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Emotion, Adaptation, and Natural Kinds: A Look at Shame and Guilt

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Abstract

Much of the work on the evolutionary origins of human emotions views emotions as standing or falling together: either all of our emotions are natural kinds or none of them are. In this paper, I challenge the orthodoxy. Taking shame and guilt as case studies, I argue that while we have good reason to see shame as a biological adaptation, and so a kind, the case for guilt is much less impressive. But this conclusion raises an important question: if guilt isn't an adaptation, then what is it? In response, I argue that guilt might be best understood as a type of emotional technology: a culturally-driven innovation that helped our ancestors address particular, recurrent challenges of social life. The resulting picture not only offers a revisionary account of the nature and origins of shame and guilt, but also reshapes our thinking about whether emotions—as a class—are natural kinds.

Keywords: Emotion, Evolution, Natural kind, Emotional technology, Shame, Guilt

It's a perennial question in emotion theory: are emotions natural kinds or social constructions? On this, I say it depends. It depends because although the term "emotion" does not pick out a natural kind, some of the things that we call emotions are kinds. In what follows, I defend this claim by taking shame and guilt as case studies, looking at them through an evolutionary lens. As a pair of self-conscious emotions, shame and guilt are generally thought to be aligned in the sense that either both are adaptations or neither is (see e.g. Ramsey and Deem 2022; Frank 1988; James 2011; D'Arms and Jacobson 2023; Krebs 2011; Griffiths 1997, Prinz 2004; c.f., Ortony 1987, Elison 2005). Moreover, evidence that an emotion is an adaptation invites the further conclusion that it's also a kind, for being an adaptation is generally seen as the mark of kindhood in biology and psychology (Griffiths 1994, 1996; Kurth 2018). But while widely held, the idea that shame and guilt stand and fall together is mistaken. In what follows, I'll argue that while we have good reason to see shame as a biological adaptation—and so a kind—the parallel case for guilt is much less impressive. I'll also show how appreciating this more complicated picture of the origins of shame and guilt has revisionary implications for broader debates about whether emotions should be understood as natural kinds.

To make my case, I begin by specifying a set of criteria that tell for when an emotion is plausibly understood as an adaptation (§1). Drawing on research in philosophy as well as the social and cognitive sciences, I then use these criteria to defend my claim: shame is an adaptation, but guilt is not (§§2–3). Yet this conclusion leaves a big question unanswered: if guilt is not an adaptation, then why do we have the ability to feel it? Here I argue that guilt might be best understood as a type of emotional technology: a culturally-driven innovation that

helped our ancestors address particular, recurrent challenges of social life (§4). Not only does this proposal enrich our understanding of the nature and origins of guilt, but it adds needed detail to the vague talk among emotion theorists about emotions being "social constructions." I then conclude by returning to the question of kinds, showing how these conclusions about shame and guilt should reshape our thinking.

1. Features that Tell for an Emotion Being an Adaptation

To say an emotion is an adaptation is to say there's some distinct, heritable trait that was selected for by Darwinian forces because that trait provided a fitness advantage to those who possessed it. What I will call the "telling features" ("TFs," for short) are things that, when found, provide evidence that a trait is an adaptation. The five TFs that I focus on should be familiar—they're found across a range of disciplines in discussions about the evolutionary origins of human emotions (e.g. Sznycer and Cohen 2021; Ekman 1999; Griffiths 1997; Scarantino and Griffiths 2011; Maibom 2010; Kurth 2016; 2018; Boehm 2012; Fessler 2004; 2007; Frank 1988). Importantly, the five TFs should not be understood as specifying a set of necessary and sufficient conditions on what it is for an emotion to be an adaptation. Rather, they're (defeasible) pieces of evidence. So, generally speaking, the more TFs a given emotion displays, the stronger the case that it's an adaptation. Additionally, while other TFs have been proposed (see, e.g., the discussion of "quick onset" in Ekman 1999), the five that I focus on dominate the literature. Since I take the points that follow to be familiar, I will keep my discussion brief.

> *TF1: Adaptive scenario*. If an emotion is an adaptation, then there should be an account of why it was selected for. Here we need more than a mere "just so" story. We need an account of both (i) the *adaptive challenge/opportunity* that our ancestors faced and (ii) the *distinctive functional role* of the emotion in question. But we also need (iii) evidence that an emotion with this functional role *could have helped* address the challenge/opportunity that was faced.
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> *TF2: Proto-versions of the emotion*. If an emotion is an adaptation, then it's an adaptation of something else. So we should see evidence of that something else—precursors or proto-versions of the emotion—in our evolutionary ancestors.
>
> *TF3: Distinctive mechanisms*. To say that an emotion is an adaptation is to say that there's a heritable trait that was selected for. So we should see evidence of the mechanisms—neural, biochemical, social-psychological, etc.—that undergird that trait. In saying this, I'm not presuming that emotions (traits) should be identified with these mechanisms. Rather, my point is more modest: if we have a trait, then we have a characteristic set of features or behaviours. So there should be an identifiable mechanism (or set of mechanisms) that underwrites this patterning.[1]
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> *TF4: Distinctive expressive routine*. Accounts of the distinctive functional roles that emotions play often point to their role as signals. So if signalling is part of an emotion's function, then we should see evidence of a corresponding, distinctive expressive routine. In saying this, I am not endorsing Ekman's famously controversial idea that the presence of a *unique* facial expression is *definitive* of an emotion

1 Importantly for what's to come, in talking about mechanisms, I follow the philosophical mainstream in thinking that biopsychological traits are most plausibly understood on an anti-essentialist model (e.g. the homeostatic property clusters of Boyd 1999 or the stable property clusters of Slater 2015), rather than as things that have some unique underlying essence (for discussion, see Scarantino and Griffiths 2011; Kurth 2018, ch. 2).

type (1999). Rather, I'm making the more pedestrian claim that if an emotion has a signalling function, then there should be some characteristic signal—some distinctive pattern of vocalisation, body posture, or facial configuration—that tends to accompany tokens of that emotion. For instance, on the standard picture, anger signals aggression in a way that allows a dominant individual to preserve their standing without the risk of a costly fight. Hence the characteristic puffed-up body posture of anger. By contrast, while hunger comes with pain, that feeling is presumably part of an internal, motivational alarm, and not a signal to others of one's hunger. So here there's no expectation of a distinctive, observable expressive routine.

TF5: Heritability. If an emotion is an adaptation, then it has a genetic basis. So we should see some evidence of this heritability—e.g., that the emotion is pan-cultural or that it emerges very early in development.

With this account of the TFs in hand, we can ask whether they're found in shame and guilt. Moreover, while these emotions are familiar, the terms "shame" and "guilt" are often used interchangeably (at least among native English speakers). So an initial gloss on the two emotions will be helpful, even if it's one we'll refine in the discussion that follows.[2] At first pass, I'll understand shame as a painful experience that one has when one, for instance, fails to meet others' expectations, gives a clumsy public talk, harms another person (accidentally or on purpose), or looks a certain way. When ashamed, one feels that one is lower, degraded, or inadequate as a result of what one has done or who one is. These feelings also tend to be accompanied by distinctive motivations: in some situations, one may try to hide (oneself or the source of the shame); in others, one may try to make up for the harm done. Like shame, guilt is also a painful feeling that we experience in a similarly wide range of situations. We feel guilt if we've, e.g., hurt others (intentionally or not), failed to heed our diet or exercise regime, cheated on our partner, or performed poorly. We can also experience guilt in situations where we haven't done harm (e.g. being the only survivor of an accident). In contrast to shame, when we feel guilt, we're more likely to feel a sense of responsibility for the harm or bad outcome. Our attention shifts to the harm or damage that has occurred, and we tend to ruminate on how things could have turned out better. In some cases, we feel motivated to make up for the guilt-producing event, but in others we may try to hide or cover up the harm done.

2. The Case for Shame as an Adaptation

To defend the claim that shame is an adaptation, I draw on a significant body of work in philosophy and the social/cognitive sciences that highlights that shame displays the telling features. While there are limitations in these findings, I argue that they make for a compelling, cumulative case. To bolster this conclusion, I end by considering what I see as the strongest objection to the argument I've made.

We can begin with TF1 (adaptive scenario). Here I take it to border on platitude that an individual's fitness is promoted by stable cooperative arrangements. But it's also near platitude both that humans (and so presumably our ancestors) are imperfect rule followers and that our failure to meet group norms and expectations tends to undermine other's willingness to engage with us—especially as the severity and frequency of our failures

2 Though these sketches are not uncontroversial (see, e.g., Ortony 1987; Elison 2005), they emerge from a wide range of cross-cultural work in philosophy and the cognitive sciences (e.g. Keltner and Buswell 1996; Fessler 2004; 2007; Tangney et al. 1996; Maibom 2019; Fontaine et al. 2006).

increase. This then is the adaptive challenge: how does an individual maintain their status as a cooperative partner in the wake of a (serious or persistent) violation of group norms, expectations, or ideals? Shame is widely thought to be part of the solution. More specifically, in these discussions, shame is understood as an emotion that sensitises one to occasions where one has failed to meet group norms and expectations. In so doing, shame works as a signal and source of motivation. Heidi Maibom explains:

> The person who is ashamed shows to others—through the shame display—not just a *recognition* that they have *failed to live up to public expectations*, but also that they have an adverse emotional reaction to it. … Her shame indicates that she can be *counted on* to live a life with others within the constraints set by the community. (2010, 587–88; emphasis added; see also Beall & Tracey 2020; Sznycer et al. 2018; Fessler 2007; Boehm 2012; Kurth 2025)

But here one might balk, for this account of shame's function seems unable to explain instances of shame that don't concern norm transgressions: shame about one's big ears, say, or being seen naked. But while these are not transgressions *per se*, they are cases where one nonetheless feels that one has failed to live up to (implicit) social expectations or ideals (concerning modesty or how one should look). Moreover, there's an adaptive advantage to being ashamed in "non-transgressive" cases like these—after all, a sensitivity to these social expectations signals one's suitability as a cooperative partner (Greenwald and Harder 1998; Fessler 2004; Maibom 2010).

Moving on, this account of shame's function and adaptive scenario gets enriched by game theoretic modelling indicating that a behavioural response of this sort—namely, behaviour where the transgressor indicates their recognition of the transgression and their intention to do better going forward—is an evolutionarily stable strategy. More specifically, these models indicate that it pays to express shame after a transgression, to the extent that doing so reduces the severity or likelihood of the punishment one's transgression would have otherwise brought. In fact, shame can bring these benefits even if it's costly (e.g., it's painful to experience; it reveals one to have transgressed and so be a legitimate target for punishment). In short, if shame works as researchers like Maibom propose, then these game theoretic models indicate that it's a response that evolution could have selected for as a response to the proffered adaptive challenge (O'Connor 2016; Rosenstock and O'Connor 2018; Shen 2018).[3]

Turn to TF2, where we look for evidence of a proto form of shame. Here researchers note significant parallels between human shame displays and the appeasement responses of chimpanzees and bonobos (Maibom 2010; Boehm 2012; Heesen et al. 2022; Fessler 2007; Keltner and Buswell 1996). For all three primates, we find that aggression by, or even the mere presence of, a dominant group member tends to bring a common pattern of behaviour in subordinates: gaze avoidance, a downward-turned head, and slumped body posture. Moreover, this pattern of behaviour appears to have a distinctive function: it's a signal of submission aimed at forestalling aggression from the dominant, thus helping the individual preserve their standing within the group. Importantly, because this affiliation-seeking submissive behaviour is seen not just in humans but

3 In much of this game theoretic work, the pattern of behaviour modelled gets called "guilt" and not "shame." This might seem to undermine the point made in the text. But it does not, for these researchers are quick to note that their labels are *mere placeholders* for whatever psychological state brings about the behaviour being modelled. It's the behaviour, not the label, that matters—and per the proposal, shame brings the modelled behaviour. But given that guilt also brings this behaviour, why should these findings be taken as evidence for shame's evolution rather than guilt's (as some have argued—e.g., Ramsey & Deem 2022)? The answer, as we'll see, is that independent research suggesting that shame arrived on the evolutionary scene *before* guilt. So it's more plausible to take the game theoretic evolutionary models as evidence for shame. For further discussion, see Kurth 2023.

also in chimps and bonobos, it provides evidence about what the psychological capacities of our common ancestor, *Pan*, may have looked like. Specifically, *Pan* would likely have had a tendency to engage in affiliation-seeking submissive behaviours toward dominant group members (Maibom 2010; Boehm 2012; Fessler 2007; Gilbert and McGuire 1998; Clark 2008). But to say that is just to say that we have evidence of a proto form of shame—namely, the standing-protecting psychological capacity from which both human shame and chimp/bonobo appeasement behaviour both descended (Figure 1). While this argument for proto-shame is somewhat speculative, we have independent evidence of its plausibility. For instance, both humans and apes show similar patterns of activity in their immune systems and stress-management mechanisms (i.e., the HPA-axis) when engaging in affiliation-seeking submission (see e.g. Gruenewald et al. 2007; Kemeny et al 2004). These findings suggest that the shame/appeasement responses are underwritten by common biochemical mechanisms.

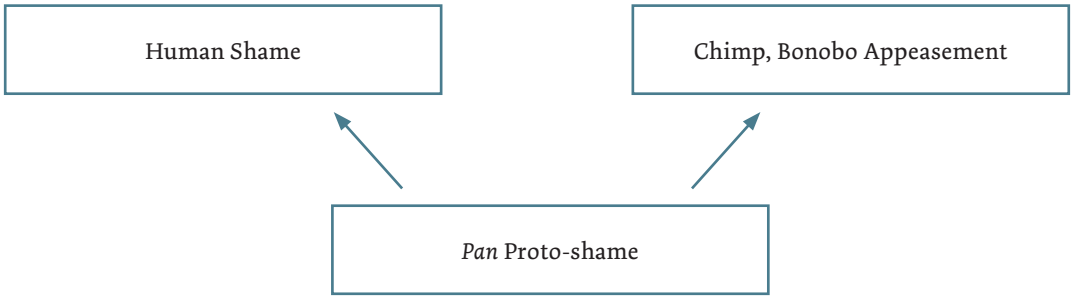

Figure 1. Shame, Appeasement, and Proto-Shame

Moving to TF3 (underlying mechanisms), we've just seen evidence that shame is underwritten by biochemical mechanisms, though it's less clear how unique these mechanisms are. Here work in neuroscience does better, suggesting that shame is supported by distinct neural architecture. More specifically, meta-studies of imaging results suggest that shame and guilt are associated with distinct, but overlapping, neural networks. For shame, we have a network that's centred on *inter alia* the insula and the sensorimotor/premotor cortex, while guilt's network is more associated with the insula and temporoparietal junction (Piretti et al. 2023; Bastin et al. 2016). But we also get an interesting twist from a pair of studies examining cross-cultural differences in the neural patterning of shame and guilt. Petra Michl and colleagues (2014) compared their imaging work on German individuals to the findings of Hidehiko Takahashi et al. (2004) on Japanese participants. The results not only found that there are more cross-cultural differences in the patterning associated with guilt than there are for shame, but also that these differences are disproportionately located in brain regions associated with perspective taking (e.g. the medial frontal gyrus). In an effort to explain this, Michl and colleagues suggest that the differences "indicat[e] that shame manifests itself similarly across cultures, whereas guilt is based more on specific social standards"—a conclusion they take to be grounded in the hypothesis that shame "is linked more directly to biophysiological processes," while guilt is more "culture dependent and learned" (155–56).

We should, of course, be cautious in drawing conclusions from just a few studies. That said, these findings provide interesting data about the origins of shame and guilt. Moreover, Michl and colleagues' conclusion—that the neural mechanisms associated with shame suggest it's biologically hardwired in a way that guilt is not—gain some independent support from a large-scale modelling study done by Dacher Keltner and his team (Keltner et al. 2023). Aggregating findings on the emotion-related experiences of thousands of individuals from around the world, they found cross-cultural support for 21 distinct emotion kinds. While shame was one of these emotions, guilt was not.

Regarding TF4 (expressive routine), shame does not appear to have a distinctive facial expression akin to, say, the gape face of disgust. However, there's widespread agreement that shame comes with a characteristic expressive routine that includes a downward turned head, gaze aversion, and slumped body posture (Beall and Tracey 2020; Maibom 2010; Fessler 2004). In support of this, we've already noted that human shame displays have significant physiological and functional affinities with the appeasement displays of other primates, pointing to their apparent common descent from a form of proto-shame. There is also cross-cultural evidence that these displays are identified as displays of shame at rates significantly greater than chance in Western and non-Western populations, including small-scale societies in Fiji and Burkina Faso (Babcock and Sabini 1990; Tracy and Robins 2008). This is what we'd expect to find given that shame's adaptive scenario (TF1) ascribes a signalling function to the emotion.

Turning to TF5, we have developmental evidence of shame's heritability. For instance, twin studies indicate not just the unsurprising result that shame-proneness is a product of genetic and environmental factors, but also something more significant: while heritable factors are a more significant driver of shame-proneness, environmental factors are a more significant driver of guilt-proneness (Zahn-Waxler and Robinson 1995). Bolstering the conclusion that shame is not a wholly learned or culture-specific behaviour, other work reveals that congenitally blind athletes from both Western and non-Western cultures show the characteristic shame display after being defeated in a competition (Tracy and Matsumoto 2008). That athletes from a range of cultures show shame displays after defeat—despite being blind from birth—strongly tells for it being a pan-cultural, robustly heritable behaviour.

All told, we have evidence that shame exhibits all five telling features. Moreover, the strength of this support is on par with what we find for other emotions that are widely thought to be adaptations, including fear (Öhman 2008; Griffiths 1997), disgust (Kelly 2011; Kurth 2021; Tybur et al. 2013), and anxiety (Kurth 2016; 2018; Marks and Nesse 1994). Yet one might resist this conclusion. After all, we see cultural differences in both what elicits shame and how individuals express the shame they feel. For instance, talk about shame is significantly more prevalent in non-Western cultures such as Indonesia than it is in places like the US (Fessler 2004; see also Kollareth et al. 2018). Moreover, outside of the West, shame is elicited by a wider range of phenomena. The Chinese, for instance, are more likely to feel shame about the misdeeds of a relative than are individuals from the US (Stipek 1998). Similarly, outside the West, shame tends to bring more pro-social behaviour (Bedford 2004; Breugelmans and Poortinga 2006). Findings like these, especially when combined with general scepticism about "basic emotions" (e.g. Barrett 2017; Russell 2004), might lead one to reject the above case for shame as an adaptation.

But that would be too quick.[4] For starters, while we should acknowledge that there are cross-cultural differences in when and how individuals feel shame, we should also recognise that there's a significant degree of similarity. For instance, in a comparative study of shame and guilt in three cultures—Hungary, Belgium, and Peru—the authors noted that "one of the most important findings of this study was the *remarkable similarity* between the three cultural groups'" in how they experienced these emotions (Fontaine et al. 2006). Related work reveals high degrees of similarity between the shame (and guilt) experiences of individuals in Indonesia, Mexico, and the Netherlands (Breugelmans and Poortinga 2006). Another set of large-scale studies found robust patterns of similarity in shame elicitors across three WEIRD nations (Sznycer et al. 2016) and fifteen small-scale societies

4 Here we should flag two things. First, not only is the general scepticism about "basic emotions" voiced by psychological constructivists highly controversial (see, e.g., Scarantino and Griffiths 2011; Kurth 2022, ch. 3), but there's independent reason to doubt their alternative accounts of what emotions are (see, e.g., Scarantino 2015; Kurth 2019).

(Sznycer et al. 2018). So, taken as a whole, it seems that the most plausible conclusion to draw is this: human shame has a biological core that was selected for by evolutionary forces, though the underlying mechanisms also allow for (sometimes significant) cultural refinement with regard to when and how shame is experienced. In this way, shame appears to parallel emotions like anger (Samore and Fessler 2024), disgust (Kelly 2011), and anxiety (Kurth 2018).

3. The Case Against Guilt as an Adaptation

Shifting from shame to guilt, I'll deploy the same strategy: examining the extent to which we see evidence of the telling features. Starting with TF1 (adaptive scenario), the first thing to note is that, in contrast to shame, we have less work in investigating guilt's evolutionary origins (McGee and Giner-Sorolla 2019; Fessler 2004). That said, within the work we have, advocates tend to adopt one of two strategies to defend the guilt-as-adaptation claim. While the first—one that looks to the adaptive advantages of guilt felt in *anticipation* of transgressions—is more historically prominent, it is also less plausible. So I'll focus on the second strategy, where the evolutionary benefits are seen as being brought by *post-transgression* occasions of guilt. But before turning to that, a brief discussion of the first option is in order.

According to the anticipatory guilt strategy, guilt's adaptive value lies in helping individuals sustain cooperative arrangements in the face of opportunities to defect. Anticipatory guilt can do this because the aversive nature of the emotional experience changes one's decision calculus: it makes defection less appealing (Frank 1988; Joyce 2006; James 2011; Krebs 2011).[5] Various issues have been raised about the adequacy of this line of argument. For one, because these models focus on *anticipatory* guilt, and because most of the guilt we experience is *post*-transgression, without more of a story—which defenders have not provided—it's unclear how the benefits of anticipatory guilt could have been selected for (Stich 2008). These models also say little to explain why the benefits of anticipatory guilt outweigh the cost of being guilt-prone (e.g., expressing guilt invites exploitation; guilt is also linked with various psychopathologies) (Ramsey and Deem 2022).

But in addition to these issues, there's a more damning, but largely unnoticed, problem: these arguments do nothing to distinguish feelings of anticipatory guilt from superficially similar—but distinct—emotions. For instance, to my knowledge, nobody who takes guilt to be an adaptation notes the affinities between anticipatory guilt and fear of punishment, much less offers an explanation for why, for the adaptive scenarios proffered, we should think we're talking about guilt rather than fear.[6] This matters because it seems that fear of punishment would actually be a *better* candidate for the mechanism that changes one's decision calculus. After all, fear is generally conceptualised as a forward-looking emotion and so (in comparison to the predominantly backward-looking nature of guilt; c.f. Meriste 2019) would be better equipped to fulfil the role of countering temptations to defect (Kurth 2018). This is all the more so given that fear (of punishment) is generally thought to have arrived on the evolutionary scene before guilt (Kitcher 2011; see also §4 below), thus raising questions about why evolution would have selected for another tool to do the job that fear already does (Kurth 2023).

5 Nichols and Barlassina (n.d.) develop a sophisticated version of this strategy, one that seeks to capture the adaptive advantage of anticipatory guilt, not in terms of its benefits to the guilt-prone *individual*, but rather the groups that the guilt-prone are part of. While this is an interesting twist, the proposal remains vulnerable to the problems discussed in what follows.

6 Elison (2005) notes the affinities between guilt and fear of punishment. But unlike the guilt-as-adaptation advocates, he *denies* that guilt is a distinct emotion that evolutionary forces have selected for. We will return to discuss Elison's view below.

The second strategy focuses not on the role of anticipatory guilt, but of post-transgression guilt. Here the most worked-out accounts of guilt's adaptive scenario focus on its ability to help individuals preserve their standing after transgressing group norms or expectations (see, e.g., Ramsey and Deem 2022; Fowers 2019). More specifically, these accounts focus on guilt as a tool that helps individuals change the motivations of conspecifics, thereby facilitating forgiveness, reducing punishment, and speeding up reintegration.[7] Developing this, defenders note that guilt is a painful emotion that we experience when we feel we're responsible for a transgression. As such, it motivates us to engage in various efforts to make up for the harm we've done: by acknowledging that one has transgressed and by showing an interest in making amends, one makes progress in regaining the trust of one's peers.

But defenders add that if this were the end of the story, it wouldn't be enough—it wouldn't explain why the transgressor's peers opt to reincorporate them into community life rather than just taking advantage of them (Ramsey and Deem 2022; see also Fowers 2019). To close this gap, defenders argue that we need to appreciate the work that our tendency to feel *empathy* in response to seeing the distress of another can do. More specifically, empathy is a psychological mechanism that not only allows individuals to experience a psychological state whose positive or negative valence mirrors the valence of the affective states that they take others to be experiencing, but also motivates individuals to act so as to either preserve positively valenced states brought on by empathy or to eliminate the negatively valenced ones. Moreover, the negative experiences that empathy brings when one sees another in distress are associated with both efforts to alleviate the distress (in oneself or the person in distress) and diminished feelings of anger and aggression toward others. Combining all this then delivers the payoff. In expressing one's feelings of guilt, one communicates the pain that one is experiencing. Because of this, such an expression would have had some tendency to engage the empathy of community members. These community members would then have also tended to experience negatively valenced affective states, and so have been motivated to act in ways that would eliminate the negative affect they were feeling. The result would have been some tendency for community members to restore the social status of those who express post-transgression guilt.

Importantly, unlike proponents of the anticipatory guilt proposal, defenders of this strategy typically acknowledge that because guilt is similar to other emotions, more needs to be said about why, for this adaptive challenge, it's plausible to think that it was guilt, and not some other emotion, that evolutionary forces were selecting for. Here they focus on the most likely competitor for a post-transgression emotional response: shame. For instance, drawing on empirical findings, both Fowers (2019) and Ramsey and Deem (2022) present guilt as an emotion that is focused on *transgressive acts*, that engages beliefs that one is *responsible* for what happened, and that motivates *pro-social efforts* to repair or apologise for the harm done. They then contrast this profile of guilt with shame, which they understand as an emotion that's focused on *one's self*, engages beliefs that one's self is *defective or flawed*, and that motivates *anti-social* behaviours like hiding, withdrawal, or even violence.

The central issue with this proposal is its vagueness. Advocates' contentions to the contrary, we do not have an account of guilt's function that distinguishes it from shame and so we do not have an account that explains why guilt—rather than shame—was selected for by evolution. Turning to the details, it's true that the above account

7 A third strategy sees guilt's adaptive advantage not as facilitating reintegration, but rather as promoting altruism: guilt brings an altruistic concern against harming others that evolved out of the empathetic/sympathetic mechanism undergirding the parent/child care system (see, e.g., Gilbert 2003; Tangney and Dearing 2002). But as others have noted, defenders of this proposal offer little by way of empirical support for their view (McGee and Giner-Sorolla 2019)—it seems little more than a just-so story. Given this, I won't discuss it further.

of the differences between guilt and shame has some empirical support, especially from early work on these emotions—and that's the problem. More specifically, the vast majority of this early work builds from survey results that use the Test of Self-Conscious Affect (TOSCA) developed by June Tangney (1990). But the TOSCA measure employs a biased conceptualisation of the two emotions: questions assessing guilt-proneness are framed in terms of prosocial tendencies (e.g. taking responsibility, making amends), whereas questions assessing shame-proneness are framed in terms of dysfunctional behaviours (e.g. avoidance, negative self-assessment). So no surprise then that guilt is pro-socially oriented, but shame isn't—the emotions are *defined* so as to deliver this result (Maibom 2019; Elison 2005; Luyten et al. 2002). Moreover, when non-TOSCA-based studies of the differences between guilt and shame are used, the findings suggest that there's little—if any—difference between the two emotions with regard to (a) perceptions of whether a moral standard was violated, (b) the extent to which the emotions engage thoughts of responsibility, or (c) a focus on one's actions rather than one's self (see, e.g., Tangney et al. 1996; Keltner and Buswell 1996). Add to this that (d) there is a significant body of work challenging the contention that guilt prompts prosocial motivations while shame prompts dysfunctional ones (e.g. Gausel et al. 2016; de Hooge et al. 2008; Pivetti et al. 2016). In fact, some of this research suggests that shame—not guilt—is the more pro-socially oriented emotion (e.g. Allpress et al. 2014; de Hooge et al. 2011).

These findings are particularly important for assessing guilt with regard to TF1. After all, (a)–(d) correspond to the aspects of the guilt models that do the heavy lifting in the above explanations of guilt's adaptive scenario. So if there is little difference between guilt and shame along these dimensions, then why think we have an evolutionary account of guilt specifically? Moreover, the argument does not fare better if we set (a)–(d) aside and focus on areas where guilt and shame actually do differ (according to non-TOSCA measures). This work indicates that, in comparison to shame, guilt has stronger associations with both thoughts that one has harmed another person and tendencies to ruminate on what happened (see, e.g., Fontaine et al. 2006; Breugelmans and Poortinga 2006). But it's hard to see how these internal cognitive tendencies would have provided an adaptive advantage with regard to securing post-transgression reincorporation. So we have little support for TF1.[8]

Turn then to TF2 (proto-guilt). Here defenders of the guilt-as-adaptation proposal are divided. Some are sceptical, noting that "the available data [from primatology and anthropology] are inconclusive as to whether other primates experience guilt or some form of proto-guilt" (Deem and Ramsey 2016, 575). This group speculates that guilt may be best understood as an adaptation that is distinctive of humans. Others are more optimistic, offering a range of proposals about which emotion guilt is thought to have emerged from—e.g. sympathy (Frank 1988), empathy (Gilbert 2003), shame (Boehm 2012; Joyce 2006), as well as regret/sadness (Fessler 2004). The fact that we don't have agreement on guilt's precursor is not, on its own, an issue—these are difficult questions that we are only beginning to understand. That said, it's worth noting that these suggestions are notably thin on details. For instance, Robert Frank appreciates that there should be "some emotional precursor to guilt," and then provides the following as his account: "Sympathy is a natural candidate. In order for an act that harms another person to summon guilt, it is necessary that we feel at least some sympathy" (1988, 65). Even if we accept this as an account of where guilt came from, the thing to note is how hand-wavey it is, especially in comparison to either the more detailed account that we saw for shame and appeasement, or the accounts that we have for other emotions that are thought to be adaptations (e.g. fear and anxiety as emerging from predator defence mechanisms (Öhman 2008; Kurth 2018; 2016)). All told, the charitable conclusion to draw is that the case for guilt meeting (or explaining away) TF2 is questionable.

8 For additional worries with this way of defending guilt's adaptive scenario, see Kurth 2023 and Nichols and Barlassina n.d.

Our discussion of guilt and the remaining telling features can proceed more quickly given the findings discussed in §2. On TF3 (underlying mechanisms) we've seen evidence that guilt exhibits a distinctive pattern of neural activation. But, as we also noted, it is unclear whether this patterning is evidence of a biologically grounded mechanism or a learned one. We've also seen that both neuroimaging and large-scale modelling work tell against guilt's mechanisms being biologically-grounded. So—at best—we have qualified support for TF3. Turning to TF4, there's widespread consensus that guilt lacks a distinctive expressive routine—even among those who argue for guilt as an adaptation (e.g. Ramsey and Deem 2022). As for TF5 (heritability), we find little support. For instance, while some research suggests there are guilt displays in young children (e.g. Barrett 1998), this work does little to distinguish these purported instances of guilt from confounds like empathetic distress. Additionally, and as noted above, twin studies suggest that environmental factors, not genetic ones, are the primary driver of guilt-proneness. So, unlike shame, there is little support here either.

Stepping back, Table 1 sums up the evidence for shame and guilt exhibiting the telling features. From this, we can see that while there's good reason to think that shame is an adaptation, there is little reason to say the same about guilt.

	Shame	Guilt
TF1. Adaptive Scenario	✓	X
TF2. Other Primates	✓	?
TF3. Mechanisms	✓	✓*
TF4. Expressive Signal	✓	X
TF5. Heritable	✓	?

Table 1. Shame, Guilt, and the Telling Features

Importantly, this conclusion challenges the received view about the evolutionary origins of these emotions. With a few exceptions (Ortony 1987; Elison 2005), shame and guilt are standardly thought to stand and fall together: if one is (not) an adaptation then so (neither) is the other (see, e.g., Ramsey and Deem 2022; Frank 1988; James 2011; D'Arms and Jacobson 2023; Krebs 2011; Griffiths 1997; Prinz 2004).[9] Moreover, if the received view about the origins of shame and guilt is mistaken, then we should also rethink the more general (and equally common) contention that self-conscious emotions—shame, guilt, pride, embarrassment, etc.—are of a piece with regard to their evolutionary origins and cognitive architecture.

4. Why Do We Feel Guilt?

Suppose the argument so far is convincing. It leaves an important question unanswered: if guilt is not an adaptation, then why do humans feel it? The answer, I suggest, is that guilt is a kind of social technology—a culturally-driven innovation that helped our ancestors address particular, recurrent challenges of social life. So understood, guilt is akin to other social technologies that humans have developed to facilitate cooperation and social interaction. To develop this, I begin with some familiar examples of these types of (non-emotional) social technologies. Seeing how they differ from things like fads will help us see what a corresponding emotional technology would look like. With this done, I will make my cases for guilt as a technology.

9 Ekman is an interesting case insofar as he has argued both that guilt and shame are adaptations (see e.g. 1999) and that neither is one (e.g. 1984). Fessler (2007) flirts with the idea that while shame is an adaptation, guilt is not. But he ultimately concludes that we lack sufficient evidence to decide the matter.

4.1 Preliminaries

Let's begin with some examples of non-emotional social technologies. First, there are promises. As Hume's example of the two farmers reveals, temporally-extended *quid pro quo* exchanges present a distinctive challenge: why should I agree to help you with your harvest today in exchange for your help with mine tomorrow given that, come tomorrow—and your corn already safely in the silo—you'll have no reason to help me? As Hume sees it, promises are "a certain form of words *invented* for" addressing this problem: your promise gives me comfort about taking the risk of helping you today because it allows you to "bind [yourself] to the performance of" helping me tomorrow (1978, 3.2.5; emphasis added; see also Khan 2024). Similarly, currency is a technology introduced to facilitate commercial exchange in situations where bartering fails (because, say, one party doesn't have goods or services that other party wants) (van der Spek and van Leeuwen 2018).

For present purposes, two aspects of these technologies are of note: (i) they're purposeful in that they were developed in order to address distinctive coordination problems, and (ii) the technologies are sustained by the combination of internalised models of appropriate behaviour and the social structures that regulate them (e.g. blaming practices for broken promises; institutions of trust that sustain currencies). These features distinguish technologies from fads and similarly short-lived, cultural novelties. While fads like the Macarena or pet rock collecting might bring a brief burst of attention and social affiliation, they lack both the coordination-problem-addressing purposefulness of (i) and the practice-sustaining internalisation and regulation of (ii).

Importantly, we can extend this picture to emotional phenomena. Consider *amok*, a negatively valenced affective experience that brings an intense episode of violent behaviour that typically culminates in the violence-doer's own death. Building on historical analyses, we can see *amok* as an emotional technology that emerged within the Malayan honour cultures of Southeast Asian. Briefly, the term *amok* originates from the Malay *meng-âmuk*—meaning, roughly, "to make a furious and desperate charge" (Saint Martin 1999). Add to this that the earliest written accounts of *amok* suggest that it's an emotional innovation: a combination of anger, frustration, and shame that afforded individuals a way to preserve their reputation in contexts—such as defeat in war or impending enslavement—where they had no other way to protect their honour (Imai et al. 2019). This work also suggests that the violence characteristic of one who runs *amok* is something that one "learn[s] … is an appropriate response to certain unbearable social pressures" (Griffiths 1997, 141). So understood, *amok* is both purposeful in the sense of (i), and robustly internalised and sustained in the manner of (ii). Like promises and currencies, it has the requisite marks of a technology.

The *amok* example also highlights how emotional technologies, as I'm understanding them, differ from more linguistically-focused refinements of emotions that have been discussed by others. For instance, Shaver and colleagues (1992) suggest that certain emotions like guilt and embarrassment are not distinct emotion types, but rather occasions where we've introduced a new word in order to circumscribe some variation in the intensity or content of a more "basic emotion." Thus, "embarrassment" might be the label used to specify mild forms of shame, and "guilt" is the label that might mark off instances of sadness where concerns about one's responsibility for harm are the focus. In this way, Shaver et al.'s account of guilt and embarrassment is akin to what Justin D'Arms and Dan Jacobson (2003) call "cognitive sharpenings"—(quasi-)stipulative truncations of (basic) emotions. A different linguistically-focused proposal focuses specifically on guilt, understanding our talk of it as a kind of metaphor.[10] More specifically, when I say that I feel guilty, I'm speaking in an "as-if"

10 Proposals of this sort have found traction among both psychologists (e.g., Ortony 1987, Elison 2005) and philosophers (e.g., Maley & Harman 2019 and, perhaps, Greenspan 1992).

way: I am (elliptically) indicating both (a) that I believe that I am guilty (in a socio-legal understanding of the term) and (b) that I am feeling the emotions that one would typically feel when one believes and cares that one is in this condition of being guilty (e.g. shame, sadness, fear). Importantly, on this picture, guilt is not an emotion. Rather, it's an affective-cognitive hybrid anchored in (metaphorical) associations to socio-legal notions of guilt.

With these examples in hand, we can compare them to the idea of emotions as social technologies. For starters, both of the linguistically-focused proposals are similar to the above emotional technology account of *amok* insofar as they seek to locate guilt (and embarrassment) within a broader typology of human affective states: as technologies, cognitive sharpenings, or affective-cognitive hybrids. But the emotional technology proposal is distinctive insofar as it explicitly takes up the question that we're focused on here: if an emotion like guilt or *amok* is not an adaptation, then why do we feel it? Moreover, notice that to understand an emotion like *amok* or guilt as a technology (rather than, say, a sharpening or metaphor) is to see it as an *inherently* purposeful and socially-sustained practice on par with things like promises and currencies. The result is a richer account of the nature and bio-cultural underpinnings of these emotions.

With this foundation laid, I'll now turn to make my case for understanding guilt as an emotional technology. To do this, I draw on findings from cognitive science to locate a coordination problem that guilt—but not shame—is particularly well-suited to address. I then show how my guilt-as-technology proposal makes predictions that find support in the empirical record.

4.2 The Limits of Shame and the Gap Guilt Fills

The overlap in the functional profiles of shame and guilt suggests that guilt is a culturally created tool—a technology—that works to supplement and extend the work that shame evolved to do. To develop this idea, we can begin by considering what the social life of our hunter-gatherer ancestor is thought to have been like and why life in such small-scale communities facilitated the evolutionary emergence of shame. This will help us see why, with the emergence of large-scale civilisation, shame wasn't enough and, more specifically, which gap guilt may have been developed to help fill.

To begin, we've seen that shame is thought to have been selected for because of its ability to help individuals retain their status as cooperative partners in the wake of violations of group expectations. To better appreciate the adaptive advantage of having such a mechanism, recall that we're thinking about our early hunter-gatherer ancestors, individuals whose lives and livelihood depended on group cohesion. It's not just that the tasks of daily life—child-rearing, big game hunting, food sharing, and the like—were collaborative exercises, but also that, given the small size of these communities, their success turned crucially on the group's ability to secure stable coordination and consensus about what to do. Unsurprisingly, then, studies of the social organisation of contemporary nomadic peoples (whose lifestyle is thought to approximate that of our hunter-gatherer ancestors) reveal structures that facilitate this cooperation: flat social organisation, democratic decision-making, and practices where community members quickly address norm violations (Boehm 1999; Grossmann 2023; Kitcher 2011; Kurth 2016; Sterelny 2012).

Against this backdrop, related research indicates that the presence of bullies and psychopaths likely posed a decidedly pernicious threat to small-scale social life. Because these individuals so persistently and deliberately break the rules, and because they're unfazed by the standard social sanctions that return ordinary transgressors to the fold, their free-riding can quickly undermine cooperation. In fact, this threat was so

significant that those with bullying and psychopathic tendencies were likely to be killed if they didn't express an intention to reform their ways (Boehm 2012; Fessler 2007). In this context, post-transgression shame is thought to have been particularly important because it provided the needed signal: when ashamed, one shows that one (now) accepts the prevailing community norms (§2). Being shame-prone was then a way to stay alive by demonstrating that one is *not* a bully or psychopath.

But let's now jump forward to the large-scale civilisation of Mesopotamia and Egypt. Here the lives of our ancestors were very different. For one, group size had grown significantly—no longer was it possible to recognise everyone you lived with, much less know much about them. Social organisation had also changed. There was greater variety in, for instance, the civil and economic roles that individuals occupied (jobs as, e.g., farmers, metal workers, accountants). As a result, social, political, and economic structures became more hierarchical and less democratic. More importantly, specialisation and the concentration of knowledge, skills, and resources in the hands of those who specialised, not only brought a shift away from flat, democratic political structures focused on group consensus, but also shepherded in new forms of social organisation that were centred on *prestige* and fostering relationships with those who have it (Kitcher 2011; Sterelny 2012; Fessler 2004; Henrich and Gil-White 2001).

For our purposes, there are three noteworthy aspects of this transition. First, not only did the transition bring significant growth and change in the norms governing social life, but these elaborations were also surely a source of trouble: more uncertainty about what was forbidden, less clarity on what the sanctions for norm violations were, and so on (Kitcher 2011; Kurth 2016). Second, the trouble that these changes brought was also likely to have weakened traditional mechanisms of norm enforcement. Gossip loses its force as a corrective when it's about someone you don't know and aren't likely to engage with. Similarly, shame—i.e., a tool that evolved to motivate and signal concern for *group* norms and expectations—seems less significant, even *problematic*. After all, throughout this transition, we see a *waning* in concern for group cohesion and a *rise* in attention to maintaining prestige and relationships with individuals who have it. Given this, shame's distinctive—and visible—expressive signature would have started to carry costs. After all, while broadly signalling one's intention to conform is advantageous when one violates *group* expectations, it becomes a liability when one's actions merely harm an individual or when public exposure of one's misdeeds comes at a cost to one's prestige (Fessler 2004; Greenwald and Harder 1998). Finally, despite these significant alterations in social organisation and orientation, *cooperation remains stable* (Kitcher 2011; Kurth 2016; Sterelny 2013). So what explains this?

As a first step toward an answer, notice that the above discussion of the transition from hunter-gatherer living to large-scale civilisation reveals not just that life became more complicated, but that power shifted. Those who had control over resources and specialised knowledge—that is, those with prestige—came to have outsized influence over political, social, and economic decision making. This means that violations of the expectations of individuals with prestige were likely to be particularly costly. Moreover, while shame, as an emotion sensitive to *group expectations*, would have been of some help in rectifying harms done to the prestigious, its automatically engaged expressive signature would, as we just saw, also bring significant costs. Thus, there would be benefits in mechanisms that allowed one to make up for damage done to *particular (prestigious) relationships*, but that didn't come with shame's liabilities.

Enter guilt, here understood as a culturally-fashioned emotional technology that some groups developed in order to supplement the work that shame does. In comparison to shame, guilt is distinctive, I suggest, because

it serves as a repair-motivation booster. In comparison to shame, guilt is more concerned with harm done to *individual relationships* than violations of *group-level* expectations and ideals. And unlike shame, guilt *lacks* a publicly broadcasted signal. So while both shame and guilt are repair-oriented emotions, guilt has features that allow it to do the work that, as human social structures shifted, shame was poorly equipped to do. Importantly, we can say all this *without* also assuming that guilt is an evolutionary adaptation. Rather, like promises, currency, or *amok*, guilt is better understood as a culturally-created, socially-sustained technology.

4.3 The Evidence

The above proposal fits with the lessons we've learned in examining the telling features (§§2–3). For instance, the idea that guilt is an innovation, not an adaptation, accords with the neuroimaging and heritability findings suggesting that guilt is a more culture-dependent and learned response than shame. But the guilt-as-emotional-technology proposal also makes novel predictions that find support in the empirical record.

Prediction 1: Shame preceded guilt. On the above proposal, humans developed the capacity to experience guilt in order to fill a gap left by shame. This entails that shame preceded guilt in evolutionary time. Is there evidence that supports this? Yes. Two converging lines of research suggest that guilt arrived later. First, guilt is generally seen as cognitively complicated in the sense that feeling guilt requires the ability to form complex representations of oneself and others, to distinguish oneself from others, and to see oneself as responsible for a particular happening (Olthof et al. 2000; Lagattuta and Thompson 2007). This final capacity—the ability to make responsibility assessments—is particularly noteworthy here because it is not a capacity that, as we've seen, seems essential to the ability to feel shame. Thus, guilt is more cognitively complicated than shame and so is likely a capacity that appeared later. Second, work in child development indicates that the ability to experience and recognise guilt emerges in children well after they are able to experience and recognise other, less cognitively complicated responses like fear, sympathy, *and shame*. While these observations are about the time sequence in which emotions come online for individuals, it's also generally taken as evidence about the emergence of emotions in evolutionary time (Ramsey and Deem 2022; Barrett 1998; Harris 1989; Zahn-Waxler and Kochanska 1990). Thus, we have another piece of evidence that guilt arrived after shame.

Prediction 2: Guilt is more oriented toward relationship repair—especially relationships with the prestigious. If guilt functions as a repair-motivation booster oriented toward damage done to particular relationships, then we should see evidence that, in comparison to shame, it's more concerned with damage done to individual relationships. Four lines of evidence provide support for this. The first set of results concerns the types of situations that elicit guilt. Here we find, for instance, that when individuals are asked to recall the details of their emotional experiences, their guilt descriptions are, in comparison to shame, not only more often about occasions involving individuals they esteem or have close relationships with (73% for guilt, 61% for shame), but also less often about strangers and casual acquaintances (21% for guilt, 30% for shame) (Tangney et al. 1996; see also Baumeister, Stillwell, and Heatherton 1995). Additionally, Darren McGee and Roger Giner-Sorolla (2019) directly tested the hypothesis that, while shame is more focused on group-level reputational issues, guilt is more oriented toward damage done to individual relationships. To do this, they asked individuals to imagine how they would induce guilt (or shame) in another person. The results affirmed their hypothesis: for shame, participants chose to use a *public exposure* strategy—"Look how others see you"—significantly more often; but for guilt, they were significantly more likely to appeal to *interpersonal harm*—"Look at how you've harmed me"—especially when asked to imagine interacting with a friend (versus a stranger).

Second, with regard to relationship repair tendencies, we see that guilt-proneness better predicts whether one

will apologise to an individual they've transgressed than does shame-proneness (Chrdileli and Kasser 2018; see also Ruckstaetter et al. 2017). We also see that guilt-driven efforts toward relationship repair are moderated by one's beliefs about whether the harmed individual will know that the transgressor tried to make up for the damage done (Cryder et al. 2012). That guilt inclines you to apologise only to the extent that you think the apology will be recognised as such by the person you harmed strongly suggests that it's a strategy for relationship repair. Of course, shame also motivates effort to repair. Here a third line of research helps us understand how guilt and shame differ on this front. In contrast with the above findings indicating that guilt has a comparatively strong connection to relationship repair, other work highlights shame's greater connection to group-level concerns. More specifically, we see that in situations where members of one's *group* have done wrong, shame—not guilt—is a better predictor of one's motivation to make up for the harm done (de Groot et al. 2021; Allpress et al. 2014; Rees et al. 2013).

Finally, we have results affirming guilt's orientation toward the prestigious, understood here as individuals who are admired because of their superior knowledge/skills and their willingness to share what they know with others (Henrich and Gil-White 2001). For instance, we see that people feel more guilt when they've harmed someone they esteem than when they harm someone that they have little regard for (Baumeister et al. 1995; see also Berndsen et al. 2004, Vangelisti et al. 1991). We also find that individuals tend to experience stronger feelings of guilt when they believe that a wrong they've done has been observed by someone they esteem than when they think the misdeed has been seen by a stranger (Oda and Sawada 2021). All told, while both guilt and shame prompt relationship repair efforts (§3), they systematically differ in the damage they're concerned to fix: guilt is more orientated toward damage done to particular relationships, while shame is more focused on group-level concerns.

Prediction 3: In small-scale groups, terms for "shame" pervade but terms for "guilt" do not. The guilt-as-technology proposal maintains that, in small-scale societies, shame plays a more prominent role in structuring social interactions than does guilt. Now add an independent premise: the function of emotion terms lies, in part, in their role in regulating the associated emotions—that is, we have the terms "anger" and "pride" in part because these labels help us regulate anger and pride, respectively (D'Arms 2005; Lindquist et al. 2006). Together, this predicts that, since small-scale communities have less need to regulate guilt, they will be less likely to have a term for it; but the same will not be true of shame. Again, this is what we see. While there is no research suggesting that there are cultures lacking a term for shame, we have a range of anthropological studies indicating that many small-scale societies do not have terms for guilt (Boehm 2012; Breugelmans and Poortinga 2006; Fessler 2004). Moreover, it's not just that many small-scale communities lack a word for guilt, but that they also have trouble understanding the kinds of "guilt" situations we're considering—situations where one feels bad as a result of harming another individual—as situations where one should feel bad. For instance, Daniel Fessler found that among the Bangkulu villagers he was studying, these paradigmatic "guilt" events were *puzzling*. As he explains, "people seemed hesitant or confused" when asked about cases like these and often "simply remarked on the wrongness of harming others, *making no reference to emotions*" (2004, 223; emphasis added).

Prediction 4: Cross-cultural differences. On the guilt-as-technology proposal, guilt is an emotion that some groups developed to address challenges that emerged as human civilisations became bigger, less democratic, and more prestige oriented. This invites the following cross-cultural predictions. First, given shame's greater focus on group-level concerns, it should, in comparison to guilt, play a more significant role in collectivist cultures that have a greater orientation toward the group. By contrast, given guilt's comparatively greater

focus on individual relationships, it should be more prominent in individualist cultures where an orientation toward independence and prestige are emphasised.

There is some support for these predictions. For instance, Fessler's anthropological studies of individuals in Southern California and Bengkulu suggest that guilt is more pronounced than shame among Southern Californians (2004; 2007; see also Wallbott and Scherer 1995). More provocatively, Fessler's work also reveals that among Southern Californians, features common to these emotions—i.e., a concern about doing harm, efforts to make amends, reduced concern for the opinions of uninvolved observers—are more often attributed to guilt than shame. In short, the more individualistic Southern Californians are not only more guilt-oriented, but their guilt functions as the guilt-as-technology proposal suggests it will: it's a mechanism that helps individuals address damage done to particular (prestigious) relationships. Similarly, Millie Creighton's (1990) anthropological work found that while individuals in the US and Japan experience both guilt and shame, guilt is the more prominent emotion in the US; but the reverse is true in Japan. Elaborating on this finding, Creighton notes how these contrasting emotional emphases cohere with these cultures' broader individualistic (US) and collectivistic (Japan) approaches to things like child rearing. More recently, Lina Liw and colleagues (2022) found that broadly collectivistic values predicted shame-proneness, while individualistic values predicted guilt-proneness (see also Rozin 2003). Together, findings like these support the above predictions.

Summing up, though more work is certainly needed, we have converging lines of support for the idea that guilt is a piece of emotional technology: an innovation that some cultures developed in order to help address challenges distinctive of life in large-scale communities.[11]

4.4 A Refined Understanding of Shame and Guilt

In addition to providing support for the idea that guilt is an emotional technology, the above discussion also provides a refined understanding of what shame and guilt are. On this picture, the functional profiles of these emotions *significantly overlap*—more so than is generally appreciated (especially in TOSCA-based work). As we've seen, both are concerned with protecting one's standing as a cooperative partner post-transgression, both prompt combinations of pro- and anti-social behaviour, and both are often concerned with matters of (moral) responsibility. But there are also subtle differences. For instance, while shame is more oriented toward

11 Taken as a whole, the discussion in the text suggests that the guilt-as-technology account is more explanatorily powerful than are the language-based proposals discussed in §4.1. Though space doesn't allow me to say much here, I'll briefly flag three issues. First, if guilt were merely a linguistic variant of sadness, as Shaver et al. suggest, or a metaphorical extension of shame (or some other basic emotion) as Ortony, Elison, and others maintain, then we would expect instances of guilt to retain parts of the distinctive expressive routines of the emotions they're associated with (sadness, shame, etc.). But guilt's lack of an expressive signature (§3) suggests this is not so—and that tells against these views. Second, on the Shaver et al. proposal, guilt is just a subset of sadness. So the functional roles of the two emotions should be similarly structured. But, again, that's not what we see. For instance, the dominant action tendency of sadness is withdrawal. By contrast, the action tendency for guilt is more complex. While it can at times prompt withdrawal, it also (and more often) tends to bring efforts to *engage*—to repair or make amends for the harm done. Finally, on the account of guilt defended by Ortony, Elison, and Maley and Harman, believing that one is guilty is *essential* to feeling guilty—this element, after all, captures the sense in which they are affective-*cognitive* hybrids (see, e.g., Ortony 1987, 285; Elison 2005, 11; Maley and Harman 2019, 30, 28). But research on the guilt that individuals feel in response to accidents suggests beliefs aren't actually essential. For instance, individuals who accidentally kill or harm another person will report feeling guilty while acknowledging that—given that it was an accident—they are not guilty of anything (see Zhao 2020 for discussion). While defenders might reply that cases like these still involve an attenuated belief about being guilty, this move is less plausible when we look at phenomena like survivor guilt. While survivor guilt is a complicated phenomenon, clinical work points to a range of cases where individuals report feeling guilt despite knowing they were not causally or morally responsible for (say) the fatal plane crash. What seems essential to these guilt experiences is that the individuals view the outcome as *unfair*, not that they believe themselves to be guilty for what happened, however attenuated that belief might be (see, e.g., Murray et al. 2021; also, Lebra 1983).

group-level concerns (e.g. violations of group expectations, damage to group image), guilt is more tuned to protecting individual relationships (Prediction 2). Moreover, this difference in the concerns of these emotions helps explain other differences between them (§1, §2). If shame is more group-focused, then it makes sense both that it has stronger associations with the feeling that one is being looked at by others and that it carries a greater concern for damage done to one's public reputation. And if guilt is more concerned with damage done to individual relationships, it helps explain why it has stronger associations with thoughts of having harmed another person, and is more likely to bring rumination about what happened. The functional profiles of these emotions also shed light on why shame, but not guilt, has a distinctive expressive signature, as well as why we're ashamed not just of transgressions, but also things like our looks, family history, and financial status. Taking these in turn, the slumped body posture and gaze aversion characteristic of shame signals to others that one knows one has violated group expectations. By contrast, given guilt's focus on damage to individual relationships, not only is there less need for a widely broadcast signal, but as we've seen, having one may be a liability insofar as it could undermine one's standing in the eye of individuals one has *not* harmed. Rather, what matters when one damages a relationship is that one is able to convey *just* to the harmed individual that one is sincerely concerned to repair the damage done. For this, words and actions seem better tools. Shifting gears, our tendency to be ashamed of things like our appearance is just an extension of shame's orientation toward failures to meet public expectations—be they explicit rules not to harm others, or basic standards of social acceptability (Fessler 2004; Maibom 2010; Kurth 2025).

5. Conclusion: Are Emotions Kinds?

Let's return to our original question: are emotions best understood as natural kinds or social constructions? Though our focus has been on a different question—are shame and guilt adaptations?—what we've learned is telling. After all, the received opinion maintains that being an adaptation is the quintessential mark of the natural kinds that are characteristic of biology and psychology. So combining this with what we've learned about shame—namely, that a strong case can be made for it being an adaptation—brings the conclusion that shame is a kind. Guilt, by contrast, looks a lot more like a social construction. Not only is there a comparatively weak case for viewing it as an adaptation, but on the account developed here, it seems more like a culturally-driven innovation—a technology—akin to how we understand things like promises, currencies, and *amok*. If this is right, then there's also a larger lesson. The common idea that emotions—as a class—must be understood as either kinds or constructions is mistaken: for whether an emotion is a kind depends on what emotion we're looking at.

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