional bonds become strong enough to motivate an extreme form of self-sacrificial norm following called parochial altruism. Parochial altruism refers to making

personally risky or even fatal sacrifices in service to one's in-group against perceived out-group members (such as suicide bombing).

Recently, Ginges, Hansen, and Norenzayan (2009) completed a comprehensive cross-cultural study addressing the role of ritual in parochial altruism. They found that positive assessments of parochial altruism grew as one's ritual participation increased. Researchers surveyed Palestinian and Indonesian Muslims, Mexican Catholics, British Protestants, Russian Orthodox Christians, and Indian Hindus and consistently found that ritual participation, and not personal devotion, served as a significant predictor of greater positive regard for parochial altruism. Furthermore, using an experimental priming paradigm, researchers found that when Jewish Israelis were primed about synagogue attendance they were more likely to give positive assent to a single act of parochial altruism (Baruch Goldstein's 1994 attack on a mosque). The authors concluded that the relationship between religion and inter-group violence was less a matter of devotion to religious beliefs and more one of an intense group commitment based on collective ritual activity. They further noted that these collective activities were not necessarily restricted to religion as social/political movements often make use of them as well (e.g. the Tamil Tiger resistance fighters in Sri Lanka).

### **Rituals as Signals of Value Commitments**

Ritualized infant-caregiver interactions involve ostensive signals that draw attention to important social information. The same is true of adult rituals. In both cases, the ritualized actions point to something about the actor's state of mind. In infant-caregiver interactions, ostensive signals indicate intentionality – that is, that a behavior is being done purposefully, even if the purpose is unclear. In the adult context, however, the state of mind ostensibly signaled

usually goes beyond just intentionality and entails a commitment to the norms and values of the group.

For example, consider an Orthodox Jew praying at the Wailing Wall. What would motivate someone to endure hours of ritualized public prayer in the stifling summer heat dressed in a heavy dark coat and fur hat? At one level the answer seems obvious – the individual is highly devoted to his religion and his God. On another (not necessarily mutually exclusive) level, the answer is that the burden of the ritual itself serves as a potent *public signal* of the individual's commitment to his religion and his God. He is committed enough to engage in a costly overt act that clearly sets him apart from mainstream society. This costly display of commitment gives credibility to any verbal claims he might make of being of good norm-following Jew. If he is following the ritual “rules,” he is probably following all the rules. Anthropologist Richard Sosis has done considerable work situating ritual signals within the larger theoretical framework of costly signaling theory (Sosis, 2004; 2006).

Costly signaling theory is based on the notion that for reliable communicative signals to evolve those signals must be hard to fake otherwise recipients will ignore them (Sosis & Alcorta, 2003; Welch, Semlitsch, & Gerhardt, 1998; Zahavi & Zahavi, 1997). For example, a male frog wishing to signal his robustness to local females might do so using a loud long croak. However, if loud long croaks can be easily produced by weakling males, then there is no reason why females should evolve to accept such a signal as informative of the male's health status. As it turns out though, a loud long croak is metabolically expensive for such a small bodied creature and weakling males generally cannot produce croaks with the same intensity as healthy males. Thus, loud long croaks effectively serve as reliable signals of robustness specifically because

they are costly to produce. Females listen judiciously to male croaks to determine who among the local males offers the best genetics (Welch, Semlitsch, & Gerhardt, 1998).

Sosis' research (Sosis, 2006; Sosis & Bressler, 2003; Sosis & Ruffle, 2003) shows that religious rituals often serve as effective signals of commitment to the religion's norms of behavior. For example, Sosis and Ruffle (2003) compared religious and secular kibbutzim members using an adapted "public goods" paradigm where members were given an opportunity to withdraw money from a common pool. Though participants could potentially keep the money they withdrew, the money left in the common pool was augmented by the experimenters such that a greater reward for all could be reaped in the end if a substantial sum remained there. The game modeled actual conditions in the kibbutzim where members routinely made decisions about the allocation of common resources such as food, water, electricity, and transportation. In terms of group norms, the game tested the extent to which members followed highly valued norms of self-restraint and sharing.

Results showed that, in general, religious kibbutzim members withdrew significantly less money than their secular counterparts. However, this difference was largely due to the self-restraint shown specifically by male members of the religious kibbutzim who withdrew significantly less than religious females and secular males and females. Religious males are required to engage in public ritual practices such as thrice daily prayer, something not required of religious females or seculars. Indeed, the authors found that the frequency of ritual activity among the religious males negatively correlated with the amount withdrawn from the common pool. In other words, the more the males attended synagogue and prayed, the more they followed the norm of self-restraint. In fact, those religious males who did not reliably attend daily prayer withdrew just as much as religious females and secular subjects (Ruffle & Sosis, 2007).

Thus, public prayer served as a reliable indicator of one's commitment to the beliefs and tenets of Orthodox Judaism. Failing to live up to those standards would have severely injured one's reputation. In other studies, Sosis has found that religious communes have greater longevity than secular ones (Sosis & Alcorta, 2003; Sosis & Bressler, 2003). Among the religious communes, increased longevity was predicted by the degree of costly ritual obligations required of commune members (e.g. giving up all personal possessions, abstaining from certain foods, frequent attendance at ritual activities, etc.). Put simply, the more costly the rituals, the longer-lived the commune. This again is consistent with the notion that the rituals served as signals of commitment to commune values.

Historical evidence lends further support to costly signaling theory. Ensminger's (1997) analysis of the spread of Islam in Africa attributes much of its success to its ability to create a trusting economic environment. This trust allowed co-religionists to create profitable commercial trade relationships whose benefits outweighed the costs associated with religious conversion. The high ritual costs associated with Islam (fasting, daily prayer, abstinence from alcohol, etc.) discouraged those unwilling to live up to Islam's tenets of honesty, reliability, and trustworthiness from joining. The formation of commercially beneficial relationships (even among strangers) was facilitated if outward signs of devotion to Islam were displayed. Those displaying the ritual signs could be trusted, thereby promoting trade and economic development. Profits and Islam expanded together. In more recent times, Iannaccone (1994) has documented how the most flourishing churches in America have been those with the most demanding requirements – this at a time when more liberal denominations have been steadily losing membership.

The signaling value of rituals can be moderated or even eliminated when the ritual is not highly valued by the community (Rappaport, 1999; Ruffle & Sosis, 2007). This may help to explain why some rituals, especially secular ones, are not always associated with greater norm following (e.g. Orbell, et al., 1992; Ruffle & Sosis, 2007; Sosis & Bressler, 2003). For example, unlike religious communes, among secular communes no connection has been found between costly requirements and longevity. Similarly, in secular kibbutzim, participation in public activities (song and dance evenings, kibbutz meetings, lectures, study groups, etc.) was not associated with greater self-restraint in the public goods game. It appears that if the ritual is not seen as imposing some cost, its signaling value will itself be discounted (Henrich, 2009). Thus, just as Rappaport observed that talk could be “cheap,” rituals can be “cheap” as well if they are seen as being too “easy.”

In sum then, ritualized actions signal something about an individual’s state of mind. Among adults, costly rituals signal belief commitments. These rituals are argued to impose a heavy enough burden to deter uncommitted individuals from trying to fake commitments, thereby filtering out those who, in a pinch, really aren’t going to live up to the norms of the group.

### **Rituals as Representations and Reminders**

Adult rituals share with infant-caregiver ritualized interactions both the signaling and emotional binding features. However, the elaborate symbolic and ceremonial aspects of adult rituals add representational and reminding functions that are largely unique. The representational function refers to the fact that ritual can represent an idealized form of the human social world and its behavioral norms. The reminding function refers to the fact that rituals serve as memory cues helping to bring to mind the values and behavioral standards of the group.

As formalized signals, ritualized behaviors in animals are generally controlled by external outcomes and acquired using basic learning principles (Tomasello, 1999, pp. 31-36; 2008, pp. 22-23). By contrast, human rituals (often) are decoupled from outcomes and are instead focused on the execution of the ritual act itself. Catherine Bell (1997, p. 166) encapsulates this critical distinction by saying that for humans ritual is "...the simple imperative to *do* something in such a way that the doing itself gives the act a special or privileged status." Likewise, Fritz Staal (1975) contends that the rule-governed nature of ritual distinguishes it from ordinary behavior. In ordinary behavior results are paramount and variability is permissible if an equivalent result is achieved. But in ritual, variability is forbidden as the action itself *is* the result.

By isolating specific actions and treating them as ends themselves apart from any instrumental goal they produce, ritualized actions become representations – that is, they represent idealized forms of how something should be done, and that form carries important meaning. For example, in playing a bugle one has to raise and lower the instrument to one's mouth. In a military funeral, however, raising and lowering the instrument must be done in a specific, highly disciplined way. While this ritualized way of handling the bugle puts the instrument into proper playing position, its real point is to signal respect for the deceased veteran. The ritualized action is an end unto itself; that end being the representation of a social norm – respect for the dead. As religious historian Jonathan Z. Smith argues, ritual portrays the idealized way that things in the world should be organized against the backdrop of real life which is always threatening to collapse into chaos (Smith, 1982, pp. 64-65). Ritual is an opportunity to reflect on "what is" and "what ought to be."

Through idealized action, ritual can represent social norms. A norm such as respecting elders is ritually enacted by bowing. A norm such as "marital fidelity" is idealized and enacted

by an exchange of rings. By idealizing and representing norms, rituals serve to remind people of norms. Each time someone engages in or witnesses a ritual, that person is seeing a culture's important values enacted before them. By enacting values and normative standards, those values and standards are reinforced and brought to mind.

Anthropologist Harvey Whitehouse (2002) argues that religious rituals exist in two modes: doctrinal and imagistic – both of which trigger particular forms of memory. The doctrinal mode involves frequent, repetitive rituals that produce only modest levels of emotional arousal. Regular church, synagogue, and mosque services typically fall into this category. While doctrinal rituals are subject to tedium, they are, nevertheless, effective mechanisms for enacting and transmitting the fundamental tenets of the faith. For example, the Catholic Mass involves a ritualized re-enactment of Jesus' Last Supper – an ongoing reminder of Jesus' suffering and sacrifice. Doctrinal rituals thus cue semantic memory where meanings and concepts are stored in a schematic, depersonalized format.

By contrast, imagistic rituals are infrequent and more emotionally arousing. Weddings, funerals, rites of initiation fall into this category. By virtue of their visceral impact and their association with personal transformational events, imagistic rituals engage episodic memory where highly contextualized and personalized memories are stored. Whether doctrinal or imagistic, rituals involve memory. Attending someone else's wedding may bring back memories and emotions pertaining to one's own. Going to church may remind one of the importance of forgiveness or the evils of self-indulgence.

Indeed, there is evidence that religious reminders (both implicit and explicit) can produce greater conformity to religious norms of behavior. In one study, subjects subliminally primed with religious concepts such as "God," "spirit," and "sacred," were found to be significantly

more generous in the dictator game compared to unprimed subjects (Shariff & Norenzayan, 2007). Equally as generous as the religiously primed subjects were those who were primed with secular references to legal or moral enforcement such as “court,” “jury,” or “police.” The authors suggest that the power of the primes was in their ability to unconsciously trigger cognitive mechanisms sensitive to the potential for judgmental public scrutiny. In other words, the subjects were implicitly reminded of the possibility that powerful others (God or the police) could be watching and judging their actions.

Similar priming effects have been found for a number of other pro-social measures. For example, compared to control subjects, those primed with religious or supernatural concepts have been found to be more honest (Randolph-Seng & Nielsen, 2007), more willing to distribute pamphlets promoting charity (Pichon, Boccato, & Saroglou, 2007) and more cooperative in both the prisoner’s dilemma and dictator games (Ahmed & Salas, 2008). Finally, McKay, Efferson, Whitehouse, and Fehr (2010) showed that those who recently contributed to a religious organization were more likely to engage in costly punishment of those who violate norms of fairness when subliminally primed with religious concepts.

Explicit reminders can have the same effect. Behavioral economist Dan Ariely and colleagues conducted an experiment where participants were provided with both a monetary incentive and ample opportunity to cheat on math problems (Mazar, Amir, & Ariely, 2008; see also Ariely, 2008 pp. 206-208). Prior to solving the math problems, some of the students were asked to recall the names of ten books they had read in high school, while another group was asked to recall the Ten Commandments. Those who recalled ten books showed evidence of having cheated. Those who recalled the Ten Commandments did not. As with any study involving explicit reminders, this study could be criticized for demand characteristics – simply

by referencing the Ten Commandments, subjects may have surmised that morality was under study and consequently they put on their best moral “face.” However, the fact that similar effects can be obtained *implicitly* indicates that demand characteristics alone are not a full explanation for the results (Ahmed & Salas, 2008; Randolph-Seng & Nielsen, 2007; Shariff & Norenzayan, 2007). In other words, subjects in implicit priming studies have demonstrated the same pro-social behavior but without any awareness of the theoretical nature of the study.

Thus, ritual may produce greater conformity to social norms simply by cuing those values repeatedly in memory. This fits well with “self-categorization theory,” a long-standing idea in social psychology (James, 1890; Turner, 1985; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). According to this theory, individuals belong to multiple social categories (e.g. ethnicity, profession, religion, gender, etc.) each with its own set of norms. A person’s behavior at any given moment is likely to be driven by the categorical norms most salient at the time. Thus, if something in the environment reminds one that he or she is a “doctor” then the behavioral norms associated with the Hippocratic oath are more likely to be followed. Regular ritual participation keeps certain norms more readily accessible to the mind, thus making them more likely to affect behavior.

### **Family Rituals**

The ritualized turn-taking interactions of infants and their caregivers seem far removed from adult community rituals such as weddings, award banquets, and presidential inaugurations. But ritualized infant-caregiver interactions are also emotionally-engaging teaching events. Emotionally-engaging teaching events incorporating ritualized actions continue throughout childhood and adolescence. They can be found in instances where an adult or coach

demonstrates behavioral skills to a child using motionsese. Even more importantly, they are present in the rituals and routines associated with family life.

### **Defining Family Rituals and Routines**

Family rituals are defined as “repetitious, highly valued, symbolic social activities that transmit the family’s enduring values, attitudes, and goals” (Schuck & Busy, 1997 p. 478) and serve as the essential “core of the family culture” (Bossard & Boll, 1950 p. 11). In addition, family rituals are typically characterized by an “affective commitment ... that provides feelings of belonging and knowing that [one fits] in” (Fiese, 2006, p. 10).

These activities depart from infant-caregiver ritualized interactions in that they often involve greater symbolism and language plays a more prominent role. However, they are consistent with infant-caregiver interactions in that they involved formalized, attention-getting, repetitious, rule-based activities. For example, a birthday ritual takes mundane food serving and eating activities and formalizes them into a strict attention-getting sequence – the “ceremonial” placing of the cake on the table, the singing of “happy birthday,” the blowing out of the candles, the serving of the cake with the first piece going to the birthday child, and so forth.

Rituals are universal among families and can be categorized into three types: (1) family celebrations, (2) family traditions, and (3) daily rituals (Wolin & Bennett, 1984). Family celebrations are highly organized activities that are fairly standard across culturally similar families usually associated with religious and secular holidays (Christmas, Thanksgiving) or rites of passage and transition (baptism, graduation). Family traditions are moderately organized activities which are less culturally specific than celebrations and more idiosyncratic to specific families such as vacations, visiting relatives, and family reunions. Daily rituals are patterned family interactions that are highly family-specific in form but more frequent than celebrations or

traditions. These would include repetitive behaviors associated with sleeping (bed time rituals), eating (dinner rituals) or welcoming and parting.

Rituals are distinct from routines only by the degree of meaningfulness to those involved. Routines are more purely instrumental (doing the dishes, making the bed, etc.) and more specifically involve activities that family members have to do rather than want to do. However, similar to the fuzzy border between conventions and norms, routines and rituals overlap. A routine can become a ritual if the family endows it with special meaning, such as using the “cleaning up after dinner” routine as a way of teaching about teamwork and sharing responsibilities. Conversely, rituals can become routines when they are perceived as having lost their meaning or having become too burdensome, such as when visiting relatives becomes an onerous duty (Boyce, Jensen, James, & Peacock, 1983). Furthermore, some regular activities may have both routine and ritual elements. Mealtime may have routine, not-very-meaningful actions (setting the table), combined with ritualized meaningful ones (seating arrangements, saying grace; Spagnola & Fiese, 2007).

### **The Socializing Function of Family Rituals and Routines**

Spagnola and Fiese (2007, p. 287) argue that “family routines and rituals provide a structure for the socialization of culturally acceptable behavior in young children.” Mealtime rituals, for example, have been found to be a rich venue for the transmission and reinforcement of normative social behavior (Goodnow, 1997). One small-sample study (eight families) of families with preschool children found an average of 14.5 politeness routines were present during meal times including such things as requiring the word “please” and enforcing the use of napkins rather than shirt sleeves (Gleason, Perlman & Greif, 1984). A larger study involving over 300 families found that most mealtime verbal exchanges were emotionally positive with

10% specifically dealing with proper mealtime behavior (Ramey & Juliusson, 1998; another 20% dealt with family management issues such as “who’s picking up Tommy tomorrow after school”).

Meal rituals also inculcate important social values such as the need for conversational turn taking and the importance of attendance – that is, simply being present at the activity (Fiese, 2006, pp. 15-16; Kulka, 1997). Social roles and duties are also highlighted at meal time with females typically taking a more active role in the preparation and serving of food and the familial hierarchy being reinforced through seating patterns (Blair & Lichter, 1991; Fiering & Lewis, 1987; Fiese, 2006, p. 16). Measurable cultural differences have been found in the expectations and treatment of infants and young children during meal times. For example, Filipino-Americans are highly structured and enforce strict rules of obedience and respect for authority. Caucasian-Americans tend to be more tolerant of disruptions often interpreting them as indicators of intelligence and strong will (Martini, 2002).

Other evidence confirms the important role that family rituals and routines play in children’s social, emotional, and academic development. The data are largely correlational, but the findings are consistent: a greater frequency of and commitment to family rituals predict more socially competent, confident, and successful children. For example, a five-year longitudinal assessment showed that children whose families were more committed to their domestic rituals had higher scores on standardized tests of academic achievement (Fiese, 2002). The association between familial ritual commitment and higher academic achievement has been replicated among low income African Americans in both urban and rural settings (Brody & Flor, 1997; Seaton & Taylor, 2003). For boys, family routines were not only directly related to academic achievement, but self-regulation as well.

The exposure to language inherent in many family rituals such as those associated with mealtime or book reading undoubtedly plays an important role in later academic success (Ely, Gleason, MacGibbon, & Zaretsky, 2001). Family rituals, however, also appear to play a role in preparing children for the transition to the social demands of the structured school environment (Fiese, 2006, p. 55). Rituals and routines regularly practiced in the home provide children with an awareness of orderly temporal structure and culturally-based behavioral expectations associated with that structure, such as turn taking, following directions, completing one task before another, and temporal contingencies (“you must do your homework before going out to play;” Norton, 1993).

Indeed, a lack of daily routines has been found to be a significant predictor of behavioral problems in children and conduct disorder in adolescents (Keltner, 1990; Keltner, Keltner, & Farren, 1990). Parents whose children engage in more daily living routines report fewer behavior problems than those who do not (Systema, Kelly, & Wymer, 2001). Furthermore, the emotional commitment associated with family rituals is positively correlated with adolescent sense of identity (Fiese, 1992) and negatively related to anxiety symptoms under high-risk conditions (Markson & Fiese, 2000). Among Spanish adolescents, those referred for mental health services were significantly less likely to have regularly participated in family rituals and celebrations (Compan, Moreno, Ruiz, & Pascual, 2002). Strong family rituals may offer some protection to children in homes with alcoholic parents (Bennett, Wolin, Reiss & Teitelbaum, 1987; Fiese, 1992).

This body of research is consistent with the hypothesis that family rituals play an important role in transmitting normative values and behavioral expectations to children. Because of the correlational nature of most of this research it is impossible to say that rituals cause

normative behavior. The causes of normative behavior are most likely multifaceted with ritualized actions playing an important but not necessarily exclusive role. At minimum, that role is one of being a prominent venue where norms, values, and behavioral expectations are clearly on display for children to observe and internalize.

### **Adult Community Rituals and Norm Following**

As with family rituals, adult community rituals are also associated with increased norm following. If adult rituals serve to signal, remind, and emotionally bind people to social norms then we would expect that those who more regularly engage in ritual are more scrupulous about observing social norms. While there is evidence suggesting this may be true, most relevant studies are correlational and inferring causality (if indeed it is present at all) is inherently problematic. Causality could be bi-directional (rituals may produce greater norm-following and/or greater norm-following could produce greater ritual participation) or there could be third variables such as personality traits that drive both. There are a few experimental studies suggesting that causation can potentially run from ritual to normative behavior. While these are suggestive, their scarcity requires that the ritual-norm following causal link be considered a possibility needing further research.

There appears to be a consistent positive relationship between ritual participation and norm following. The Sosis and Ruffle (2003) study described earlier showed such a connection. This research found that the generous behavior of Orthodox Jewish male kibbutzim residents was directly tied to their public ritual activity. The more they engaged in public prayer, the more generosity and self-restraint they showed. Other studies have confirmed that more frequent attendance at religious services is associated with a number of pro-social outcomes indicative of closer adherence to certain social norms.

For example, commitment to marriage is stronger among more frequent church attendees. Even after a number of potentially confounding factors are eliminated (e.g. education, social class, marital satisfaction, employment, etc.) more frequent church attendance remains a significant predictor of both personal marital commitment (satisfying emotional needs) and structural commitment (upholding marital responsibilities outside of emotional rewards; Larson & Goltz, 1989; Wilson & Musick, 1996). Longitudinal assessments have found mixed evidence regarding whether or not religion is associated with greater marital happiness, but they have been more consistent in finding a negative association between church attendance and divorce proneness (Amato & Rodgers, 1997; Booth, Johnson, Branaman, & Sica, 1995). This association remains significant even after other relevant factors associated with divorce have been ruled out.

Church attendance also correlates with more scrupulous adherence to norms of honesty, charity, and cooperativeness. In a study addressing cheating behavior among students, results showed that while overall levels of dishonesty were high among all students regardless of religious affiliation (or lack thereof), those with very high church attendance were the only ones who resisted cheating when given the opportunity (Perrin, 2000).

On charity, studies have shown that religious people are more generous with their time and money compared to non-religious people (Brooks, 2003; Monsma, 2007). While specific beliefs are not irrelevant to charitable behavior, ritual participation is a more reliable predictor of it. Regardless of religion or religious denomination, attendance at religious activities (worship service or church groups), and even participation in tight-knit secular group activities (bowling leagues) are predictive of increased charitable giving (Brooks, 2003; Jackson, Bachmeier, Wood, & Craft, 1995; Putnam, 2000). Finally on cooperativeness, Orbell, Goldman, Mulford, and Dawes (1992) found that the frequency of church attendance among LDS church members

(“Mormons”) was positively correlated with cooperative behavior on a prisoner’s dilemma test, while self-reported religious devotion was not.

All the studies cited so far have been largely correlational, finding a positive relationship between ritual behavior (typically religious ritual behavior) and pro-social norm following. However, it may be that those more committed to norm following are attracted to rituals as much as rituals promote norm following. In their review of religion and prosocial behavior, Norenzayan and Shariff (2008) found evidence that a belief in watchful, morally concerned gods, a concern for one’s reputation, and ritual participation all played important roles in encouraging prosocial behavior. Believing in watchful gods can make seemingly anonymous acts reputationally-relevant and thus encourage strict adherence to social norms. Part of this increased adherence to social norms may involve regular attendance at ritual activities, such as religious services; thus creating a mutually reinforcing cycle among belief, norm-following, and ritual participation. Beliefs may also intersect with reproductive strategies which are facilitated by ritual participation.

For example, in a large scale survey of both adults and college students, Weeden, Cohen, and Kendrick (2008) found that sexual behavior and moral views on sexual behavior were the strongest predictors of church attendance, even after controlling for a host of demographic and personality factors. Indeed, when sexual behavior and attitudes regarding sexual behavior were partialled out, other predictors were substantially reduced often to non-significance. The authors concluded that those seeking to enact a monogamous, high-investment, heterosexual mating strategy are motivated to participate in religious rituals as a means of supporting their reproductive strategy. Put another way, those committed to following traditional family-based

norms find religious rituals attractive as a potential mechanism for identifying like-minded mates. Thus, greater norm following may cause greater ritual participation.

Other studies, however, suggest that ritual participation could be a cause of greater norm following. For example, Wiltermuth and Heath (2009) experimentally manipulated ritual-like activity and measured pro-social behavior. They had subjects engage in either synchronized motor movements (walking in step, singing in synchrony, singing and moving in synchrony), non-synchronized movements (walking at individual paces, singing and moving individually) or no movements at all. Later, all subjects played an economic game where they could extend varying levels of trust and cooperation to other players. Subjects who engaged in synchronized movements were found to be more trusting and cooperative compared to those in either the non-synchronous movement or no movement conditions. Thus, ritualized actions caused greater pro-social norm following.

The reminding function of ritual may also potentially cause greater norm-following. Norm following requires suspension of immediate self-interest. Self-control and self-monitoring are thus essential for norm following. Two priming studies have demonstrated how ritual's reminding function can facilitate self-control. Fishbach, Friedman, and Kruglanski, (2003) subliminally presented priming words to subjects that dealt with either sin (e.g. drugs, illicit sex) or religion (e.g. bible, prayer, God). After the primes, subjects were required to identify words which were again related to either sin or religion. The researchers found that subliminal presentation of sin-related concepts led to significantly faster recognition of religion-related words. Conversely, subjects were significantly slower at recognizing sin-related words after being primed with religious concepts. The authors interpreted these findings as evidence that

subjects automatically recruit religious concepts as a resistance mechanism against temptation and that religious concepts implicitly inhibit access to sin-related concepts.

Rituals that remind people of moral standards often encourage reflection on failures to live up to those standards (e.g. confession, atonement, etc.). Wegner (2007) found that reflection on moral shortcomings caused increased attention to concepts related to rectifying those shortcomings. Subjects in this study were assigned to either a condition where they were instructed to think about how they had failed to live up to the standards of their religion or how they had succeeded at doing so. Subjects assigned to the “failure” condition show increased latencies on a Stroop-like color naming task for words related to religious goals such as “say prayers,” but not for words related to non-religious goals such as “study notes.” This pattern was not found for the “success” group. This indicates that those who had reflected on religious shortcomings were later more cognitively preoccupied with religious goals.

What these studies point to is a potential mechanism by which ritual participation could produce greater norm following. Ritual participants are reminded of normative standards. That reminding both inhibits cognitions contrary to norm following (greater resistance to temptation) and focuses attention on goals related to greater norm following (inspiration to do “good”). Furthermore, ritual engenders positive emotions toward other group members, facilitating adherence to pro-social group-based norms. Thus, an important question for future research is the extent to which ritual creates a cognitive/emotional mental state conducive to putting group-based norms into practice.

### **Summary and Implications**

“Actions speak louder than words” – this familiar axiom expresses the common-sense notion that what people do is a better reflection of their values and beliefs than what they say.

But what actions “speak” the “loudest?” This paper has argued that ritual actions are especially informative when it comes to transmitting and reinforcing a culture’s social norms because by their very nature these actions are intentional and, quite often, reliably signal belief commitments. Students with hands over hearts pledging alliance to the flag; a family with hands clasped saying grace before a meal; soldiers, marching and calling out in cadence – these are not trivial demonstrations. They are emotionally compelling, intentional acts signaling value commitments that give credibility to related verbal expressions.

As hominins evolved greater motor control capacity, ritualized behaviors could be consciously harnessed as social signals. Thus, humans did not evolve a wholly novel means of transmitting social information; we simply brought an ancient one under greater conscious control. But the intentional aspect of ritualized signals was crucial given the dire human need for social acceptance. Anyone using verbal expressions or accidental, coerced, or whimsical actions as their primary bases for acquiring social norms may very well fail to achieve social acceptance given the ambiguity and potential unreliability of those sources. This is true both today and, even more critically, in our evolutionary past.

Using the intentionality behind ritualized behaviors begins early. Infants use intentionality as a basis for extracting emotion-laden social rules. These rules provide a potential affective foundation upon which consciously understood social norms can be built. This “building” process continues and expands as ritualized interactions become incorporated into family rituals and routines. Family routines and rituals provide both a natural bridge to the adult ritual world as well as an important venue for transmitting normative values. Adult community-based rituals carry with them the emotion-laden signaling qualities of infant-caregiver

interactions, but add to them scale magnifications and cultural representation and reminding functions where values and norms are revisited and reinforced.

An important implication of this view is that the evolutionary foundation upon which our hominin ancestors built uniquely human levels of social organization and cooperation was not language but controlled motor movements expressed in ritual. Before language could articulate the behaviors and attitudes morally valued by a group, intentional rule-based behavior was doing so (this is true both ontogenetically and phylogenetically). Language gains or loses its credibility as a norm-transmitter by its relation to intentional action. Language can specify, codify, and allow for the analysis of normative content, but ritual enacts the values of which the norms are composed. Thus, all the research herein reviewed can be reduced to one very general and simple prediction: the strongest human communities will always be those with the richest ritual lives.

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