Weighing Outcome vs. Intent Across Societies: How cultural models of mind shape moral reasoning

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Abstract

Mental state reasoning has been theorized as a core feature of how we navigate our social worlds, and as especially vital to moral reasoning. Judgments of moral wrong-doing and punish-worthiness often hinge upon evaluations of the perpetrator's mental states. In two studies, we examine how differences in cultural conceptions about how one should think about others' minds influence the relative importance of intent vs. outcome in moral judgments. We recruit participation from three societies, differing in emphasis on mental state reasoning: Indigenous iTaukei Fijians from Yasawa Island (Yasawans) who normatively avoid mental state inference in favor of focus on relationships and consequences of actions; Indo-Fijians who normatively emphasize relationships but do not avoid mental state inference; and North Americans who emphasize individual autonomy and interpreting others' behaviors as the direct result of mental states. In study 1, Yasawan participants placed more emphasis on outcome than Indo-Fijians or North Americans by judging accidents more harshly than failed attempts. Study 2 tested whether underlying differences in the salience of mental states drives study 1 effects by inducing Yasawan and North American participants to think about thoughts vs. actions before making moral judgments. When induced to think about thoughts, Yasawan participants shifted to judge failed attempts more harshly than accidents. Results suggest that culturally-transmitted concepts about how to interpret the social world shape patterns of moral judgments, possibly via mental state inference.

Keywords

Morality, mentalizing, theory of mind, cross-cultural comparisons, Opacity of Mind

1. Introduction

In 2009, U.S. Army Private Bowe Bergdahl walked off of his post in Afghanistan and into a five-year-long period of captivity, held by the Taliban. His disappearance triggered a manhunt that cost huge amounts of time, resources, and even a few soldiers' lives. Starting in late 2015, a year after Bergdahl's return to American soil, his story became part of a pop-cultural phenomenon. Millions of people downloaded the podcast *Serial* (Koenig, 2015) to explore one main question: Is Bergdahl ultimately responsible for the *outcome* of his disappearance – the lost time, resources, and human lives – even if he did not *intend* such damage?

That such a story became a pop-cultural hit should come as little surprise; as fundamentally social beings, we spend huge amounts of time figuring out how to interpret and respond to others' actions. But in formulating our responses, how do we determine when someone has done wrong? How do we decide whether or not to punish? For many, the answer lies in focusing on perpetrator *intent* – we judge actions by thinking about the minds that produced them. For example, the core distinction between murder and manslaughter in the Western legal tradition is *mens rea* - criminal intent. To establish criminal intent beyond a shadow of a doubt, societies that follow these Western legal traditions consume substantial amounts of time and resources to prove that the perpetrator *desired* the outcome and *believed* their actions would create this effect. But the sources of evidence we rely on for intent vs. outcome are quite different. To establish that a murderous outcome occurred, all we need is a body. To establish who done it, we look to fingerprints, eye-witnesses, DNA evidence, and video footage. But for intent, we rely on inferences – indirect evidence from verbal statements and past behavior. However much it may sometimes feel like one can know another's mind, we do not in fact have direct access;

intentions don't leave fingerprints or footprints. How then can another person's life ride on something so intangible?

We suggest that the answer lies in cultural conceptions, the local ideas and beliefs, about what makes people tick. Judgments of both the permissibility and appropriate response to others' behaviors are not mechanistic calculations made in isolation from the world around us. They are deeply informed by the social contexts we live in. In many populations with Western European roots, the prevailing belief is that minds and mental states cause behaviors (Markus & Kitayama, 1991). If the mind is the root of all evil, then mental states like intent are the most appropriate focus (Berman, 1999; Cohen & Rozin, 2001). By contrast, anthropological and historical records show many instances of societies who paid little or no attention to intention, even in situations like murder (Baker, 1979; Gluckman, 1965; 1972; Kroeber, 1976). Of particular note, ethnographers working around the Pacific, in some Central American communities, and in parts of the Arctic have noted a general avoidance of discussion about mental states (Duranti, 2015; Luhrmann, 2011; Robbins & Rumsey, 2008; Throop, 2012). When pressed to say why they do not talk about what is going on in other people's heads, people in these communities often describe the mind as inside an opaque container. One can never truly *know* what another is thinking. Ethnographers dubbed these beliefs about minds the *Opacity Doctrine* or *Opacity of Mind* (Duranti, 2015; Luhrmann, 2011; Robbins & Rumsey, 2008; Throop, 2012).

Complementing this historical and ethnographic evidence, a recent but growing body of psychological findings demonstrates cultural variation in the importance of mental state attribution in general, and within the context of intent reasoning for moral judgments in particular. Societies that place greater emphasis on communal and relational values often focus less on intent (Barrett et al., 2016; Hamilton et al., 1983; Laurin & Plaks, 2014), with

implications for how people broadcast their thought processes through behaviors like emotional displays (Lillard, 1998; Matsumoto, Takeuchi, Andayani, Kouznetsova, & Krupp, 1998; Matsumoto et al., 2008). Developmentally, children living in more traditional and community-oriented groups often pass psychological tests that require them to use others' beliefs to predict their behavior (i.e. false belief measures) at later ages (Barrett, Broesch, Scott, He, Baillargeon, Di Wu, et al., 2013a; Callaghan et al., 2005; Liu, Wellman, Tardif, & Sabbagh, 2008; Mayer & Trauble, 2012). This is particularly so for children from cultural contexts with Opacity of Mind norms (Barrett, Broesch, Scott, He, Baillargeon, Di Wu, et al., 2013a; Mayer & Trauble, 2012). This suggests a weaker, more distant cognitive/semantic connection between thoughts and behaviors for children in these societies. Conversely, exposure to a larger lexicon of mental state terms and more formal Western education predicts children will perform these tasks at younger ages (Meristo et al., 2007; Pyers & Senghas, 2009; Vinden, 2002). This suggests a tighter linkage between mental states and behaviors, and further implies more emphasis on intention for judging behavior.

Here, we focus on comparisons across four samples: two from Fiji and two from North America. From Fiji, we recruit participants from small, rural communities of Indigenous iTaukei[1] Fijians, known to follow Opacity of Mind norms (Barrett et al., 2016).[2] We also recruit participation from Indo-Fijians, or Fijians of Indian descent, whose ancestors arrived in Fiji about a century ago and who favor a socio-centric, relational view of people, but without Opacity of Mind norms (Barr, 2003; Kelly, 1988; Willard, 2017; Wilson, 1975). Our North American

[1] iTaukei is the term that Indigenous Fijians identify themselves with. The literal English translation is "owner/ native." The term reflects the deep connection between land and identity within Indigenous iTaukei Fijian culture.
[2] Prior work suggests iTaukei Fijians are less inclined to use mental state information to predict actors' behaviors and less likely to think about others in terms of mental states, potentially due to this cultural context of Opacity of Mind norms (McNamara, Willard, & Henrich, n.d.). A copy of this manuscript is available from the authors upon request.

samples include Canadian university students and American non-student adults, who represent the typical populations used in the vast majority of social and developmental studies in psychology (Henrich, Heine, & Norenzayan, 2010; Nielsen, Haun, Kärtner, & Legare, 2017) and who, more importantly, hold to Western notions of the mind as the origin of behavior and individual autonomy.

1.1. Accidents and Failed Attempts: Mentalistic vs. Consequentialist Judgements of Permissibility and Punishment

In the present research, we treat moral reasoning as a subset of general reasoning about social norms. We take social norms to be the set of local rules and expectations that are learned socially; they are often widely known within a particular community but may not be formally codified or necessarily explicitly stated (Gelfand & Jackson, 2016; Kimbrough & Vostroknutov, 2013; Rakoczy & Schmidt, 2013; Sripada & Stich, 2006). Using this normative definition of morality, we focus on the pattern of judgments made around whatever an individual has deemed to be a violation (B. Gert & Gert, 2016).

Moral concerns are both likely to be judged as more wrong *and* more likely to be evaluated using mental state reasoning than non-moral ones among WEIRD people (Giffin & Lombrozo, 2017). There is some evidence that judgments about permissibility (how bad an action was) and punish-worthiness (how much punishment an action deserves) are driven by two distinct processes: a ‘whodunit’ process and a ‘did they meant to’ process. The ‘whodunit’ process mirrors the demands for physical evidence in establishing criminal outcome: it evaluates causal attributions of responsibility and violation severity (i.e. big infractions vs. tiny slip-ups). The ‘did they mean to’ process, on the other hand, mirrors criminal intent by operating on less physically-tangible mental state information (Cushman, 2008; 2015; Cushman, Sheketoff, Wharton, &

Carey, 2013). In North American samples, judgments of wrongdoing are scaled almost exclusively by the 'did they mean to,' intent-oriented mental state reasoning process, while judgments about punish-worthiness are scaled by the degree of severity calculated by the more mind-blind 'whodunnit' process (though scope of punishment can be scaled by intent; see: Cushman, 2008; Cushman et al., 2013; Martin & Cushman, 2015). Because these processes do not perfectly overlap, mis-matches in intent and outcome (i.e. an accident that results in a bad outcome despite a positive or neutral intent) can receive more severe reactions than would be expected in a strictly intent-focused system (Costa, 2009; Martin & Cushman, 2015).

1.2. Cultural Conceptions of Mind Shape Moral Reasoning

Looking broadly across societies, groups with greater emphasis on communal values exhibit a range of behaviors that focus on maintaining relational spaces. Emphasis on community is associated with lower tolerance of norm violations in general (Gelfand, Nishii, & Raver, 2006; Hofstede, 1983; Kim & Markus, 1999; Phelan & Rudman, 2010). These deviations from the norms may present a real, tangible threat to survival for those who rely on family and interpersonal networks as informal insurance in societies with high levels of existential insecurity and poor secular institutions to mitigate this existential threat (Bollig, 2006; De Weerdt & Dercon, 2006; Fincher & Thornhill, 2012; Kaplan & Gurven, 2005). Similarly, community-oriented, collectivistic groups tend to emphasize behavioral domains that support community integrity (Graham et al., 2011; Miller & Bersoff, 1992; Rozin, Lowery, Imada, & Haidt, 1999; Shweder, Much, Mahapatra, & Park, 1997). Other studies contrasting highly-individualistic, American samples against more urbanized but collectivistic people in Japan and India show that these more collectivistic societies also focus less on intent (Hamilton et al., 1983; Laurin & Plaks, 2014). Even among American samples, the purity domain of morality (see: Graham et al.,

2011) is less likely than other domains to be judged based upon intent (Barrett et al., 2016; Young & Saxe, 2011; Young & Tsoi, 2013). Linking back to the prevalence of Opacity of Mind norms in the Pacific, many Pacific societies emphasize the importance of maintaining the integrity of relationships as a core value and central organizing principle for determining social actions. For example, the Samoan concept of *teu le va*, or the space between people, is a central focus for many Samoans when determining correct actions (Anae, 2010; Mila-Schaaf, 2006). We argue it is no coincidence that, as a society with strong Opacity of Mind norms, many Samoans also focus on consequences and emphasize damage to relationships resulting from violations – regardless of intent (Duranti, 2015).

1.3. Overview of Studies

While existing cross-cultural work outlined above points to some interesting patterns, it frequently relies on broad individualistic vs. collectivistic comparisons. The present work underscores the importance of differing cultural *content* in beliefs and norms about the mind, in addition to broad cultural orientations to the self-concept such as individualism-collectivism. Our contrast between two populations in Fiji provides us this opportunity. Both iTaukei and Indo-Fijians are collectivistic, in the sense that both favor a more relational model of self than is typical in Western populations (Brison, 2001; Gervais, 2013; Kelly, 1988; Kline, Boyd, & Henrich, 2013). Both iTaukei and Indo-Fijians live within the same wider institutional environment of Fijian governance, and both typically adhere to hierarchically-structured social roles. However, they have different norms about how and whether one can or should try to know the mind of another person. By linking individual judgments to group-level social norms, we can begin to unpack the processes that lead to cultural differences and examine how culturally-transmitted beliefs impact underlying cognition.

Study 1 maps out the judgment patterns reported by our Yasawan, Indo-Fijian, and North American participants. If being focused on community rather than individual status matters most in influencing moral reasoning, then we predict Yasawans and Indo-Fijian participants will judge negative intent less harshly than North Americans (Hamilton et al., 1983; Laurin & Plaks, 2014). However, if specific models of minds beyond individualism/ collectivism influence moral judgments, then we predict that Yasawans (with their context of Opacity of Mind norms that discourage mental state discussion) will show less emphasis on intention compared to both North Americans and Indo-Fijians. Further, we predict Yasawans will judge negative outcomes more harshly than both other groups, again due to of Opacity of Mind norms that favor behavioral rather than mentalistic inference.

Study 2 further isolates differences in thinking about minds as a potential mechanism driving cross-cultural differences in judgments based upon intent. Two additional samples, one from Yasawans and one from North American, judged moral violations after first being induced to think about thoughts versus actions of God. We presented this thought salience manipulation within this supernatural framing context because of God's relevance and familiarity in both samples. We predict that, when thoughts are salient, participants should judge violations motivated by negative intent more harshly. Importantly, if observed cross-cultural differences in intent focus are more related to differences in underlying tendency to think about minds as a primary explanation for behaviors, then making thoughts salient should shift Yasawans to judge negative intent just as harshly as other populations without Opacity of Mind norms.

We report how we determined sample sizes, all data exclusions, and all measures completed by participants in the article and in the accompanying Supplemental Materials. All de-identified data for the analyses reported here are publicly available (McNamara, 2017).

1.4. Field Sites: Yasawa and Lovu Village, Fiji

Fiji is home to two main ethnic groups: Indigenous iTaukei Fijians and Indo-Fijians. Comparisons between iTaukei and Indo-Fijians are particularly illuminating in that they share the larger country-level institutional structures, geographic isolation, climate, weather-shocks, and pathogens, but come from distinct, non-Western cultural traditions. In this section, we briefly sketch the ethnographic details about the sites where our iTaukei Fijian participants live on Yasawa Island (hereafter referred to as Yasawans), and where our Indo-Fijian participants live on the main island of Viti Levu.

1.4.1. Yasawa Island

The people of Yasawa, Fiji, live as traditional fisher horticulturalists in small villages of around 70-150 adults. Village life revolves around the traditional political hierarchy that culminates in a hereditary chief and structures social networks around kinship. These kinship ties organize the vast majority of the cooperative and coordinated efforts that Yasawans rely on for daily survival; these cooperative tasks range from sharing food to building houses (McNamara & Henrich, 2017; Nayacakalou, 1955; 1957). This kinship hierarchy also defines the traditional practices and norms that foster a more relational, socially-defined sense of self common among iTaukei Fijians (Brison, 2001; Rumsey, 2000).

Keeping tradition alive is often also associated with basic iTaukei Fijian political and interpersonal identity (France, 1969; Jolly, 1992). The traditional norms of particular importance for this study revolve around the idea that other minds are fundamentally unknowable, invisible behind the opaque barrier of social obligations and improper fodder for conversation, as one's thoughts are an individuals' private business. Previous research suggests Yasawans may focus less on intent than other small-scale, traditional, non-Western societies (Barrett et al., 2016).

iTaukei Fijian norms that lead to treating minds as opaque may arise from a number of different sources. Because traditional iTaukei Fijian life includes deep interdependence on family ties, mental states may not be considered an appropriate excuse in the case of social harm. That a person who failed in a social obligation did so without meaning to cause harm may be irrelevant because the stakes are high and many other relationships are damaged by their shortcoming. This appears to be the case in documented traditional legal proceedings to settle disputes in Samoa (Duranti, 2015). On the other hand, there may be a general reluctance to believe that people can indeed commit accidents – perhaps there is some deeper belief that, when a person does something, there may be some spiritual or hidden (in psychology terms, unconscious) rationale driving their actions. This skepticism toward mistaken knowledge appears in ethnographies of Opacity of Mind norms in Mayan Mexico, where people classify mistakes and deliberate deception in the same category, 'deception' (Luhrmann, 2011). In Yasawa, beliefs about sorcery/ witchcraft that may result in illness or death among community members similarly hints at a general belief that even uncontrollable events are somehow linked to hidden intention states of humans in the social networks around them.

1.4.2. Lovu Village, Viti Levu

Indo-Fijians are a diaspora population brought by the British as indentured labor between 1879 and 1912 (Gillion, 1962). Today, Indo-Fijians live mostly in and around Fiji's larger cities and work as wage laborers or sugar cane farmers. Indo-Fijians are primarily Hindu or Muslim, with a minority of Sikhs and Christian converts. Like the iTaukei, Indo-Fijians have strong family ties and frequently rely on their kin-based networks for help in times of need (Lal, 1992). Though the caste system has been largely abolished in this community, a strong sense of hierarchy still exists (Brown, 1981). In the absence of the caste system, some of this hierarchy is

maintained though ritual purity and the 'goodness' of members of the Indo community, requiring substantial attention to be paid to understanding the mental states of others (Trkna, 2012). Most of our Indo-Fijian participants lived in Lovu village near Lautoka, though several were recruited from nearby Nadi and Ba.

2. Study 1: Differences in Moral Judgments Across Societies

Building on prior vignette-based, cross-cultural studies of intent focus in moral reasoning that used accidental vs. intentional violations (Barrett et al., 2016; Laurin & Plaks, 2014), we examine intent vs. outcome by adding failed attempts, which allow us to examine whether participants think bad intent or bad outcome is worse. If failed attempts are judged more harshly than accidents, then a bad intention – even if the outcome is positive – is in-and-of-itself intolerable. Harsher judgments of failed attempts therefore signify emphasis on mental state inference for interpreting behavior. If accidents are judged more harshly, then a bad outcome will outweigh the lack of negative intent. Harsher judgements of accidents signify a more behavioral focus.

2.1. Method

2.1.1. Participants

We recruited 151 Yasawans, 219 Indo-Fijians, and 561 Canadians and Americans in three phases of data collection conducted in 2012 and 2013 (Table 1).

	Participants	Age	Education	Sex
	N	Mean (min.- max.)	Mean (min. – max.)	N Women
Yasawa	151	43.15 (18-80)	9.33 (4-15)	78

Indo-Fiji	219	38.68 (17-76)	10.68 (0-18)	117
US & Canada	561	29.20 (17-72)	13.99 (10-21)	350
TOTAL	931	33.54 (17-80)	12.45 (0-21)	545

Table 1 Total sample participant numbers with demographics by sample.

Yasawans and Indo-Fijians were recruited in their homes by iTaukei and Indo-Fijian research assistants respectively and participated voluntarily based upon availability. Of the 561 North American participants, 203 were Canadian university students who were recruited through the university's human subjects pool and remunerated with course credit. The remaining 358 were adults from the United States recruited through Amazon's Mechanical Turk (Mturk). Sample sizes for Yasawa were heavily constrained by small population sizes within participating villages; we targeted recruitment with the goal of having approx. 30 observations per intent condition and violation domain. We recruited Indo-Fijian and North American participants with the goal of having adequate sample sizes to run structural equation models on additional mind perception scales.[3] G*Power analysis indicated that this sample size should be powered (80%) to detect effect sizes of $d = 0.03$ and larger (Faul, Erdfelder, Buchner, & Lang, 2009).[4] Full details of study 1 recruitment phases, site-specific procedural variations, and recruitment numbers are provided in the online supplement (sections S.M.4. & S1.1.).

[3] These scales are that are described in (Willard & McNamara, n.d.). A copy of this manuscript is available from the authors upon request.

[4] Barrett et al. (2016) recruited a total sample size of 322, with 66 participants in Yasawa.

2.1.2. Materials

2.1.2.1. Moral Violation Vignettes: Manipulate Intent and Outcome

Our moral violation vignettes vary positive vs. negative intent and positive vs. negative outcome, as summarized in the Table 2 intent/ outcome matrix (Young, Cushman, Hauser, & Saxe, 2007; Young, Scholz, & Saxe, 2011).

		Intent	
		Positive	Negative
Outcome	Positive	No Violation	Failed Attempt
	Negative	Accident	Successful Attempt/ Intentional Violation

Table 2 Intent/ Outcome Matrix for Intent conditions. Endorsements of stronger punishments against failed attempts indicate intent focus; stronger punishments of accidental violations indicate outcome focus.

Vignettes depict six domains of moral norm violations: (1) harm, (2) theft, (3) poisoning, (4) food taboos, (5) social taboos, and (6) failed cooperation.[5] For the present analysis, we examine the average intent/ outcome focus across domains (see online supplement section S1.7., S1.8., & S1.9. for detailed intent condition by domain by sample analysis).[6] Materials were modified for all samples to reflect culturally appropriate names and moral taboo content (e.g.

[5] Story contents for harm, theft, poison, and food taboo domain vignettes were adapted from materials used in (Barrett et al., 2016). See online supplement section S.M.1. for sample vignettes.

[6] We examine the effect of intent condition on each domain of violation for each sample and find that the overall pattern of intent vs. outcome focus holds within sample across all domains. One may wonder if asking about God may serve as an extra mentalizing prime. However, this should be mitigated by the manipulation check questions that ask participants to use mentalizing to infer the opinions of the victim and of third parties. Nonetheless, we account for the possibility that asking questions about God influenced the results with a control variable tracking whether they were asked about God or not. Participants who were asked about God did not significantly differ from those who were not asked about God, but we keep the control variable in for the results reported here.

food taboo for Yasawans = eating shark; Indo-Fijians = vegetarian eating meat, and North Americans = a man who keeps Kosher eating pork).

If Opacity of Mind norms suppress mental state inference, Yasawans might not infer them to the same extent as other samples, or they may make very different inferences. Our vignettes provide explicit information about perpetrator mental states (their knowledge, beliefs, and/ or desires) and victim outcome. This helps ensure that observed differences in judgments are based on different *emphasis* on intent vs. outcome, rather than different inferences of what the intentions or outcomes were. We also obtain ratings of intentionality to ensure these manipulations worked as anticipated.

2.1.2.2. Judgment Measures

Following the vignettes, participants provided their judgments on a -2 (most negative/ intentional/ worthy of punishment) to +2 (most by positive/ accidental/ worthy of reward) likert scale, which were adapted from Barrett et. al. (2016). All participants answered judgment questions in the same order: (1) Good/ Bad, (2) Purpose/ Accident, (3) Positive/ Negative, (4) Pleased/ Angered, (5) Other Opinion Good/ Bad and (6) Reward/ Punish.

2.1.2.2.1 Dependent Variables: Permissibility and Punishment/ Reward

We have two focal dependent variables: 1) Permissibility (Good/ Bad: "How good or bad was what [perpetrator] did?") and 2) Punishment/ Reward (Reward/ Punish: "In your opinion, do you think [perpetrator] should be rewarded or punished?").

2.1.2.2.2 Manipulation Checks

To assess how participants interpreted our vignettes, we use four manipulation checks:

- Intent = Purpose/ Accident: "Did [perpetrator] do [action] on purpose or by accident?"
- Outcome = Positive/ Negative: "How positively or negatively was [victim] affected?"

- Victim Response = Pleased/ Angered: "Do you think [victim] was pleased or angered by what happened?"
- Reputation = Other Opinion Good/ Bad: "When people discover what happened, what will people think of [perpetrator] - will they think he is a good person or a bad person?"

Both intent and outcome manipulation checks show that participants in all samples saw intentional and failed attempt violations as more intentional and negative outcomes as worse (See supplement S1.4.). Notably, Yasawans rated the intent of accidents and no violation conditions equally ($b_{Accidents\text{-}No\ Violation}$ = 0.01, CI.95 [-0.22, 0.24], p = 0.92); as less intentional than both failed attempts ($b_{Accidents\text{-}Failed\ Attempts}$ = -0.56, CI.95 [-0.79, -0.34], $p < 0.001$) and intentional violations ($b_{Accidents\text{-}\ Intentional}$ = -1.01, CI.95 [-1.22, -0.79], $p < 0.001$); and as neither on purpose or by accident ($b_{Accidents}$ = -0.09, CI.95 [-0.34, 0.16], p = 0.49). However, because the other two samples rate accidents as more accidental, the result is that Yasawans do rate accidents as significantly less accidental than the other two groups ($b_{Yasawa\text{-}Indo\text{-}Fijians}$ = 1.23, CI.95 [1.02, 1.46], $p < 0.001$; $b_{Yasawa\text{-}North\ American}$ = 1.10, CI.95 [0.91, 1.29], $p < 0.001$). Indo-Fijians also rate the no violation conditions as intentional ($b_{No\ Violation}$ = -1.17, CI.95 [-1.31, -1.02], $p < 0.001$) and the outcome of accidents as positive ($b_{Accidents}$ = 0.31, CI.95 [0.04, 0.57], p = 0.03), though they do rate the outcome of intentional violations as worse than failed attempts and no violation conditions ($b_{Intentional\text{-}Failed\ Attempts}$ = 0.28, CI.95 [0.09, 0.47], p = 0.004; $b_{Intentional\text{-}No\ Violation}$ = 0.45, CI.95 [0.26, 0.64], $p < 0.001$). Victim Response and Reputation questions, participants had to mentalize other people's reactions. All samples report that the victim will be more angered when the outcome is negative. For the perpetrator's reputation, Yasawans and North Americans expect other people's judgments to be about the same as their own. For the Reputation manipulation check question, Indo-Fijians rated others' opinions of the perpetrator to be more like iTaukei

judgements, which may suggest they interpreted ‘other people’ as iTaukei (See supplement S1.5.).

2.1.3. Procedure

Participants in all samples followed the same basic procedure: they listened to or read a vignette, then answered questions about the vignette. This was repeated for four vignettes. Domains of moral violation (e.g. harm, theft, taboo) were crossed with intention conditions and counterbalanced across participants. Following each vignette, participants answered the six judgment questions followed by an open-ended question about what they think of the violation to capture anything participants wanted to say that they felt they did not communicate through the judgment questions.

2.2. Results

Previous research suggests intent plays a distinct role in judging permissibility vs. punish-worthiness (Cushman, 2008; 2015). We begin our analysis with two models, one each on participants’ ratings of how permissible (Good/ Bad) and how worthy of reward or punishment (Reward/ Punish) the action was. We account for the repeated judgments using multilevel modeling with random intercepts for participants, fit in R (R Development Core Team, 2008) using the lme4 (Bates et al., 2014) and lmerTest (Kuznetsova, Brockhoff, & Christensen, 2014) packages. We test whether each population reacted to each condition differently by adding an interaction between sample and condition. We include controls for violation domain and whether participants were asked about God or not. We include demographic variables of sex, age, and years of formal education to all of the models, though these variables never produce significant effects (supplement section S1.6.). We report cross-society comparisons using raw scores, but see supplement section S1.2 for comparison with standardized moral judgment ratings.

2.2.1. Permissibility and Punish-worthiness Across Intent Conditions

As shown in Figure 1, samples responded to intent conditions significantly differently for both permissibility and punish-worthiness ratings. Contrasted mean comparisons in Table 3 show Yasawans make the harshest judgments against accidents. Using our -2 (extremely bad/ highly punished) to +2 (extremely good/ highly rewarded) scales, Yasawans rate failed attempts as better than accidents; failed attempts were rated as 0.20 of a point more permissible ($b_{Accidents-Failed\ Attempts}$ = 0.20, CI.95 [0.01, 0.38], p = 0.04) and 0.15 of a point less punish-worthy ($b_{Accidents-Failed\ Attempts}$ = 0.15, CI.95 [0.00, 0.30], p = 0.05[7]). By contrast, both the North Americans and Indo-Fijians rate failed attempts as significantly less permissible and more punish-worthy than accidents. Not only are Yasawans treating accidents – bad outcomes without bad intentions – as comparatively worse than failed attempts while other samples do not; their emphasis on accidents over failed attempts suggests Yasawans are placing more weight on outcome overall. Importantly, though, Yasawans rate successful intentional violations as 0.29 of a point less permissible ($b_{Accidents-Intentional}$ = -0.29, CI.95 [-0.47, -0.12], p = 0.001) and 0.39 of a point more punish-worthy ($b_{Accidents-Intentional}$ = -0.39, CI.95 [-0.53, -0.25], p < 0.001) than accidents. While Yasawans rate a bad outcome despite a neutral intention as worse than bad intention with a neutral outcome, they rate a bad intention *and* a bad outcome as worse than either in isolation. Taken together, this suggests that Yasawans are attending to intent, but are more focused on outcome than the other samples.

[7] Running these models with random slopes for society produces slightly smaller estimates for accidents vs. failed attempts in the reward/ punish question: b = 0.14, .95CI[-0.01, 0.30], p = 0.067. The presence of a true difference between these two intent conditions for Yasawans in reward/ punishment should be taken with caution. See online supplement section S1.3.

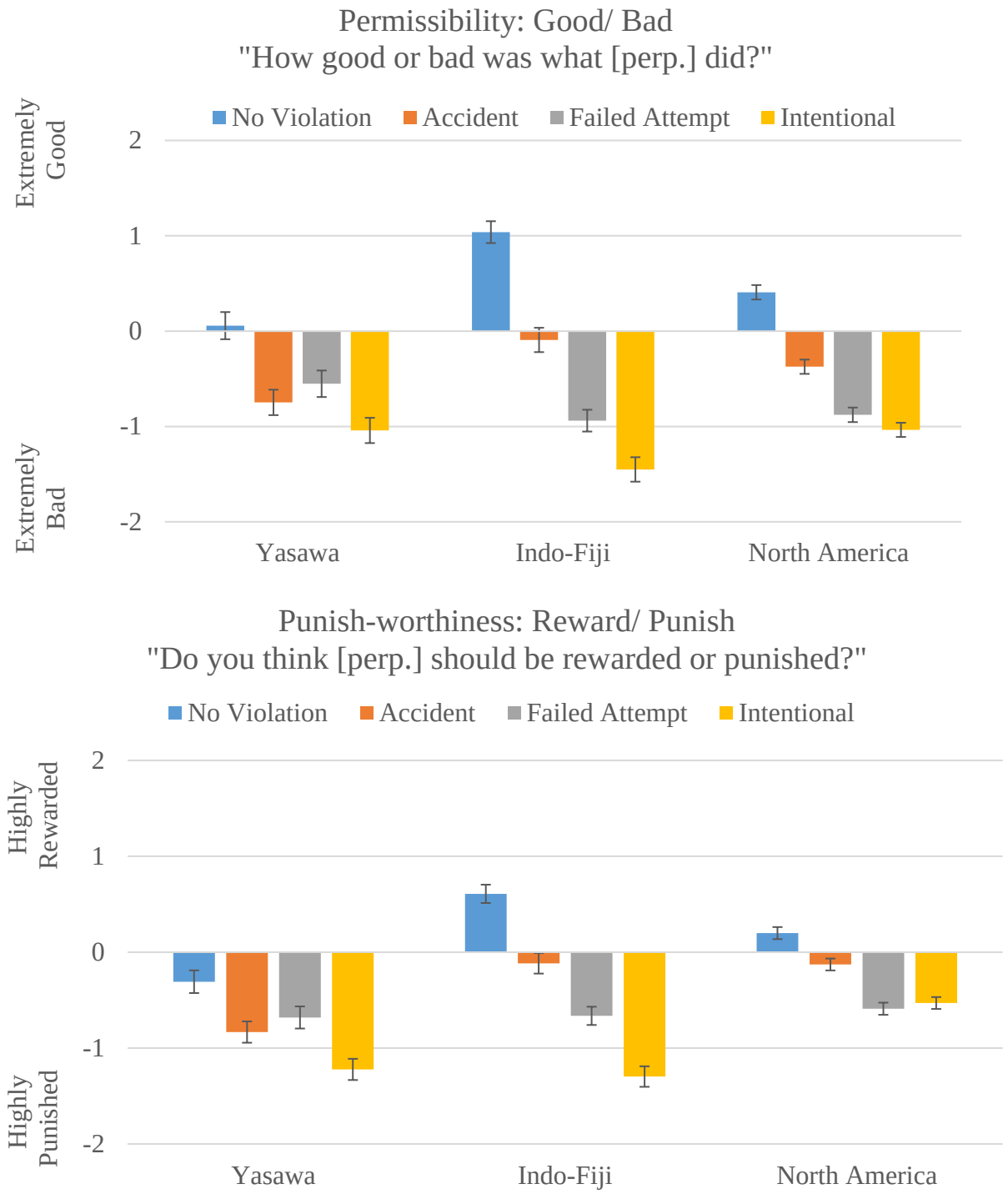

Figure 1 Mean ratings of Permissibility and Punish-worthiness DVs by Sample and Intent Condition, controlling for violation domain and demographics. Error bars show 95% CI**.**

		Yasawa		Indo-Fiji		North America	
		Good/ Bad *b* [95.CI]	**Reward/ Punish** *b* [95.CI]	**Good/ Bad** *b* [95.CI]	**Reward/ Punish** *b* [95.CI]	**Good/ Bad** *b* [95.CI]	**Reward/ Punish** *b* [95.CI]
Accidents vs. Failed Attempts		0.20* [0.01, 0.38]	0.15* [0.00, 0.30]	-0.85*** [-1.01, -0.68]	-0.55*** [-0.68, -0.41]	-0.50*** [-0.61, -0.4]	-0.46*** [-0.54, -0.38]
Accidents vs. Intentional		-0.29** [-0.47, -0.12]	-0.39*** [-0.53, -0.25]	-1.36*** [-1.53, -1.19]	-1.18*** [-1.32, -1.04]	-0.66*** [-0.76, -0.57]	-0.40*** [-0.48, -0.33]
Accidents vs. No Violations		0.81*** [0.62, 0.99]	0.52*** [0.37, 0.68]	1.13*** [0.97, 1.29]	0.72*** [0.59, 0.86]	0.78*** [0.68, 0.88]	0.33*** [0.24, 0.41]
Accidents	vs. Indo-Fiji	0.66*** [0.48, 0.83]	0.72*** [0.57, 0.87]	--	--	--	--
	vs. North America	0.37*** [0.22, 0.53]	0.70*** [0.58, 0.83]	-0.28*** [-0.42, -0.14]	-0.01 [-0.13, 0.11]	--	--
Failed Attempts	vs. Indo-Fiji	-0.39*** [-0.56, -0.22]	0.02 [-0.12, 0.16]	--	--	--	--
	vs. North America	-0.33*** [-0.49, -0.17]	0.09 [-0.04, 0.22]	0.06 [-0.07, 0.2]	0.07 [-0.04, 0.19]	--	--
Intentional	vs. Indo-Fiji	-0.41*** [-0.59, -0.23]	-0.07 [-0.22, 0.07]	--	--	--	--
	vs. North America	0.01 [-0.15, 0.16]	0.69*** [0.56, 0.82]	0.42*** [0.27, 0.56]	0.77*** [0.65, 0.89]	--	--
No Violation	vs. Indo-Fiji	0.98*** [0.81, 1.15]	0.92*** [0.77, 1.06]	--	--	--	--
	vs. North America	0.35*** [0.19, 0.51]	0.51*** [0.37, 0.64]	-0.63*** [-0.77, -0.50]	-0.41*** [-0.52, -0.30]	--	--

Significance codes: ***<0.001, **<0.01, *<0.05, †<0.1

Table 3 Permissibility and punish-worthiness ratings of accidents vs. other intent conditions by sample and contrasted mean sample ratings by intent condition. Negative values indicate less permissible and more punish-worthy. Profile Likelihood CI. SE and df approximated using Satterthwaite approximation. Note: outcomes are subjective judgments; cross-society comparisons should be interpreted with caution as subjective judgments cannot dissociate potential effects of response style.

2.3. Discussion

In line with previous work showing that Yasawans focus less on intent than other populations (Barrett et al., 2016), Yasawans rate accidents – positive intentions with negative outcomes – as both worse and worthy of more punishment than do Indo-Fijians and North Americans. While previous work has focused on the ways people in diverse, small-scale societies factor in intent or mitigating circumstances when judging moral violations, we focus here on whether participants make judgments based on mental state information (intent) or situational results (outcomes) of actions. The current data further extends previous research in aiming to pinpoint specific norms that might produce these cross-societal differences. If Opacity of Mind norms in Yasawa lead to focus on actions to the exclusion of mental states, then accidents should be treated more harshly than failed attempts and as harshly as intentional violations. Our analysis shows that Yasawan participants did rate the bad outcomes in accidents as less permissible and more punish-worthy than the bad intent of failed attempts, Yasawans are not strictly evaluating based on outcomes. Yasawans still treat intentional violations as worse than either intent or outcome in isolation, which suggests that Yasawans are including intent in their judgments, but placing more emphasis on outcome.

North Americans placed far more weight on intent – so much so that our North American participants even rated failed attempts as equal to successful intentional violations. This is a striking finding that differs from explicit Western legal code. In this case, it may provide further evidence of the intensively mentalistic focus in North America – intent is far more important than outcome. Other work similarly suggests North Americans may be especially focused on intent. For example, North Americans may judge failed attempts more harshly if the violation was intended but never happened than if it did happen by other means (Cushman, 2008; 2015).

Overall, our pattern of results may indicate Indigenous iTaukei Fijian Opacity of Mind norms might highlight outcomes, while the mind-focused conception of the relationship between mind and behavior in North America may heavily emphasize intent. However, as it stands, we do not specifically pin-point differences in thinking about minds as the source of these cultural differences. To test whether the observed differences in intent vs. outcome focus in Yasawa and North America are due to our hypothesized underlying differences focus on internal mental states, study 2 explicitly manipulates the salience of thinking about thoughts vs. actions.

3. Study 2: Manipulating Thought vs. Action Salience

In study 2, we examine one mechanism that may drive the cross-sample differences in study 1: focus on internal thoughts vs. external behaviors. To test this, we manipulate the salience of thoughts vs. actions before participants make moral judgments. We propose that this induction to think about thoughts will preferentially boost focus on thoughts, therefore leading to harsher judgments of negative intent. Conversely, our induction to think about actions should boost activation of thoughts about behaviors, leading to harsher judgments of negative outcomes.

We propose that the reason why Yasawans judge accidents more harshly than failed attempts in Study 1 is due to Opacity of Mind norms that downplay mental state discussion. Less discussion of minds as the underlying causes of behavior may lead Yasawans to think about thoughts less overall, therefore making the mentalistic reaction to behavior via intention less salient as well. If this is the case, then experimental reminders to think about thoughts should increase the salience of thoughts as important drivers of behavior, therefore increasing the harshness of their judgments about negative intent. This may be especially obvious in failed attempts (as intentional successful violations still conflate negative intent and negative outcome).

Similarly, if North Americans are habitually not taking the situation into account and over-emphasizing mind, then reminders of actions should promote outcome focus.

3.1. Method

3.1.1. Participants

For study 2, we recruited 72 Yasawan villagers from May-June 2014 and 132 Canadians from January to June 2015 (see Table 4). Yasawans participated over repeated, short (15-20 minute) sessions using the same recruitment method as Study 1. Canadian university students studying psychology were remunerated with course credit. One hundred twenty-one Canadian student participants completed study materials in the lab administered by a fellow university student working as a research assistant; a further 11 participated online.

	Participants N	Age Mean (min.- max.)	Education Mean (min. – max.)	Sex N Women	Religion
Yasawans	72	42.18 (18-80)	9.36 (4-15)	39	Christian (Protestant): 72
Canadian Students	132	20.20 (17-33)	13.81 (10-21)	94	Religious: 67 • Abrahamic: 40 • Non-Abrahamic: 27 Non-Religious: 58 • Atheist: 20 • Agnostic: 15 • None: 23
TOTAL	204	32.01 (17-80)	11.42 (4-21)	133	

Table 4 Study 2 sample demographics

As with study 1, Yasawa sample size was heavily constrained by small village populations. Recruitment was similarly targeted with the goal of approx. 30 observations per intent condition and thought vs. action prime combination. We used the same logic to recruit our Canadian student sample, targeting approx. 30 observations per intent and prime combination. We needed

nearly twice the sample size for the students due to differences in the site-specific procedures (detailed in Figure 2 and section 3.1.3. below).

3.1.2. Materials

We use the same norm violation vignettes from Study 1, but we only use poisoning a water source, theft, violating a social taboo, and failures in cooperation. We also introduce a salience manipulation to induce participants to think about thoughts (Thought Prime) or think about actions (Action Prime) before considering each vignette. We couch primes within a question about supernatural agents: What do these agents want and not want people to think or do?[8]

For our Thought Prime, we ask participants to list up to 5 examples of thoughts God would or would not want them to think, whether God can reward or punish them for these thoughts, and (if they answered yes to possible reward or punishment) what kinds of rewards or punishments they might receive. Our Action Prime used the same wording but asked about what actions God would or would not want them to do, if they could be rewarded or punished, and what those punishments or rewards might be. Because both the Thought and Action primes include positive (desirable/ reward-worthy) and negative (undesirable/ punishment-worthy) elements, we asked about the positive and negative thoughts or actions as separate questions presented in counterbalanced order. For both samples, the primes were administered within subject, such that all participants were primed with both the Thought and Action primes. For example: participant

[8] We use this religious framing in our primes because they were relevant to both populations. Our ongoing research with these Fijian communities often involves interviews about supernatural and religious beliefs. Because these participants know we are interested in what they believe God or local spirits want, this framing is less likely to arouse suspicion and provides additional information for our separate but related projects on religious belief. As the results in supplementary Table S12 show, asking Yasawan participants about God's judgments in study 1 did not increase their ratings of how much they saw violations as intentional. If anything, asking about God lead to non-significant *decreases* in intent ratings – Yasawans who were asked about God's opinions tended to rate violations as slightly more *by accident* than those who were not asked about God's opinions. Analyses in supplement section S2.2. show that Canadian participants in study 2 who believe in God did not significantly differ from non-believers.

A might answer about thoughts God would want (positive), thoughts God would not want (negative), then judge a violation vignette. Next, participant A might answer about actions God would not want (negative), actions God would want (positive), then judge a second vignette. Yasawans answered one Thought prime and one Action prime for the Christian God and a second Thought prime and Action Prime for local ancestor spirits in counterbalanced order. The Christian God is typically concerned about moral affairs beyond local norms; the local ancestor spirits care more about respect for traditional village norms (McNamara & Henrich, 2018). North Americans only answered one Thought prime and one Action prime for whatever entity they thought of as 'God.'

3.1.3. Procedure

Procedures for each site are depicted in Figure 2 Site-specific procedures for study 2. and supplement section S2.1. Yasawans participated in 4 sessions, each separated by approx. 24 hours. Each session featured one primed vignette, for a total of 2 Thought primed judgments and 2 Action primed judgments. Participants responded to 1 intentional, 1 accidental, 1 failed attempt, and 1 no violation vignette. Participants later answered questions about God, humans, and local ancestor spirits mental capacities in a fifth session. All materials were counterbalanced order. Each session lasted approx. 20 minutes.

Canadian students participated in one, approx. 60-minute session with 2 primed judgments. Primes were presented in counterbalanced order. Judgments were separated by a distractor task asking participants to view 8 neutral images and list up to 5 words or phrases to describe each. After the second judgment, participants answered questions about human and divine mental capacities, mentalizing abilities (EQ short: Wakabayashi et al., 2006), and demographics.

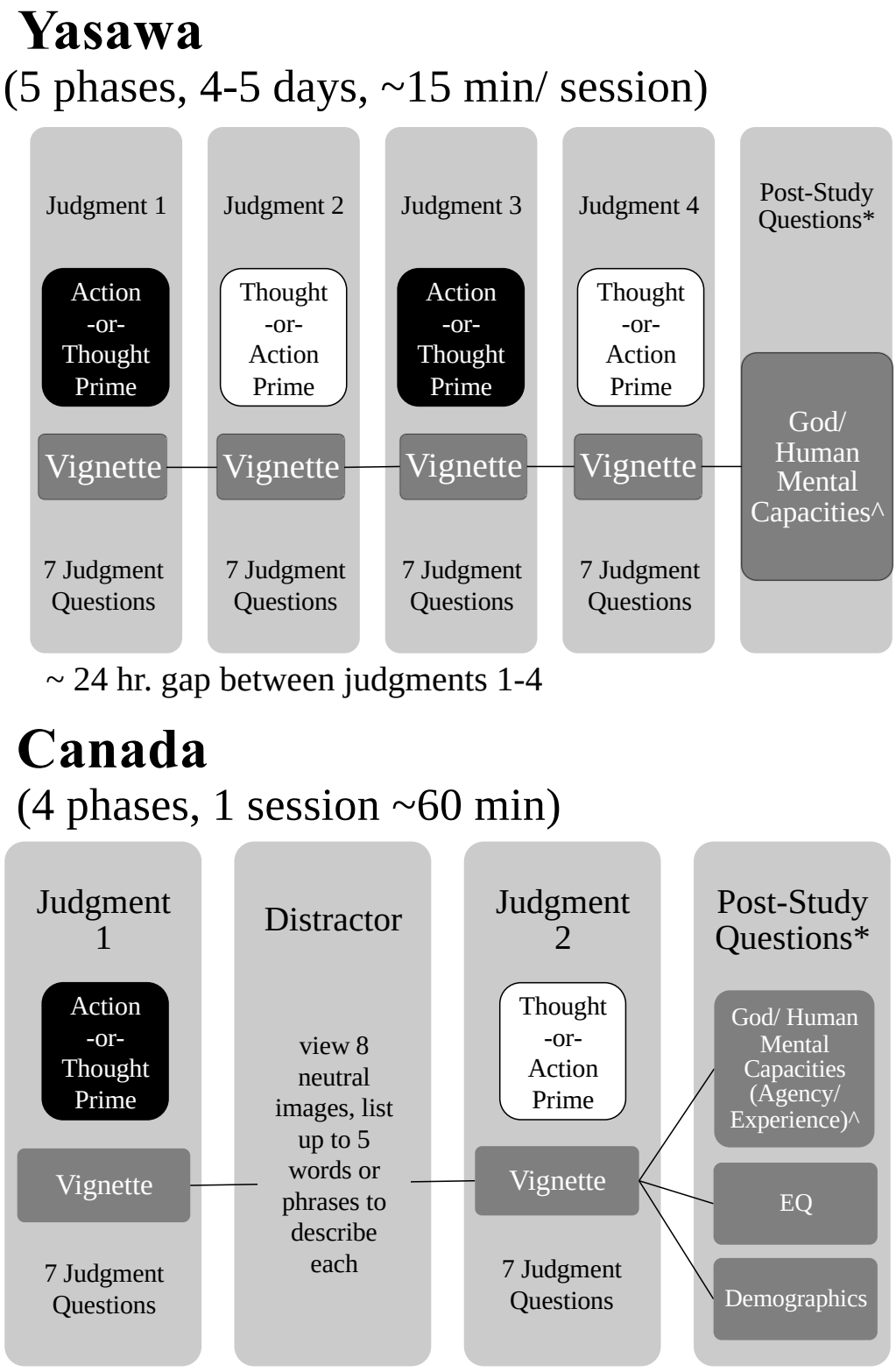

Figure 2 Site-specific procedures for study 2. Thought & Action Primes were counterbalanced for both samples.

3.2. Results

Our analysis of study 2 parallels study 1, except that we add interactions to test for possible priming effects. We again use two separate models to analyze permissibility and punish-worthiness ratings as our two primary dependent variables (see supplement sections S2.4. and S2.5. for manipulation check analyses). We account for multiple observations using multilevel linear regression with random intercepts for participants. As with our test for whether samples reacted to intent conditions with an interaction in study 1, we again add this interaction in study 2. We further test whether a difference in effect of intent conditions for each sample differed by prime with an interaction between sample, intention condition, and prime. We also include controls for violation domain (with poison as the reference domain), how much the participant reported they thought the perpetrator intended to perform the action, the order each vignette was observed in, and whether North American participants said they believe in God or not (see supplement section S2.2.). We do not find a significant difference in how Yasawans responded to primes asking about the Christian God or the local ancestor spirits (prime x intent condition x supernatural agent $F(3, 265) = 0.21$, $p = 0.88$), so we collapse them together for this analysis. Multilevel models are fit in R (R Development Core Team, 2008) using the lme4 (Bates et al., 2014) and lmerTest (Kuznetsova et al., 2014) packages.

3.2.1. Priming Effects on Badness and Punishment Across Intent Conditions

Figure 3 illustrates that the primes had the strongest impact in Yasawa, with the biggest differences emerging in Yasawans' ratings of failed attempts. Yasawans rate failed attempts as 0.76 of a point less permissible when reminded of Thoughts rather than Actions ($b_{Action\ Prime\ -\ Thought\ Prime} = -0.76$, CI.95 [-1.20, -0.32], $p = 0.001$) and nearly a full point more worthy of punishment ($b_{Action\ Prime\ -\ Thought\ Prime} = -0.97$, CI.95 [-1.33, -0.60], $p < 0.001$). But the prime did

not have a significant effect on either permissibility or punish-worthiness for accidents. Despite this lack of noticeable priming effect on accidents alone, Yasawans do still favor outcome in their judgments when primed with actions. The contrasted means in Table 5 show that, primed with actions, Yasawans rate accidents as 0.51 of a point less permissible than failed attempts ($b_{Accidents\text{-}Failed\ Attempts}$ = 0.51, CI.95 [0.07, 0.94], p = 0.03), though the Action Prime did not produce a difference in punish-worthiness ratings between accidents and failed attempts ($b_{Accidents\text{-}Failed\ Attempts}$ = 0.06, CI.95 [-0.32, 0.45], p = 0.75). The Thought Prime also lead Yasawans to rate failed attempts as 0.65 of a point more deserving of punishment than accidents ($b_{Accidents\text{-}Failed\ Attempts}$ = -0.65, CI.95 [-1.14, -0.26], p = 0.002). Yasawans also rate failed attempts as 0.37 of a point less permissible than accidents after being primed to think about thoughts, but this difference failed to reach conventional significance ($b_{Accidents\text{-}Failed\ Attempts}$ = -0.37, CI.95 [-0.81, 0.08], p = 0.11)—although based on the CI most of the probability mass favors a positive effect. Yasawans continue to rate intentional violations as the worst in both primes, suggesting that the primes are most effective in intensifying Yasawan's focus on intent without suppressing their focus on outcome. North Americans continue to be focused on intent with both primes for permissibility and punish-worthiness.

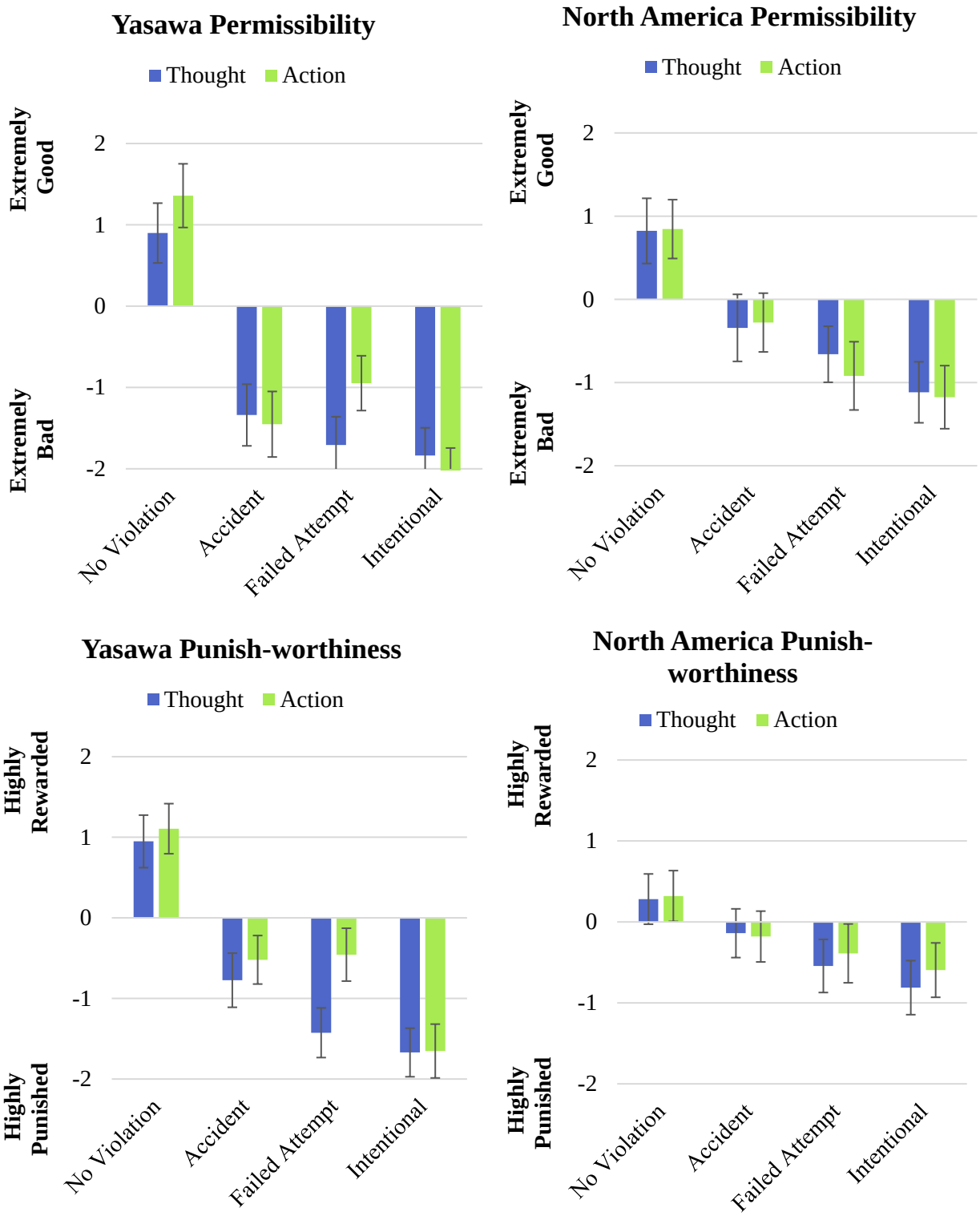

Figure 3 Mean ratings of Permissibility and Punish-worthiness DVs for Primes by Sample and Intent Condition, controlling for violation domain and demographics. Error bars show 95% CI**.**

		Thought				Action			
		Yasawa		Canada		Yasawa		Canada	
		Good/ Bad	Reward/ Punish	Good/ Bad	Reward/ Punish	Good/ Bad	Reward/ Punish	Good/ Bad	Reward/ Punish
		b [95.CI]	*b* [95.CI]	*b* [95.CI]	*b* [95.CI]	*b* [95.CI]	*b* [95.CI]	*b* [95.CI]	*b* [95.CI]
Accidents vs. Failed Attempts		-0.37 [-0.81, 0.08]	-0.65** [-1.14, -0.26]	-0.31 [-0.79, 0.16]	-0.41† [-0.83, 0.02]	0.51* [0.07, 0.94]	0.06 [-0.32, 0.45]	-0.64* [-1.13, -0.15]	-0.21 [-0.64, 0.23]
Accidents vs. Intentional		-0.50* [-0.94, -0.06]	-0.90*** [-1.28, -0.51]	-0.77** [-1.27, -0.28]	-0.67** [-1.11, -0.24]	-0.66** [-1.1, -0.22]	-1.13*** [-1.51, -0.78]	-0.90*** [-1.36, -0.43]	-0.41† [-0.83, -0.003]
Accidents vs. No Violations		2.24*** [1.77, 2.70]	1.72*** [1.32, 2.13]	1.17*** [0.66, 1.68]	0.42† [-0.03, 0.87]	2.81*** [2.39, 3.24]	1.63*** [1.27, 1.97]	1.12*** [0.68, 1.57]	0.50* [0.11, 0.89]
Accidents	vs. Canada	0.99*** [0.43, 1.56]	0.64* [0.14, 1.14]	--	--	1.17*** [0.67, 1.68]	0.34 [-0.11, 0.79]	--	--
Failed Attempts	vs. Canada	1.05*** [0.55, 1.54]	0.88*** [0.44, 1.32]	--	--	0.03 [-0.89, 1.00]	0.06 [-0.43, 0.57]	--	--
Intentional	vs. Canada	0.72** [0.20, 1.24]	0.86*** [0.40, 1.32]	--	--	0.94** [0.39, 1.48]	1.06*** [0.57, 1.54]	--	--
No Violation	vs. Canada	-0.07 [-0.62, 0.47]	-0.67** [-1.15, -0.18]	--	--	-0.51† [-1.03, -0.002]	-0.79** [-1.24, -0.33]	--	--

Omnibus Differences	Good/ Bad ***F* (df_{num}, df_{denom})**	Reward/ Punish ***F* (df_{num}, df_{denom})**
Sample x Prime	2.47 (1, 508)	3.05† (1, 387.76)
Sample x Intent Condition	12.55*** (3, 508)	23.73*** (3, 452.24)
Intent Condition x Prime	1.43 (3, 508)	2.26† (3, 492.07)
Sample x Intent Condition x Prime	2.94* (3, 508)	1.94 (3, 492.85)

Significance codes: ***<0.001, **<0.01, *<0.05, †<0.1

Table 5 Study 2 Permissibility and punish-worthiness ratings of accidents vs. other intent conditions by sample and prime with contrasted mean sample ratings by intent condition and prime. Negative values indicate less permissible and more punish-worthy. Profile Likelihood CI. SE and df approximated using Satterthwaite approximation. Numbers in table are calculated as differences

between relevant sample estimates. Note: outcomes are subjective judgments; cross-society comparisons should be interpreted with caution as subjective judgments cannot dissociate potential effects of response style.

3.3. Discussion

In Study 2, we find evidence to support our prediction that Yasawans make harsher judgments of negative intent following our Thought Prime's reminders to think about thoughts. The Action Prime, on the other hand, was followed by Yasawans making harsher judgments of negative outcomes (esp. accidents vs. failed attempts); replicating the results of study 1. However, neither prime appeared to produce a distinct effect among our North American participants – perhaps mental states as the causal focus for explaining behaviors is too pervasive in North America rendering them immune to this manipulation. It has been similarly difficult to experimentally induce North Americans to adequately consider the situation in addition to their typical preference for dispositional, trait-based behavioral explanations (Choi & Nisbett, 1998; Choi, Nisbett, & Norenzayan, 1999).We do, however, find that North Americans judged successful intentional violations as worse than failed attempts following both primes, which does not replicate the intent focus observed through harsher judgments of failed attempts from study 1. Contrary to our prediction, our Action Prime was still followed by North Americans making permissibility judgments based primarily upon intent. This may lend further support to previous research suggesting that permissibility judgments are especially focused on intent information in North America (Cushman, 2008). Our predicted prime effects were only weakly supported in North Americans' judgments about reward or punishment. Though the Action Prime was still followed by North Americans making punishment/ reward judgments based on intent, outcome information did also influence these judgments. The Thought Prime, on the other hand, was followed by reward/ punishment judgments that were primarily influenced by intent.

Because of the religious framing, one might argue that individual differences in our North American participants' religious beliefs may also have affected the study 2 primes. However, we

did not find evidence that the effects of the primes depended on whether individuals self-identified as religious believers or non-believers, and belief did not predict permissibility or punish-worthiness judgments. We also find that there was no significant difference between North Americans who were and were not asked about God's opinions in study 1. As the analysis in the supplement section S2.2. shows, differences in personal belief do not appear to sufficiently account for the lack of difference in moral judgments between the study 2 primes.

4. General Discussion

In study 1, Indigenous iTaukei Fijian participants living in Yasawa, Fiji, who hold Opacity of Mind norms that discourage mental state-based behavioral explanations, also focused more on negative outcomes than North Americans and other Fijians of Indian descent who do not hold Opacity of Mind norms. Our data allows us to contrast judgments of accidents (negative outcomes without negative intentions) against failed attempts (negative intentions without negative outcomes). Yasawan participants were found to incorporate mental state information via intent in their judgments, though they emphasized outcome by judging accidents more harshly. Both North American and Indo-Fijian participants, on the other hand, made their judgments based primarily on perpetrator intent. Because our Yasawan participants judged bad outcomes more harshly while our Indo-Fijian participants did not, it is unlikely that this difference boils down to broader global, cross-cultural patterns of collectivism vs. individualism.

Study 1 results corroborate results found by Barrett and colleagues (2016) and provide further evidence against a strong moral intent hypothesis – our evidence does not support the notion that intentionality focus is an accessibility universal, equally cognitively available in all societies and used for the same purposes in a way that could indicate a species-typical human trait (Norenzayan & Heine, 2005). Data instead supports a weak moral intent hypothesis,

suggesting that intent focus is or can be taken into account in most societies, but the specific ways that intent is used vary. This weak moral intent hypothesis does not, however, distinguish whether the use of intent information in moral judgements would amount to a functional universal (use for the same ends in all societies but different in how readily cognitively available it is) or an existential universal (present in all societies but used for different purposes and not equally cognitively available in all societies - see Norenzayan & Heine, 2005). We seek to provide some evidence to distinguish these possibilities in study 2.

In Study 2, we examine one mechanism that might drive the cross-societal differences shown in study 1: the extent to which thoughts about thoughts are readily available to participants when assessing others' behavior. If intent focus is a matter of how salient thoughts are at the time of making a judgment, this would lend support to intent focus as serving the same function (a functional universal). When we primed participants to think about thoughts before making their moral judgments, Yasawan participants judged the negative intent of failed attempts more harshly. This shows that the Yasawans' outcome focus in study 1 may be a matter of salience; living in the context of norms that discourage discussing minds as the causes of behavior, our Yasawan participants may have been less likely to automatically think about mental states like intention as important sources of information about behavior. When reminded to think about thoughts, however, this source of behavioral information becomes more salient and intent becomes a more important factor in responding to behavior.

North American participants, on the other hand, did not show significant differences in their judgments following either prime. This is consistent with other work that shows North Americans may be less inclined to take the non-mentalistic, situational factors into account when explaining behavior, even when explicitly reminded to do so (Choi et al., 1999; Choi & Nisbett,

1998). We suggest this may be because North Americans are hypermentalizing, or thinking about minds too much, to such an extent that our primes could not influence their judgments enough to be measurable in the present data. We further find some limited evidence that North American's permissibility judgments were especially resistant to incorporating outcome information. This again would lend support to our claim that the North American model of minds as the fundamental source of all action would lead to bad thoughts being more inherently bad than bad actions.

One might argue our observed differences in intent vs. outcome focus have less to do with mental state reasoning than the cognitive load Yasawan participants experience from unfamiliarity with research tasks. However, we do not find that age or education predict any significant differences in judgments across cultural groups in either study 1 or 2. Further, a specific difference in cognitive load for Yasawans would not explain the pattern of findings in study 2. One might argue that the cognitive load with the prime would be even greater, but we find Yasawans do focus in on intent when they are reminded to think about thoughts.

4.1. Why Reference Minds? Cognitive Efficiency & Relational Mobility

The current data take the next step beyond documenting cross-societal variation by beginning to examine specific aspects of the social norm environment. We find evidence that behavioral rules and expectations within social norms can influence decisions in social domains beyond the apparent scope of the norm. But why would a norm that discourages talking about minds emerge in a society in the first place? We propose two non-exhaustive possibilities: 1) *cognitive efficiency:* a general effect of situations being more determinant of behavior due to a context of clearly defined sets of rules and expectations, and 2) *relational mobility*: a more specific effect of highly interdependent, geographically isolated communities where the costs of

disagreements with your neighbors are comparatively higher than in societies with more fluid social and geographic boundaries.

4.1.1. Cognitive Efficiency: Tight Behavioral Structuring Reduces Informational Value of Mental States

Mental state inference may only be a useful source of social information within the right socio-cultural context. For much of human history, the desires and goals of the community or the family have outweighed individual concerns (Brison, 2001; Gelfand et al., 2011; Heine, 2001). These community-focused desires and goals are associated with practices and beliefs that promote tight group cohesion, distinct group boundaries, and firm adherence to norms. The beliefs and behaviors that promote these close-knit communities may themselves stem from cultural adaptations to sustain cooperation, especially in situations that pose existential threat from harsh environments, disease, or resource scarcity (Bauer, Cassar, Chytilová, & Henrich, 2014; Botero et al., 2014; Fincher & Thornhill, 2012; Hruschka et al., 2014; Murray, Trudeau, & Schaller, 2011; Van de Vliert, 2011). Tight group cohesion and strict norm adherence might be especially effective for survival in these situations because a system of clearly defined, widely known rules and expectations would reduce the range of choices an individual actor can make while simultaneously reducing the effort needed to interpret and respond to those actions. In such a system, the valuable time following any given disaster would not be lost in negotiation – everyone would already know their roles and responsibilities in responding to the threat. This defined situational structure for behavior can then facilitate smoother, more efficient, long-term coordination and cooperation (for an example of how norms might facilitate cooperative coordination, see: McNamara & Henrich, 2017). Other lines of research also corroborate that more community-oriented societies also often pay less attention to intent in their moral

judgments (Cohen, 2003; Hamilton et al., 1983; Laurin & Plaks, 2014). Intent may receive less emphasis in these societies because norms make the situation such a strong determinant of behavior that individual mental states make very little impact on behavior. Personal, internal mental states would then be a poor predictor and much harder to infer from the behavioral cues available; and thus, a poor use of one's limited social-cognitive resources.

A major limitation to this cognitive efficiency explanation is of course that our Indo-Fijian sample, who are also more community-oriented than most samples from Western populations, do not show the outcome focus that our Indigenous iTaukei Fijian samples do. So, while there may be some evidence to support a general effect of communal group orientation relating to tighter situational constraints and less reliance on mental state information to predict behavior, collectivism/ individualism alone cannot explain the present pattern of findings (Laurin & Plaks, 2014; Young & Saxe, 2011). We therefore further suggest that there may be some additional socio-ecological constraint in some societies that further shapes locally-contingent models of mind. We suggest relative isolation, and consequent higher costs of moving away from social conflict, may further promote the adaptive benefits of a model of mind that treats minds as unknowable.

4.1.2. Relational Mobility: When Costs of Community Conflict are High, Focus on Behavior Promotes Consequentialist Thinking

What does avoidance of mind talk do for people in societies with Opacity of Mind norms? Our data suggest that one result is more outcome-focused, consequentialist patterns of moral judgments. By focusing on what can be directly observed in behavior rather than what must necessarily be inferred within the unseen realm of mental states, this consequentialist orientation might curtail unprovable inferences when it is difficult to move away from social sources of

conflict. In societies like our participating Indigenous iTaukei Fijian communities, reliance on traditional, communal food production and ownership models, combined with living in relative isolation on islands, may increase the costs of not getting along with your neighbor substantially more than for societies who rely on more autonomy and who live on larger landmasses with more area to disperse over. Opacity of Mind norms have been identified in Pacific Island communities like Fiji, Samoa, and among societies in Papua New Guinea[9] (Duranti, 2015; Robbins & Rumsey, 2008). Other societies that express doubt about the accessibility of others' mental states include highland Maya (Groark, 2008) and nomadic but geographically remote Inuit groups in the high arctic (Briggs, 2008). While we caution against lumping all of these societies into the same phenomenon, similarities across them may point to a general adaptive strategy for dealing with deep social interdependence and steep costs of losing those social connections.

Relational mobility as construed here also has similarities to group entitativity, or the extent to which groups are seen as collective wholes and group members seen as interchangeable (Lickel, Wieczorkowska, & Lewis, 2000). Groups that are seen as more cohesive wholes by outsiders and insiders are more likely to be ascribed collective responsibility and collective blame for various actions (Denson, Lickel, Curtis, Stenstrom, & Ames, 2006; Waytz & Young, 2012). These perceptions of being a member of a more entity-like, cohesive group may be another mechanism driving collectivism and in-group cohesion: experimental inductions of uncertainty lead to higher endorsements of group membership in highly entitative groups (Castano, Yzerbyt, Paladino, & Sacchi, 2002). Some research of moral reasoning among

[9] Though PNG is geographically larger than many Pacific Island nations, its history of cultural and linguistic barriers to gene flow make it one of the most genetically diverse countries in the world (Bergström et al., 2017). These cultural barriers to mixing across groups also speak to the relative relational immobility among these societies.

participants in Hong Kong suggested that people living in a collectivistic, group-oriented environment are also more likely to endorse collective responsibility (C. Y. Chiu & Hong, 1992). Taken together, group entitativity and collective responsibility may be in part responsible for patterns of witchcraft and sorcery concerns in societies with documented Opacity of Mind norms within Melanesia. In these societies, illness of protracted length (or one leading to death) is often attributed to sorcery or witchcraft by some member of another group. When the sorcery/ witchcraft allegation is put forward, individual members of the group may or may not be identified. Importantly, the individual's kin or other focal group has some responsibility for delivering the appropriate compensation to the ill or deceased person's group (Patterson, 1974).

Cognitive efficiency and relational mobility need not be mutually exclusive mechanisms. Living in a society with strict situational guidelines for behavior with more hard-and-fast behavioral constraints makes obligation to family and social status a more important determinant of action than individual desires and beliefs. Mental state inference can be an effective and efficient strategy when individuals are given the autonomy to act according to their own desires and goals, because, in such a context, individual behavior is indeed the direct reflection of individual desires and goals. However, the need to avoid mental state inference as a potential source of conflict is even greater in cases where people depend on each other for basic survival and cannot easily remove themselves from a conflict. Thus, the two may both be in operation in places with more demonstrable Opacity of Mind norms while cognitive efficiency alone may account for broader cross-cultural differences between more autonomous and more mind-focused societies vs. more interdependent and more situation-focused societies.

4.2. Future Directions

It is important to note, however, that the previous work on resistance to considering the situation in North American samples focused on attributions about stable traits, not transient mental states (Malle, 2006). Whether intentions might be thought of in ways similar to or different from stable dispositional traits is beyond the scope of the present research. However, early social psychology theorists suggested that inferences about actor intent were a core part of how people determine behavioral causality (Heider, 1958), and how we build inferences about stable, internal dispositions (Jones & Davis, 1966). American children begin to link information about repeated and intentional actions into inferences about dispositional traits starting in middle childhood (Boseovski, Chiu, & Marcovitch, 2013; Rotenberg, 1980). When no intention information is given, American adults will infer an intention based upon previous positive or negative experience with that person (Chakroff & Young, 2015; Kliemann, Young, Scholz, & Saxe, 2008). Further study is needed to determine if people living in the context of different cultural models of mind might spontaneously infer intentions to evaluate behavior and whether they might produce different patterns of dispositional attributions.

While the verbal and self-report accounts people give in Opacity of Mind contexts suggest *talking* about minds is discouraged, it remains unclear how this translates to *thinking* about minds. How, at a cognitive processing level, might such norms influence the ways that people track what other agents perceive, desire, and know/ believe? Our study 2 finding that Yasawan participants judged outcome less severely when reminded to think about thoughts hints at a cross-cultural difference in how often minds are the preferred causal explanation of behavior. We suggest this could be the result of lower chronic activation of mind concepts; if the Opacity of Mind norms reduce habitual usage of mental states as explanations of behavior, then mental state

concepts would be less often activated and therefore less often relied upon to interpret and respond to behaviors. From a Western perspective, it is tempting to conclude that this must mean that Indigenous iTaukei Fijian culture is suppressing mentalizing. But, it is equally possible that Western beliefs, practices, and institutions boost mentalizing. We suggest both may be occurring.

Another possibility is that both groups think about minds in exactly the same ways, but the social acceptability of talking about it makes our results look different. If this is the case, then we would expect that our Yasawan participants would have the same initial responses to intention, but have to suppress it to reach the outcome-focused responses. One could similarly take the opposing prediction, suggesting that North Americans simply suppress the outcome to reach the intention-focused response. Similarly, the cognitive processing behind mental state attribution could be the same in all cultural contexts – the same informational cues may be attended to and used to reach similar conclusions in all contexts – but the link between mental states as the causes of behaviors may not be as strong in the Opacity of Mind context. This link between mind and behavior may be less salient or even absent all together because other elements of the situation are more predictive and therefore better targets of attention when interpreting others' actions. If this is the case, then the existing behavioral measures of Theory of Mind like the False Belief task would produce results that look different because participants from Opacity of Mind societies would not use mental state information (i.e. the false belief) to provide the behavioral prediction (i.e. point to the location where the protagonist will look for the object) that forms the core of the task measure. Yet another possibility, stemming from the cognitive efficiency hypotheses above, may be that people in Opacity of Mind contexts simply rely more on different informational cues – perhaps fully attending to different elements of the situation not present in the existing body of research (like kinship relationships or other village-relevant, contextual

factors). Future research into what people in different socio-cultural contexts attend to and focus on when evaluating behavior can shed further light on how cognitive processes within Theory of Mind function, what sorts of cooperative dilemmas they can resolve, and how they may have evolved within various cultural configurations over human history.

Another important future direction for this research lies in assessing how these patterns of moral judgment may vary with psychological development. Studies with infants in North America show that babies as young as eight months use intent to make socio-moral judgments (Hamlin, 2013). Though there is some variation in how old children are when they pass verbal theory of mind tests (Barrett, Broesch, Scott, He, Baillargeon, Wu, et al., 2013b; Callaghan et al., 2005; Shahaeian, Peterson, Slaughter, & Wellman, 2011), North American infants show some evidence for thinking about beliefs by their second year of life (Heyes, 2014; Low & Perner, 2012; Onishi & Baillargeon, 2005). Taken together, these infant and child studies suggests that intentionality reasoning happens early in development and may be a culturally-universal aspect of our core cognitive architecture (Woodward, 2009). It remains to be seen whether this focus on intent may also be present in cultures that downplay mentalizing, or whether the equivalent focus on intent and outcome is present early in life.

5. Conclusion

Culturally-transmitted norms that dictate appropriate social behavior and guide our interpretations of others' actions may fundamentally alter the ways we see and interact with the world around us. We examined how different norms on thinking about minds lead to intent vs. outcome-focused moral reasoning. We further provide data to suggest focus on intent vs. outcome may be linked to salience of thoughts when making moral decisions. Because these cultural norms may have developed to address specific social and/ or ecological pressures

societies face, these norms may have an important role in helping people adapt to various socio-ecological environments around the world. By linking group-level, culturally-transmitted concepts and individual-level cognitive processes, we can further examine how culture may tweak minds to suit the constraints of particular environments and social worlds.

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