



Ethnic Markers without Ethnic Conflict

Why do Interdependent Masikoro, Mikea, and Vezo of Madagascar Signal their Ethnic Differences?

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Abstract

People often signal their membership in groups through their clothes, hairstyle, posture, and dialect. Most existing evolutionary models argue that markers label group members so individuals can preferentially interact with those in their group. Here we ask why people mark ethnic differences when interethnic interaction is routine, necessary, and peaceful. We asked research participants from three ethnic groups in southwestern Madagascar to sort photos of unfamiliar people by ethnicity, and by with whom they would prefer or not prefer to cooperate, in a wage labor vignette. Results indicate that southwestern Malagasy reliably send and detect ethnic signals; they signal *less* in the marketplace, a primary site of interethnic coordination and cooperation; and they *do not* prefer co-ethnics as cooperation partners in novel circumstances. Results from a cultural knowledge survey and calculations of cultural F_{ST} suggest that these ethnic groups have relatively little cultural differentiation. We concur with Moya and Boyd (*Human Nature* 26:1–27, 2015) that ethnicity is unlikely to be a singular social phenomenon. The current functions of ethnic divisions and marking may be different from those at the moment of ethnogenesis. Group identities may persist without group conflict or differentiation.

Keywords Ethnic Markers · Identity · Parochial Altruism · Cooperation · Coordination · Sorting Experiments · Cultural F_{ST} · Madagascar

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Résumé

Les gens montrent souvent leur appartenance à un groupe à travers leurs modes vestimentaires, leur style de coiffure, leur posture et surtout leur dialecte. La plupart des modèles évolutifs existants soutiennent que les marqueurs caractérisent les membres du groupe afin que les individus puissent interagir de manière préférentielle avec les membres de leur groupe. Nous nous demandons ici, pourquoi les gens marquent les différences ethniques lorsque l'interaction interethnique est routinière, nécessaire et pacifique. Nous avons alors demandé à des participants issus de trois groupes ethniques du Sud-Ouest de Madagascar de trier des photos de personnes inconnues en fonction de leur appartenance ethnique, et en fonction des personnes avec lesquelles ils préféreraient ou non coopérer, dans une vignette hypothétique. Les résultats recueilli indiquent clairement que les Malgaches du Sud-Ouest émettent et détectent de manière fiable les indicateurs ethniques; ils émettent moins de signaux indicatifs sur la place du marché, dans un site primaire de coordination et de coopération interethnique; et ils ne préfèrent pas les co-ethnies comme partenaires de coopération dans des circonstances nouvelles. Basé sur les résultats obtenus d'une enquête réalisée sur les connaissances culturelles et les calculs du F_{ST} culturel suggèrent que ces groupes ethniques présentent une différenciation culturelle relativement faible. Nous partageons l'opinion de Moya et Boyd (*Human Nature* 26:1–27, 2015) pour dire qu'il est peu probable que l'ethnicité soit un phénomène social singulier. Les fonctions actuelles des divisions et du marquage ethniques peuvent être différentes de celles du moment de l'ethnogenèse. Les identités de groupe peuvent persister sans qu'il y ait conflit ou différenciation de groupe.

History and headline news are replete with stories of interethnic conflict. The tragic loss of an estimated 187 million lives to genocide during the twentieth century (Hobswam, 1994, published before the genocides in Rwanda and Darfur) demonstrates that humans are willing to kill each other over differences that humans themselves imagine into existence (Barth, 1969; Gil-White, 2001; Haslam et al., 2000; Hirschfeld, 1996). Given the prevalence and horror of interethnic conflict, one might suspect that the primary function of ethnicity is to divide humanity into teams that are internally cooperative and that compete against one another for survival and reproduction. This concept of “parochial altruism” is consistent with some models of cultural group selection (Choi & Bowles, 2007; García & van den Bergh, 2011; Handley & Mathew, 2020; Jones, 2018).

Yet this conclusion overlooks the many examples where people divide themselves into ethnic groups that peacefully coexist, interact, and rely on one another, although not necessarily with equal political or bargaining power (Bunce & McElreath, 2018). For example, a visitor to a highland Guatemalan marketplace may see buyers and sellers from diverse ethnic and linguistic groups peacefully contracting business while dressed in regional costumes marking their ethnic affiliations (Hendrickson, 1995; Little, 2004). In the Puno Department of southern Peru, speakers of Quechua and Aymara languages live together in the same villages, and the language divide does not correspond to economic, political,

and religious differences (Moya & Boyd, 2015). In the Central African Republic, BaYaka foragers and Ngandu farmers live in the same villages and routinely exchange foods, despite differences in cultural beliefs (Boyette & Lew-Levy, 2019).

In this article we consider the function of ethnic markers in the context of interethnic interdependence. Markers are norms for dress, hairstyle, pose, dialect, etc., that label someone as a member of a particular group. Most existing evolutionary models propose that markers guide people to help or work with others who share their traits (Boyd & Richerson, 1987; McElreath et al., 2003; Riolo et al., 2001). These studies model the coevolution of a single marker with a single act of altruism, imitative social learning, coordination, or cooperation. The models are then extended to imagine homophilic assortment on many markers corresponding to many collaborative activities, resulting in ethnic differentiation, intragroup collaboration, and intergroup difference. How, then, do we explain the function of markers when coordination and cooperation across group boundaries is routine?

Neodarwinian thinking about markers began with Hamilton's (1964) famous thought experiment about the evolution of altruism in the absence of genetic relatedness. Hamilton imagined a pleiotropic gene that causes its carriers to grow a green beard and also to act altruistically toward others with green beards.¹ The result would be the proliferation of green-bearded individuals who outcompete their non-green-bearded neighbors (see Dawkins, 1976:88–89, 1989:145–49). Of course, ethnic markers are not caused by genes. But inherited cultural information promoting the wearing of, say, a green shirt and altruism toward fellow green shirts could promote the survival of Team Greenshirt, and the survival of other cultural information that one learns alongside norms for dress. A major problem with this thought experiment is that green shirts are relatively easy to acquire, allowing cheaters to enjoy the benefits of Team Greenshirt without making costly altruistic contributions (West et al., 2011:245).

Riolo et al. (2001) simulated homophilic donations based on marker similarity, leading to group differentiation. In their simulation, agents differed by tag (a number between 0 and 1) and a discrimination threshold (0 to 1). Agents randomly encountered one another and made costly donations to those with sufficiently similar tags, with points accrued in round n becoming descendants in round $n + 1$. Selection led to agents narrowing their discrimination thresholds so as to give to fewer alters while still receiving alters' donations. The result was the emergence of dominant "tag clusters," with one tag cluster outcompeting the others.

In a mathematical simulation by Boyd and Richerson (1987), ethnic markers function to cue cooperation within the specific domain of learning subsistence skills. They imagine a population that migrates to two new habitats, one that is rainy and suited to horticulture and one that is dry and suited to herding. There is continual migration between the two habitats so that individuals regularly encounter agents whose behaviors are not adapted to the local habitat. Children

¹ The green beard example probably was not meant to infer that men, who are more likely than women to grow beards, are more likely to be altruistic!

learn a local linguistic marker in infancy from socializers such as parents. Then they learn subsistence skills in adolescence. If they prefer to learn subsistence practices from model agents who are particularly successful, and from those who share their linguistic marker, then the linguistic marker becomes associated with adaptive subsistence knowledge suited to the local habitat. The authors conclude that if the process associates multiple markers with different locally adapted knowledges, the result would be ethnic and cultural differentiation.

McElreath et al. (2003) argue that markers may coevolve with norms that solve coordination problems, scenarios in which players do best by following the same, arbitrary standard (the classic example of a coordination problem is on which side of the road to drive; left and right work equally well to the benefit of all drivers, so long as all drivers follow the same standard). In a simulation, agents do best if they interact with someone who shares their behavior, but the behavior of others is invisible prior to interaction. The model assumes that agents will copy the behavior of successful individuals, and copy those who share a marker. In the context of migration, where some individuals may be poorly adapted to the environment, markers come to covary with coordination norms. If this process occurs for multiple markers and coordination norms, this could result in ethnic and cultural differentiation.

Although these evolutionary theories predict *intra*-group collaboration leading, in some cases, to *inter*-group differentiation, there are several ways that these models could explain the co-occurrence of ethnic marking and *inter*-ethnic collaboration. First, markers could be vestigial, left over from a time when ethnic groups were more competitive. Markers could persist and serve only a symbolic function, as Gans (1979) has argued for US Americans of European descent, so that purported markers are common stereotypes that are no longer accurate. Second, markers could facilitate inter-group coordination if different groups play specific roles in interactions. For example, men and women, by marking their gender identity, signal the roles they expect to play in mixed-gender interactions. Likewise, attendees to a marketplace could use ethnic markers as a cue to the types of products they have access to, or demand for, facilitating trade. Third, it is possible that markers facilitate specific within-group collaborations, against a backdrop of multiple fruitful between-group collaborations.

We consider ethnic markers in the context of southwestern Madagascar, where people classify themselves as Masikoro, Mikea, or Vezo based on contradictory criteria of subsistence specialization and ancestral histories (Astuti, 1995; Tucker, 2003; Yount et al., 2001). Masikoro, Mikea, and Vezo identity distinctions have persisted for several centuries despite significant social changes, and despite the fact that Masikoro, Mikea, and Vezo share norms, beliefs, histories, dialect, and a common identity as Malagasy people. Masikoro, Mikea, and Vezo habitually collaborate across ethnic boundaries for commerce, ritual, and marriage. Why, then, are ethnic distinctions important here, and why would people dress and groom to mark them?

We address these questions using sorting experiments, in which Masikoro, Mikea, and Vezo informants (“judges”) classified photos of unfamiliar Masikoro, Mikea, and Vezo alters by ethnicity, and by with whom they would trust or not trust to cooperate. We consider three possible explanations.

The first possibility is that ethnic differences live large in the imaginations of our informants but do not currently manifest in people’s clothing, coiffure, and posture,

perhaps because the ethnic differences they mark are vestigial. If this were the case, then we would predict:

1. That judges would be unable to classify photos by ethnicity at better than random guessing rates when alters are photographed in their everyday clothes.
2. That judges would be no more successful classifying photos by ethnicity when alters intentionally dress and pose like Masikoro, Mikea, or Vezo.

A second possibility is that markers cue coordination at sites of interethnic interaction by defining the expected roles of different players for mutual benefit. The primary venue for interethnic interaction in southwestern Madagascar is the village marketplace. We therefore predict:

3. That judges would have greater success classifying photos by ethnicity when alters are dressed to attend market.

A third possibility is that markers facilitate intragroup collaboration within a specific domain, against a backdrop of frequent intergroup collaboration. Despite widespread collaboration for commerce, rituals, and marriage, southwestern Malagasy may prefer to cooperate with co-ethnics when confronted with unfamiliar or novel tasks. We would therefore predict:

4. That in response to a vignette about a novel cooperative venture, judges would preferentially choose photos of co-ethnics as potential cooperative partners.

After presenting the results of these experiments, we marshal evidence from a cultural knowledge questionnaire to examine two related questions. The first is whether southwestern Malagasy mark to facilitate imitative social learning of subsistence skills from those with local knowledge, consistent with Boyd and Richerson (1987).

Second, we ask whether Masikoro, Mikea, and Vezo ethnic identities correspond to cultural differences. Handley and Mathew (2020), using responses to a norms questionnaire and calculations of cultural F_{ST} , document that among four East African herding populations, culture differs more among ethnicities than among subgroups within each ethnicity. Given the interconnectedness of Masikoro, Mikea, and Vezo life, we wondered whether these groups are culturally distinct.

In the discussion section, we address an alternative explanation for markers suggested by a reviewer, that differences in dress are instrumental to farming, foraging, and fishing livelihoods. We conclude that marking will play different functions in different circumstances given the diversity of ethnic and ethnic-like formations in the world.

Ethnographic Background

Madagascar is different from most other African nations in that all Malagasy people speak the same mother tongue, Malagasy; all share a common set of traditional beliefs and practices associated with ancestors, spirits, livestock sacrifice, and

divination; and all self-identify as Malagasy people, Olo Gasy.² Despite this apparent cultural unity, Malagasy people have a long history of categorizing themselves, and being categorized by outsiders, according to purported differences.

Generations of Malagasy schoolchildren and tourists have learned that the Malagasy population is composed of 18 tribes, but this tribal classification is a colonial invention (Southall, 1970, 1971). These supposed tribes are actually a mix of dissimilar kinds of groupings and places, including kingdoms, geographic regions, kin groups, and catchall categories. Many Malagasy were unaware of any tribal affiliation until colonial administrators and educators told them the tribe they belonged to (Eggert, 1986).

Explorer Alfred Grandidier asserted racial differences between the Merina of the High Plateau, whom he envisioned as recent Javanese migrants, and the coastal peoples, whom he thought were Africans whose royal families were shipwrecked Indian or Arab princes (Kent, 1970). Others have argued that the Mikea people described in this study are racially distinct, being the descendants of Madagascar's mythical original Vazimba people (Birkeli, 1926). Critical readings of ethnohistory show these race narratives to be counterfeit (Berg, 1977; Kent, 1970; Tucker, 2003). Genetic evidence shows a remarkably even distribution of African, Austronesian, and Asian genetic markers across the island (Hurles et al., 2005; Pierron et al., 2014; Razafindrazaka et al., 2010).

Despite the colonial origins of Madagascar's tribal and racial identities, Malagasy people often treat them as real. In daily discourse, people commonly contrast the personalities and proclivities of members of Madagascar's different *karazan'olo*, or "kinds of people." Brown (1995) argues that, since the eighteenth century, politicians have used the divide-and-conquer philosophy known as *les Politiques des Races* to, at different times, emphasize Madagascar's cultural unity in support of the interests of the capital, or Madagascar's cultural diversity in support of coastal interests.

The setting for this study is Madagascar's southwest, a region traditionally called Fiheregna, between the Onilahy and the Mangoky rivers (Fig. 1). The old tribal maps label the people here as "Sakalava," but the people of the Fiheregna region do not apply this term to themselves. Rather, they apply the term Sakalava to their neighbors to the north, in the Menabe region. Before French conquest of the southwest in 1898, the Fiheregna and Menabe regions were ruled by kings from different dynastic clans, who were often at war with one another. The Andrevola royal clan controlled the Fiheregna region, and the Maroseragna reigned in the Menabe region. Meanwhile, most people in both the Fiheregna and Menabe regions refer to themselves as Masikoro, Mikea, or Vezo. This article is about Masikoro, Mikea, and Vezo in the Fiheregna region, and our findings may or may not apply to people in the Menabe region.

Southwestern Malagasy provide two kinds of explanations when asked what qualifies someone as Masikoro, Mikea, or Vezo. One explanation is that these are economic specializations; to be Masikoro means that one is a farmer and herder of

² We use southwestern Malagasy orthography throughout.

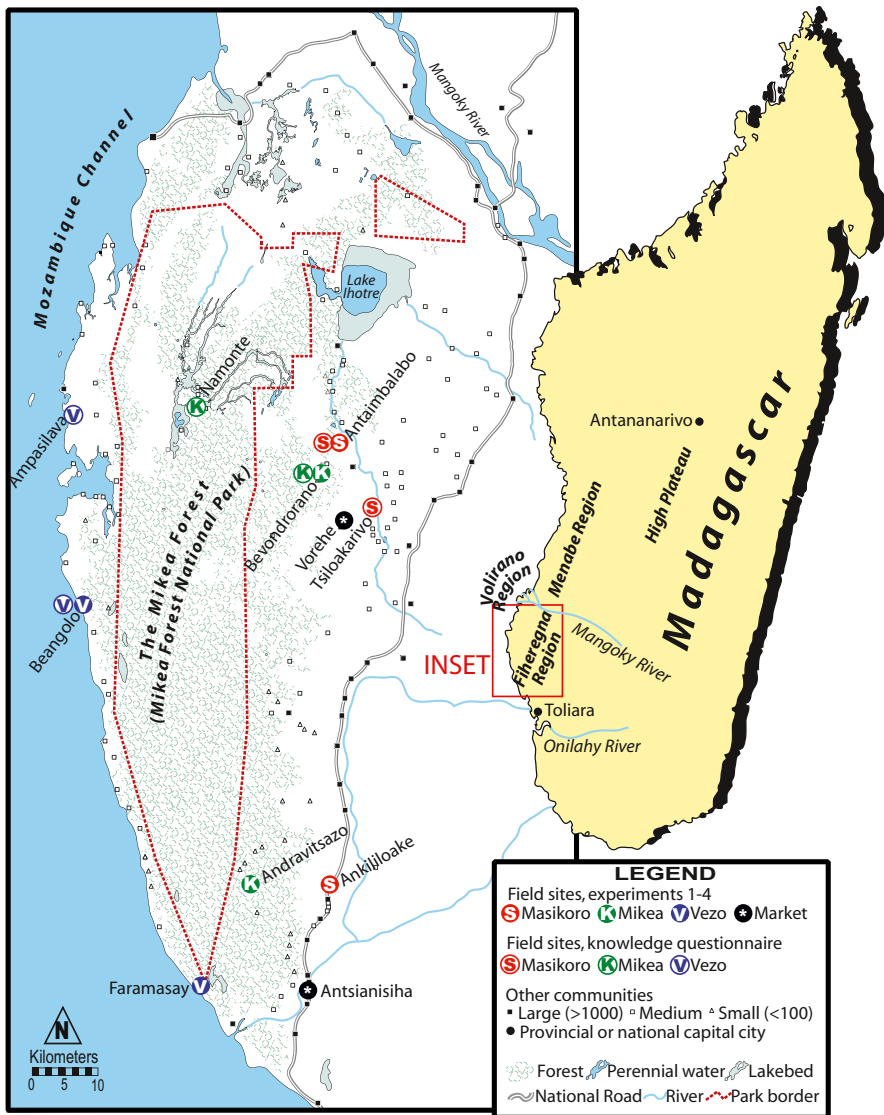


Fig. 1 Map of the study region, with place names mentioned in the text

the savanna, whereas Mikea are forest foragers and Vezo are coastal sailors and fishers (Astuti, 1995; Poyer & Kelly, 2000; Tucker, 2003; Yount et al., 2001). Astuti (1995; Astuti et al., 2004) explored the ramifications of this “Lamarckian” identity scheme (sensu Linnekin & Poyer, 1990) during long-term ethnographic research among Vezo of the Menabe region. According to her informants, one is not born with Vezo identity; rather, one becomes Vezo as one learns to sail and fish, and as one gains calluses and scars from sailing and fishing activities. When Vezo fish

badly, or when they spend too much time on terrestrial pursuits, they are scolded for being too “Masikoro.” Astuti’s informants claimed that a Vezo who changes careers to farming will become Masikoro, just as a Masikoro who moves to the coast and learns fishing becomes Vezo. We have heard similar statements throughout our fieldwork.

Yet in actual practice, many Masikoro forage or fish rather than farm, and many Mikea and Vezo farm rather than foraging or fishing. When we ask informants to explain these apparent mismatches, we hear a second, “Mendelian” identity explanation, that identity is inherited from parents and ancestors. By this explanation, the purported farming, foraging, and fishing specializations are symbolic of how ancestors interacted with the precolonial Andrevola and Maroseragna kings (Ottino, 1974; Tucker, 2003; Yount et al., 2001). Masikoro are descended from ancestors who were vassal to the kings, who paid tribute in agricultural foodstuffs and participated in livestock raids. Mikea remember ancestors who fled the kings’ soldiers by hiding in the dense, dry forests. Vezo venerate ancestors who resisted royal abuses by sailing away to sea.

In our recent interviews, a small majority (60%) of 10 Masikoro, 10 Mikea, and 10 Vezo adults replied that a child born of two Masikoro (or Mikea, or Vezo) parents is not automatically Masikoro (or Mikea, or Vezo). Some explained that this is because infants are not yet persons (*mbo tsy olo*). Infants inherit their ethnic identity (and perhaps an ethnic essence) once they are inducted into clans during rites of filiation (*soroanake*). In a recent survey of 30 Masikoro, 30 Mikea, and 30 Vezo adults, the majority (87%) insisted that it is impossible for adults to change their ethnicity even if they change livelihood because the ancestors always know which group someone belongs to. These findings do not necessarily refute Astuti’s claims about Lamarckian identity, but they indicate a majority tendency toward Mendelian explanations at the specific time (2019) and place (Fiheregna) where this study occurred.

Masikoro, Mikea, and Vezo characterize each other and themselves with a consistent set of stereotypes. In a questionnaire ($N=150$ in two Masikoro, two Mikea, and two Vezo villages), we listed a series of traits and for each one asked, “Is a person with this trait most likely to be Masikoro, Mikea, or Vezo?” The majority of informants agreed that a Masikoro is mostly likely to carry weapons (98%), be cruel (92%), and steal (98%); a Mikea is most likely to be dirty (93%) and wear a loincloth (94%); and Vezo are most likely to be easygoing (76%). To our surprise, respondents eagerly agreed with some of the worst descriptors of their own ethnicity: 100% of Masikoro said that Masikoro steal; 100% of Mikea said that Mikea wear loincloths. These stereotypes are patently false in most cases: most Masikoro are polite and respectful of property; we have not seen a Mikea (or anyone) wear a loincloth for at least 20 years; and many Vezo are not easygoing.

Oral histories describe a long history of intergroup collaboration for marriage, trade, and ritual. Inter-marriage among Masikoro, Mikea, and Vezo is commonplace, so that genealogies crosscut ethnic boundaries. Some clans have Masikoro, Mikea, and Vezo branches (Yount et al., 2001:272), who may join together for some ceremonies. Diviners and spirit mediums serve clients regardless of ethnicity. Oral historians claim that Masikoro, Mikea, and Vezo have been buying and selling with each other since the first pirates introduced coins to the region. Today, Masikoro depend

on Vezo merchants for much of their protein supply in the form of fish, octopus, and crabs, just as Vezo depend on Masikoro for carbohydrate-rich manioc, maize, and rice.

Given that Masikoro, Mikea, and Vezo collaborate frequently, it is unclear why they should mark their differences. The first possibility is that ethnic boundaries no longer serve the purpose for which they first evolved during the time of the Andrevola and Maroseragna kings. Given arguments by Astuti (1995; Astuti et al., 2004) and others (Tucker, 2003; Yount et al., 2001) that Masikoro, Mikea, and Vezo identities are quite fluid, markers would be costly to maintain if they choke this flexibility. Perhaps the markers Masikoro, Mikea, and Vezo expect to see are as accurate as the stereotypes of the cruel and thieving Masikoro, the loincloth wearing Mikea, and the easygoing Vezo summarized above.

The second possibility is that markers cue coordination at sites of interethnic interaction. Masikoro, Mikea, and Vezo routinely interact at weekly village markets. Communicating one's ethnic affiliation could have mutualistic benefits: a market attendee could, at a glance, make an educated guess as to each person's likely supply and demand for farmed, foraged, and marine foods, and this could help match buyers with vendors. However, there could also be strategic benefits to concealing one's supply or demand because signaling the intensity of one's needs could weaken one's bargaining power and ability to set or accept prices.

The third alternative is that markers cue within-group cooperation in certain domains despite widespread intergroup collaboration across other domains. Given the apparent stability of ethnic categories during recent history, and despite the rapid pace of social change, we wondered whether Masikoro, Mikea, and Vezo might preferentially turn to co-ethnics when faced with novel cooperative ventures.

Methods

Overview

We asked 355 adults in six villages to classify photos of unfamiliar southwestern Malagasy people by either ethnicity (experiments 1–3) or with whom they would, or would not, choose to cooperate (experiment 4). For clarity, we refer to the research participants who classified the photos as *the judges*, and the individuals pictured in the photos as *the alters* (Fig. 2).

The four experiments correspond to the four predictions introduced above. To test whether southwestern Malagasy can classify photos of unfamiliar alters by ethnicity at better-than-guessing success rates (prediction 1), experiment 1 presents judges with photos of alters dressed in their everyday clothes. To test whether judges could classify photos by ethnicity with greater success when alters purposively signal their ethnicity (prediction 2), experiment 2 used photos in which alters were specifically instructed to pose as member of their ethnicity. To test whether southwestern Malagasy mark more distinctly when visiting sites of interethnic coordination (prediction 3), in experiment 3, judges sorted images of alters who were photographed on market day. To test whether judges would prefer to cooperate with co-ethnics in an



Fig. 2 Judges, alters, and experimenters in experiments 1–3. Photo by Bram Tucker

unfamiliar scenario (prediction 4), in experiment 4 we presented judges with a novel cooperative labor vignette and then asked them to sort photos by whom they would most, and least, want to work with.

To minimize the chance that judges might see photographed alters that they knew personally, in which case their judgment of ethnicity or trust would be based on personal knowledge rather than visible markers, we showed judges in three northern villages photos of alters from distant southern villages, and vice versa. The northern villages and the southern villages are separated by 65–85 km (Fig. 1).

Photographs

Prior to taking the photos, we explained the research objectives and asked alters for their consent. All photographed alters received a small cash gift and a copy of their photos.

The photos used in experiments 1, 2, and 4 were taken in the northern villages of Antaimbalabo (Masikoro), Bevondrorano (Mikea), and Beangolo (Vezo), and the southern villages of Ankililoake (Masikoro), Andravitsazo (Mikea), and Faramasay (Vezo) (Fig. 1). At each site we photographed roughly 30 adult volunteer alters. We asked each alter to pose for two photos. In the first pose (used in experiments 1 and 4), alters posed as they were, in the clothes they were wearing at the moment we announced the photo shoot; they were instructed to stand upright against a neutral background (a satin sheet), without holding any objects. For the second pose (used in experiment 2), we asked alters to pose like a member of their ethnic group. Alters rearranged their clothes and their posture and held objects they felt symbolized their ethnicity.

For experiment 3, we recruited alters on market day in the marketplaces of Vorehe (north) and Antsianisiha (south). On market day, a local confederate invited a sample of 30 attendees to be photographed. They were photographed carrying whatever objects they had in hand at time of recruitment, including baskets, gunnysacks, an empty rum bottle, and a live chicken.

For experiments 1 and 2, we selected eight photos to represent the people from each site. We first eliminated from consideration unclear photos, photos of people with obvious developmental problems (e.g., microcephaly), alcoholics (who looked particularly weathered and poorly dressed), and alters who responded that they were not a member of the dominant ethnicity of the village. Then we coded the remaining photos according to the presence or absence of traits associated with clothing, hairstyle, objects in hand, body shape, etc. Finally, we selected the combination of four photos of women and four of men whose trait frequency best matched that of the total sample of photos from the site.

For the marketplace photos used in experiment 3, we ended up with few photos of Vezo at the Vorehe market in the north, and no photos of Mikea from the Antsianisiha market in the south. We reframed this experiment as a choice among two ethnicities. In both cases, once we eliminated the few pictures of underrepresented ethnicities, plus unclear photos, photos of alcoholics, etc., we were left with 22 photos for use in the experiments.

To disguise subtle differences in background lighting among sites, we digitally replaced the backgrounds with white using Adobe Photoshop. Additional digital editing was necessary to make legible the facial features of dark-skinned alters photographed in low light. All images were printed on 10×16 cm glossy photographic paper in Madagascar.

Experimental Procedures

We conducted the experiments several months after the photographs were taken. Before the experiment, we obtained the judge's consent and recorded their name and demographic description. We recorded sex because judges of one sex could be more adept at recognizing alters of their own or the opposite sex. We recorded age, education, and religious status (whether the person is a Christian or a traditional specialist such as a diviner, spirit medium, medium's assistant, or clan head), anticipating that

Table 1 Description of sample of judges in the four sorting experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4	All
Antaimbalabo (Masikoro, North)	<i>N</i> sample	15 (8F, 7M)	15 (8F, 7M)	15 (8F, 7M)	60 (34F, 26M)
	<i>n</i> young, mature	8, 7	3, 12	8, 7	29, 30
	mean years edu	0.4	1.3	0.6	0.9
	<i>n</i> trad. relig. spec	5	7	5	22
	<i>n</i> Christians	0	1	0	2
Ankililoake (Masikoro, South)	<i>N</i> sample	15 (8F, 7M)	15 (8F, 6M)	15 (10F, 5M)	60 (35F, 25M)
	<i>n</i> young, mature	8, 7	7, 8	11, 4	35, 25
	mean years edu	5.5	3.5	3.4	4.2
	<i>n</i> trad. relig. spec	3	3	2	11
	<i>n</i> Christians	7	3	4	19
Bevondrorano (Mikea, North)	<i>N</i> sample	15 (10F, 5M)	15 (8F, 7M)	15 (9F, 6M)	60 (31F, 29M)
	<i>n</i> young, mature	8, 7	7, 8	11, 4	33, 25 (2 uncoded)
	mean years edu	1.3	1.1	1.5	1.3
	<i>n</i> trad. relig. spec	6	2	5	15
	<i>n</i> Christians	0	0	1	1
Andravitsazo (Mikea, South)	<i>N</i> sample	15 (7F, 8M)	15 (9F, 6M)	15 (9F, 6M)	60 (35F, 25M)
	<i>n</i> young, mature	5, 10	5, 10	10, 5	27, 33
	mean years edu	2.1	1.7	0.4	1.6
	<i>n</i> trad. relig. spec	4	3	1	10
	<i>n</i> Christians	0	1	0	4
Beangolo (Vezo, North)	<i>N</i> sample	15 (9F, 6M)	13 (4F, 9M)	14 (9F, 5M)	55 (31F, 24M)
	<i>n</i> young, mature	9, 6	5, 8	9, 5	29, 26
	mean years edu	1.5	3.3	2.4	2.6
	<i>n</i> trad. relig. spec	0	1	0	1
	<i>n</i> Christians	8	10	11	38

Table 1 (continued)

		Experiment 1	Experiment 2	Experiment 3	Experiment 4	All
Faramasay (Vezo, South)	<i>N</i> sample	15 (11F, 4M)	15 (9F, 6M)	15 (9F, 6M)	15 (9F, 6M)	60 (38F, 22M)
	<i>n</i> young, mature	3, 12	3, 12	4, 11	8, 7	18, 42
	mean years edu	5.2	4.0	3.8	4.0	4.3
	<i>n</i> trad. relig. spec	1	0	0	0	2
	<i>n</i> Christians	14	15	13	13	55
All	<i>N</i> sample	90 (53F, 37M)	88 (48F, 40M)	88 (49F, 39M)	89 (54F, 35M)	355 (204F, 151M)
	<i>n</i> young, mature	41, 49	30, 58	47, 40 (1 uncoded)	53, 34 (2 uncoded)	171, 181 (3 uncoded)
	mean years edu	2.7	2.5	2.1	2.7	2.5
	<i>n</i> trad. relig. spec	20	16	13	12	61
	<i>n</i> Christians	29	30	29	31	119

judges with more traditional values (older, less educated, non-Christian, traditional specialist) could be more invested in traditional ethnic categories than more cosmopolitan judges. Table 1 describes the sample.

Experimenters randomly selected 18 photos for use in each experiment from an envelope containing either 24 photos in experiments 1, 2, and 4 or 22 photos in experiment 3. The selection of 18 out of 22 or 24 photos meant that the actual number of Masikoro, Mikea, or Vezo to be identified was unpredictable, to discourage judges from classifying to fill preconceived quotas (e.g., one third Mikea, etc.).

The experimenters started by randomly pulling each photo from the envelope and presenting it to the judge. The judge was asked to take a good look at the photo and to indicate whether they knew the alter. This action served double duty: it allowed us to eliminate photos of familiar alters (in which case we selected replacement photos from the envelope), and it ensured that judges attentively examined each photo.

All 18 photos were then placed before the judge in three rows. For experiments 1 and 2, we then we asked the judge to classify the photos into three piles, one for Masikoro, one for Mikea, and one for Vezo. In experiment 3, judges were instructed to classify the images into two piles: either Masikoro versus Mikea for photos from Vorehe or Masikoro versus Vezo for photos from Antsianisiha. Once this sorting task was completed, the researchers asked the judge to look through each pile of photos and discuss the criteria upon which they classified the photos.

In experiment 4, judges were asked to classify photos by whom they would rather (and rather not) work alongside in this migratory wage labor vignette:

In the Volirano region, a foreigner is looking to hire a lot of people to build a building in less than two weeks. He won't hire individuals. He will only hire teams of six. The teams will do various kinds of work, from construction [traditionally men's work] to cooking [traditionally women's work]. Because you will not know what kind of work your team will be assigned to do until you get there, each team should include an even mix of men and women. The foreign employer pays a good salary to everyone. But whichever team cooperates the best will receive double salary, and whichever team cooperates the worst will receive half salary.

Look at the photos of persons presented to you. Choose five people who you would most like to have on your team. You should choose people whom you can trust. Choose people you would trust to work well together, so that you may win the double salary. Keep in mind that you will have to travel far with this team. Don't pick bad people who won't work well together, or who may steal your money on the way home.

The vignette takes place in the Volirano region (the Mangoky River delta; Fig. 1), 84–170 km from the research sites, because this is an agriculturally rich area to which southwestern Malagasy have historically migrated to do wage labor. We specified that the employer is foreign because in popular narratives, wealthy foreign entrepreneurs are hiring and building ambitiously, using unfamiliar hiring practices (in this case, hiring teams rather than individuals). We specified that workers will do an unknown mix of tasks to discourage judges from choosing team members according to perceived strength, intelligence, gender, etc., and to encourage them

to assemble a team they can trust (*fahatokisa*) with a capacity to cooperate (*miara miasa*). Because travel to the Volirano region takes multiple days, we emphasized that the team must work well together on the road as well as on the worksite.

After the judges chose five photos of people they wanted on their team, we then asked them to select five from among the remaining photos that they would least want to have on their team. Finally, we asked the participants to explain why they thought the people in the photos were either trustworthy/cooperative or not.

We gave a small cash gift to each judge after the experiments.

Data Analysis

The dataset is publicly available at https://github.com/erik-ringen/HUNA_marke rs. We analyzed the data in a Bayesian multilevel modeling framework (McElreath, 2016). We summarize our model estimates using the posterior median and 90% highest posterior density intervals (HPDI) and report the posterior probability (PP) that model estimates are in the predicted direction. All analyses were run in R 4.0.0 (R Core Team, 2020) and all models were fit using the “rstan” package (Stan Development Team, 2020), which fits Bayesian models using Hamiltonian Markov Chain Monte Carlo. Markov chain convergence was assessed using standard diagnostics (number of effective samples, the Gelman-Rubin diagnostic, and visual inspection of trace plots). We describe each of our models verbally below and give full model definitions in the Electronic Supplementary Material (ESM).

Results

Experiments 1–3

To test the first three predictions, we conducted three multilevel logistic regression models, one for each experiment and each with the same structure. In these models, the probability that a judge from a specific village and ethnicity made a correct identification of a given alter in a particular experiment was modeled as a Bernoulli variable with the standard logit link function. The models’ multilevel structure accounts for repeated observations by the same judges, who may differ by classification skill, and repeated observations of the same photographed alters, some of whom may be easier to classify than others. Both judges and alters were clustered within village and ethnicity. We included fixed effects of education, estimated as a monotonic function as per Bürkner and Charpentier (2020), plus binary categorical variables for age (young adult versus middle-aged and elder), sex of judge, sex of alter, whether the judge self-identifies as Christian, and whether the judge is a traditional magico-religious specialist (a diviner, spirit medium, medium’s assistant, or clan head). The models examine whether there are interactions between the sex of the judge and sex of the alter to test whether female judges are better at classifying female alters, and vice versa. We also estimate the covariance between the different random effects in our model, allowing,

for example, for the possibility that individuals who are good at identifying Mikea are also good at identifying Vezo.

To evaluate judges' performance on a particular experiment, we calculate a classification ratio (CR), which is the probability of successful classification relative to the probability of a successful random guess (0.333 per photo in experiments 1 and 2, and 0.5 per photo in experiment 3). If $CR = 1$, then judges classify at guessing rates, and $CR > 1$ indicates greater classification skill. To contrast performance in experiments, we calculated the ratio of CRs. If $CR_{exp\ x} / CR_{exp\ y} = 1$, performance was the same on both tasks.

If southwestern Malagasy send and receive signals of ethnic membership poorly (prediction 1), then the median CR in experiment 1 should be around 1. The actual median CR was 1.96 (90% HPDI=1.39, 2.51), and the posterior probability (PP) that judges classified at better than guessing rate was 0.99. Southwestern Malagasy successfully read ethnic markers 65% of the time (90% HPDI = 46%, 84%).

If Masikoro, Mikea, and Vezo are unable to improve their ethnic signaling through conscious effort, then we would expect performance on experiments 1 and 2 to be about the same (prediction 2). Judges performed better in experiment 2, although not unambiguously so. Median success rate was 80% (90% HPDI=56%, 96%), and median CR was 2.39 (90% HPDI=1.68, 2.89), which indicates a 0.99 probability that performance was better than guessing rates. The ratio of CR for experiments 1 and 2 is 1.20 (90% HPDI=0.68, 1.80), with a probability of 0.77 that performance was better on experiment 2.

If markers facilitate coordination at the market, then we would expect market attendees to dress to send strong signals of their ethnicity (prediction 3). Results from experiment 3 do not support this prediction. Judges' median success rate was 59% (90% HPDI=41%, 76%), with median CR of 1.18 (90% HPDI=0.81, 1.52), indicating a 79% probability that success rates were better than chance. The probability that performance on experiment 3 was better than 2 is very low, 0.02 ($CR_{exp3}/CR_{exp2} = 0.5$, 90% HPDI=0.27, 0.76). Southwestern Malagasy appear to mark ethnicity less clearly when attending the market.

Figure 3 displays how well Masikoro, Mikea, and Vezo judges sorted photos of Masikoro, Mikea, and Vezo alters. In experiments 1 and 2, Masikoro, Mikea, and Vezo judges tended to find Vezo the easiest to classify and Mikea the most difficult to classify. Masikoro were not detectably better than others at identifying Masikoro, although Mikea and Vezo were slightly better at classifying co-ethnics. In experiment 3, Masikoro, Mikea, and Vezo judges classified photos with similarly low probabilities of success.

Figure 4 displays the fixed and random effects for each model. The largest source of variance was due to some photos being easier or more difficult to classify, followed by individual differences in judge's classification ability. Male alters were easier to classify in experiments 1 and 2 but harder to classify in experiment 3. In experiment 1, judges who were traditional specialists, and younger judges, did somewhat better. Male and female judges performed similarly in all three experiments.

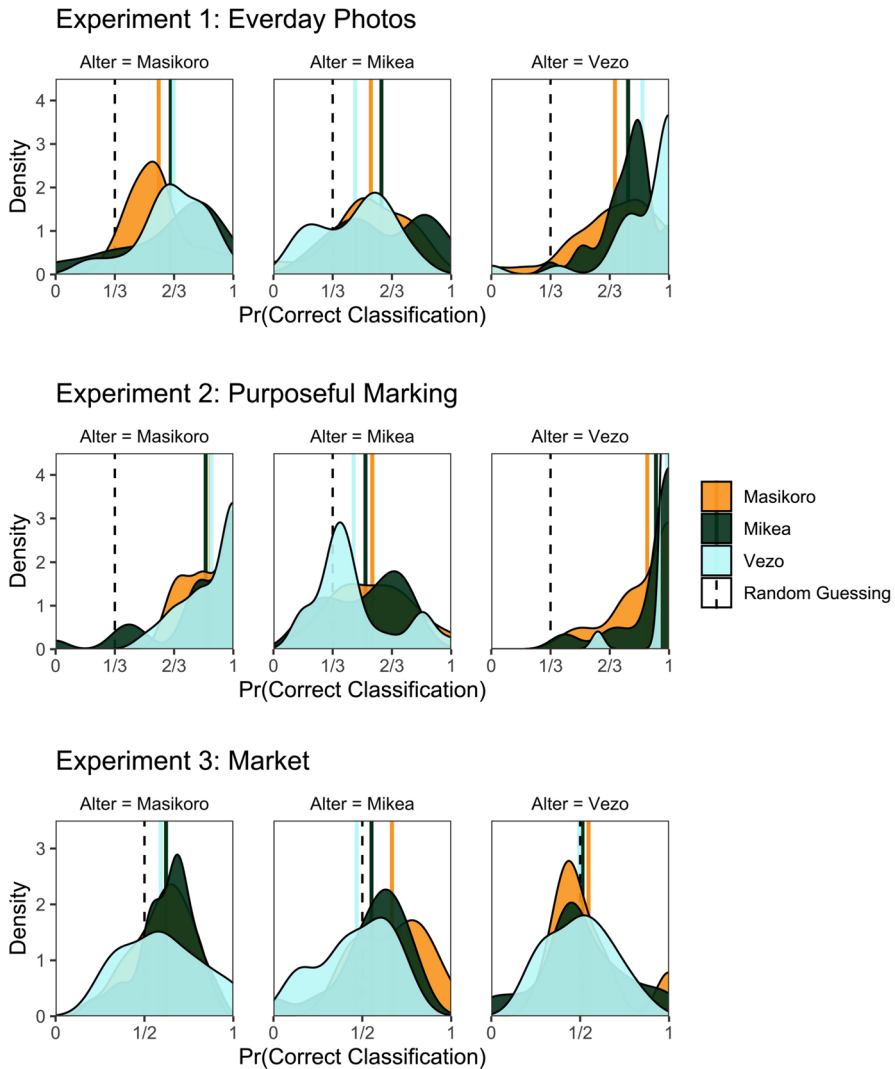


Fig. 3 Distribution of classification success rate in experiments 1–3, by ethnicity of judges and alters

Experiment 4

To evaluate the hypothesis that participants would be more likely to trust than mistrust co-ethnics in the context of an unfamiliar cooperative task (prediction 4), we designed a multilevel, multinomial regression model in which the outcome is categorical (trust, mistrust, neutral) and the data are restricted to co-ethnic alters. As before, we include covarying random effects for judge, alter, ethnicity, and village, and fixed effects for sex, age, religion, and education.

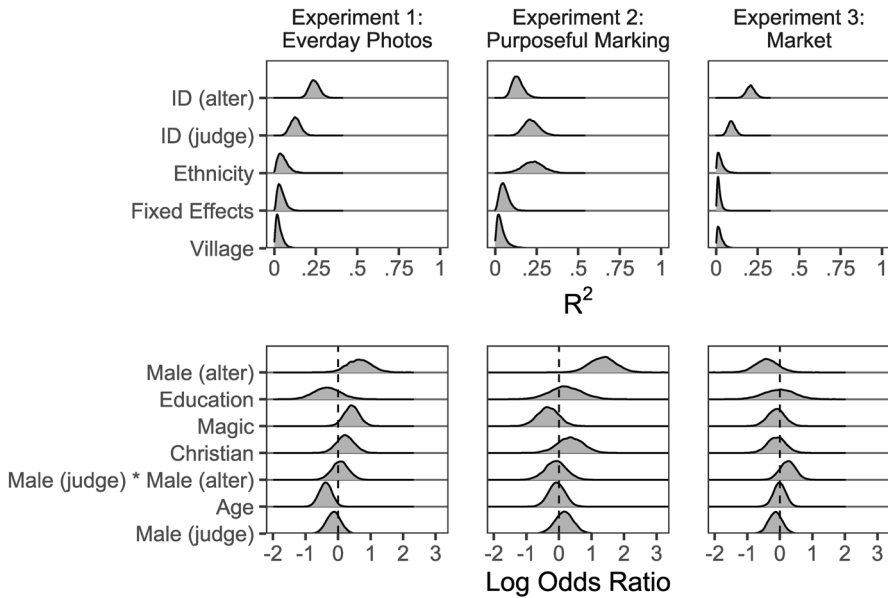


Fig. 4 Random and fixed effects, experiments 1–3

If judges preferentially selected co-ethnics for their cooperative team, then the probability that the photo of a co-ethnic would be placed in the trust pile should be much greater than the probability that the same photo would end up in the mistrust pile. The actual difference between these probabilities was near zero (median difference = -0.03 , 90% HPDI = -0.28 , 0.23 ; PP trust co-ethnic > mistrust co-ethnic = 0.42). Judges were equally likely to select a co-ethnic for their team as they were to select a co-ethnic as someone with whom they would prefer not to work.

Figures 5a and b display the fixed and random effects for experiment 4. There are substantial coefficients for sex of judge and sex of alter, and for the interaction between these variables, in both the trust and distrust models. This could suggest that judges of one sex preferentially chose co-ethnics of the same or different sex. However, inspection of the actual model predictions (Fig. 5c) does not support this; relative rates of trust and mistrust were similar across sex combinations.

Additional Questions

Markers as a cue for imitative social learning of subsistence skills?

It is possible that southwestern Malagasy prefer to cooperate with co-ethnics in different settings than the novel wage labor vignette just considered, such as for the learning of subsistence skills, as modeled by Boyd and Richerson (1987). Due to migration, particularly marital migration, each village contains a mix of long-term residents and newcomers. A young learner could find it advantageous to know which

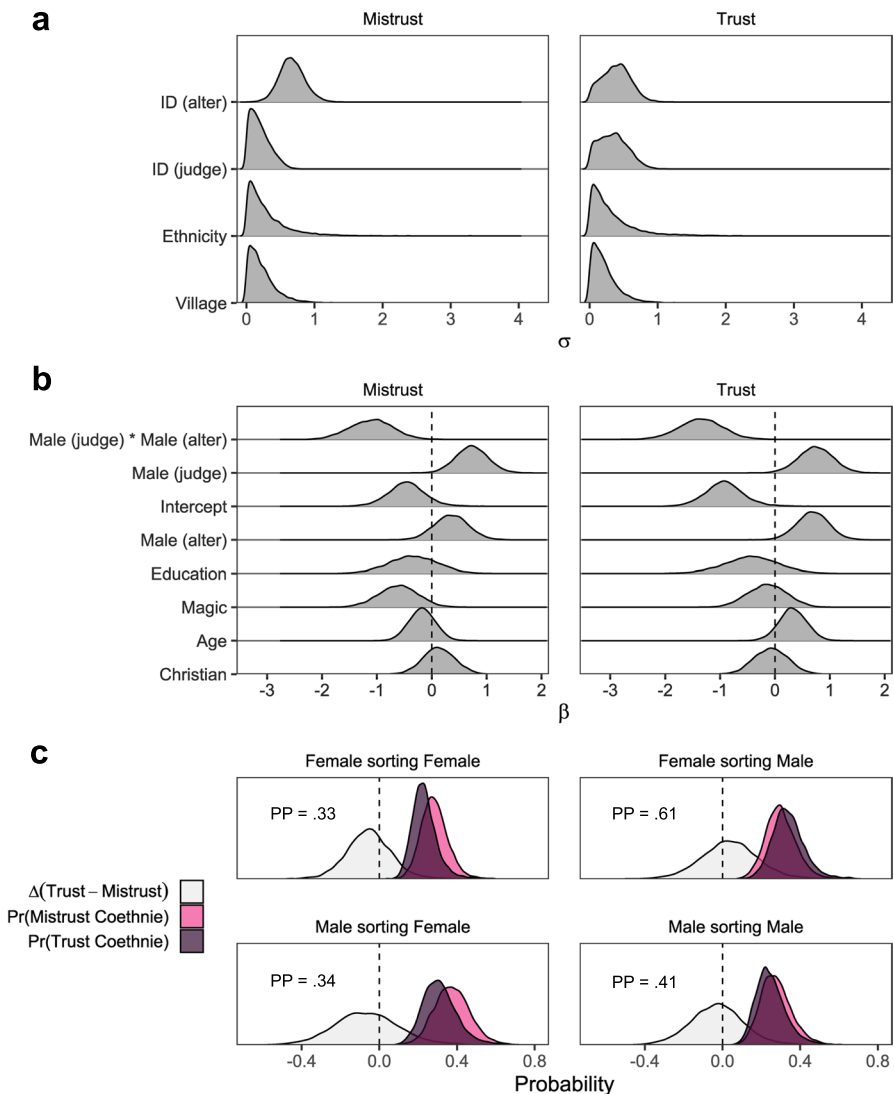


Fig. 5 Results of experiment 4. **(a)** Fixed and random effects. **(b)** Test of probabilities that judges of one sex were more likely to trust or mistrust alters of the same or different sex

potential adult model grew up in a similar subsistence environment and has locally adapted skills.

We evaluate the plausibility of this hypothesis using data from two versions of a cultural knowledge survey ($N=150$ per version, from two Masikoro, two Mikea, and two Vezo villages, conducted in 2018), and calculations of cultural F_{ST} (or CF_{ST}), the ratio of between-group variance and the total variance in questionnaire responses (Handley & Mathew, 2020). If Boyd and Richerson's argument applies, then we would expect to find that subsistence knowledge differs more between

individuals from different natal environments (city, savanna, savanna-forest edge, forest, coastal mudflats, or beach) than among individuals of different ethnicities or villages. This appears to be the case. There is greater variation in responses to subsistence knowledge questions among natal environments (median $CF_{STnatal}=0.112$, 90% HPDI=0.096, 0.128) than among ethnicities (median $CF_{STethnic}=0.07$, 90% HPDI=0.059, 0.081), and the difference is unambiguous (Diff $CF_{ST}=0.042$ [0.027, 0.057]; PP $CF_{STnatal} > CF_{STethnic} = \sim 1$). This was also true for villages (median $CF_{STvillage}=0.057$, [0.047, 0.067], Diff $CF_{ST}=0.055$ [0.041, 0.071] and PP $CF_{STnatal} > CF_{STvillage} = \sim 1$). For details about our calculations of CF_{ST} , see the Electronic Supplementary Material (ESM).

Are Masikoro, Mikea, and Vezo distinct cultural groups or subsets of the same group?

To examine whether Masikoro, Mikea, and Vezo ethnic identities represent cultural distinctions, we calculated CF_{ST} for responses to questions about social organization and gender, taboos, and supernatural beliefs in the cultural knowledge questionnaire just described. Whereas Handley and Mathew (2020) found that, among East African herders, there was greater variation in cultural knowledge among ethnicities than among subgroups composing ethnicities, we found only slightly more variation at the ethnic level for social organization and gender (median $CF_{STethnic}=0.04$, 90% HPDI=0.04, 0.07; median $CF_{STvillage}=0.05$, 90% HPDI=0.04, 0.06; Diff $CF_{ST}=0.009$, 90% HPDI=−0.006, 0.025, and PP $CF_{STethnic} > CF_{STvillage}=0.84$) and food taboos (median $CF_{STethnic}=0.07$, 90% HPDI=0.05, 0.09; median $CF_{STvillage}=0.05$, 90% HPDI=0.04, 0.07; Diff $CF_{ST}=0.014$, 90% HPDI=−0.007, 0.037, and PP $CF_{STethnic} > CF_{STvillage}=0.88$). For supernatural beliefs, there was similar agreement among ethnicities and villages (median $CF_{STethnic}=0.06$, 90% HPDI=0.04, 0.07; median $CF_{STvillage}=0.06$, 90% HPDI=0.04, 0.09; Diff $CF_{ST}=−0.007$, 90% HPDI=−0.038, 0.019, and PP $CF_{STethnic} > CF_{STvillage}=0.34$). These findings suggest that ethnic boundaries do not correspond to cultural differences.

Discussion

Masikoro, Mikea, and Vezo do mark ethnic difference in everyday life

Results from experiments 1 and 2 demonstrate that Masikoro, Mikea, and Vezo people dress and groom to signal their ethnicity to others, and that these signals are legible 65–80% of the time. Actual successful identification rates are likely higher since dialectical and kinesthetic markers were not detectable in the photographs.

Some alters were more successful at marking than others. In a future manuscript, we will explore what constellations of features made alters more likely to be classified as Masikoro, Mikea, or Vezo. Here we provide a thumbnail sketch based on judges' post-hoc explanations. Regarding clothing, judges stated that Masikoro and

Mikea women usually wear sarongs (*lambahoany*) whereas Vezo women sometimes wear dresses or trousers. Judges asserted ethnic differences in the position of the sarong: Masikoro women wear it high across or just beneath the breasts, whereas Vezo women wear it low, on the hips; Masikoro women tie it in front whereas Mikea and Vezo tie it to the side. Masikoro men wear a flannel sheet (*lamba be*) as a wrap or cape; when not in use, they fold it across the shoulder or tie it at the waist. Masikoro men supposedly wear short-shorts; Mikea men wear tattered shorts of any length; and Vezo men wear long shorts. Mikea were distinguished by tattered and dirty clothing, and magical charms (*vo*). Masikoro women coil their hair neatly in a style called *taly randra*; the most popular Vezo women's hairstyles are *taly mivò* and *taly bango*; and Mikea women sport all of these styles, but coil less frequently, and so appear disheveled. Masikoro men supposedly crop their hair short, Mikea men wear their hair long, and Vezo men keep the sides short and the top long; Vezo men's hair is often bleached yellow by exposure to saltwater while swimming, and they amplify the effect with chemical bleaching. Informants described Masikoro faces as clean and stern; Mikea faces as dirty, dark, and worried; and Vezo faces as clean, relaxed, and, for women, often covered in yellow or white paste (*tabaky*), a medicinal sunblock made from pulverized wood and oil.

These results suggest that ethnicity in southwestern Madagascar is not vestigial, although the institution likely serves different functions today than at Masikoro, Mikea, and Vezo ethnogenesis in the seventeenth century. Given evidence that Masikoro, Mikea, and Vezo diverged in reaction to tribute demands and raids by royal regimes, it is possible that markers in previous centuries cued intragroup altruistic donations, coordination, and cooperation (as per McElreath et al., 2003; Riolo et al., 2001) to strengthen groups' competitive positions. Since conflicts have been replaced with peaceful interaction and interdependence, markers may have adopted some other function, or remain without serving a function. Gans (1979) argued similarly that third- and fourth-generation descendants of European immigrants to the United States celebrate symbolic versions of their ethnic heritages in the absence of cultural differentiation.

Masikoro, Mikea, and Vezo may have limited ability to purposefully enhance their ethnic signals

Judges performed only slightly better in experiment 2, despite the fact that alters often posed holding subsistence tools specialized for farming, foraging, or maritime work. Vezo alters were most often classified successfully, perhaps because their maritime accoutrements were most unique, consisting of paddles, fishing spears, masks, snorkels, fins, squid lures, and in one case, an octopus. Masikoro and Mikea were harder to tell apart, perhaps because they both tended to pose with the same subsistence tool, the spade (*angady*), used in both agricultural labor and for digging wild tubers and burrowed prey.

Some judges seemed to have limited firsthand experience with people of some ethnicities, and this lack of familiarity reduced the clarity of ethnic signals. Several Masikoro and Vezo judges said that they were unfamiliar with the net game bags

(*tsamahea*) that Mikea alters posed with, a tool specialized for carrying live tenrecs. Some judges insisted that there were no Mikea in the photos, explaining that no one in the photos was wearing a loincloth. Some Masikoro judges were unfamiliar with the masks and snorkels adorning Vezo alters, describing them as “strange hats.”

Interestingly, no alters posed as the ethnic stereotypes reviewed above. No Masikoro posed menacingly with a weapon; no Mikea donned a loincloth; and no Vezo reposed relaxedly.

Masikoro, Mikea, and Vezo mark less when at market, a site of interethnic coordination

Bunce and McElreath (2018) predict that, at sites of interethnic interaction, groups with less bargaining power adopt the dominant group’s norms for solving interethnic coordination problems. We suspect that the Masikoro and Mikea alters recruited from the Vorehe marketplace were indistinguishable because they were conforming to Masikoro standards of dress. In the Vorehe market, Mikea are perceived to have high demand and low supply for most products, placing them at a bargaining disadvantage relative to Masikoro. Mikea informants have explained to us that Masikoro try to trick them in the marketplace. Mikea reserve their best clothes for market day, to pass as Masikoro,

We suspect that the Masikoro and Vezo alters from the Antsianisiha marketplace were conforming to an urban Malagasy dress code. The Antsianisiha market, which is closer to the city of Toliara, is frequented by urban vendors of industrially produced goods, and urban buyers visiting rural homelands. Assuming that urban Masikoro and Vezo have more money, it is likely that they have greater bargaining power than rural Masikoro and Vezo, who might try to dress up to enhance their status.

Marketplace coordination problems are solved by a standardized script found throughout Madagascar. The buyer may inquire about prices, inspect goods, and ask the vendor to gift an extra sale unit. Vendors offer prices and gift units, facilitate locating bags or baskets to carry goods, use standard measures, and tally sale units in standard ways (e.g., when selling maize, the vendor and buyer both put one grain in their mouth for each 10 *kapoakes* measured). These standards may have been adopted from urban Malagasy due to their greater bargaining power, as per McElreath and Bunce’s predictions.

Masikoro, Mikea, and Vezo do not prefer to cooperate with co-ethnics in a novel cooperation exercise

In response to experiment 4’s novel migratory wage labor vignette, judges were equally likely to select photos of co-ethnics and those of other ethnicities for their cooperative work team, suggesting no preference to cooperate with co-ethnics. When we asked judges to explain their choices, only four out of 90 judges explicitly cited the ethnicity of an alter as a reason for trusting the alter; in three of these cases,

the judge was stating that they preferentially trusted an alter of a *different* ethnicity. No judges justified mistrust judgments by citing alters' ethnicity.

The most common reasons judges gave for trusting or mistrusting alters were judgments of the alter's willingness to lead or obey; the alter's personality (as nice, modest, or calm versus mean, stubborn, lazy); the alter's morality (has a good soul) or moral failings (has a bad soul, has bad ideas; is a thief, sorcerer, drunkard, stoner, bandit, poser, or joker; is violent, capricious, vain, political, unstable, flirty, hedonistic); and the alter's attractiveness, where being attractive was a reason judges gave for both trusting and mistrusting alters. Only one person referenced religion, stating that she preferred to work with fellow Christians.

A limit of the vignette was that, although we reinforced the notion that judges should choose their team members according to trust, some justified their choices by citing the alter's strength, intelligence, and capacity to work. Judges cited alters' ability to complete work (*mahavita asa*), their courage to work (*mazoto miasa*), and their comfort with working (*zatse asa*), as well as alter's wisdom (*olo hendry*) and intelligence (*olo mahay raha*). To Masikoro, Mikea, and Vezo, these are also moral qualities consistent with trustworthiness. Being old or young, and being thin or fat, were reasons to both include and exclude alters from the cooperative team. Other alters were selected for the team because of their perceived ability to cook, understand foreigners, and count money. Perhaps novel situations are exactly those where southwestern Malagasy prefer a diversified team, ready for different challenges.

Southwestern Malagasy might mark to guide imitative learning of subsistence skills

We found evidence suggesting that adults who grew up in different environments have different subsistence knowledge, satisfying one of the conditions of Boyd and Richerson's (1987) model. We have not tested whether variation in markers clusters by natal environment, as would presumably be the case if markers function to signal natal environment for subsistence learners. The fact that judges living 65–85 km away successfully classified alters by ethnicity suggests that markers are associated with ethnicity rather than local environment. Differentiation of subsistence knowledge by natal environment may result from subsistence skills being learned primarily during childhood and adolescence (Garfield et al., 2016; Lew-Levy et al., 2017), prior to dispersal.

Southwestern Malagasy are culturally similar

The high degree of cultural similarity among Masikoro, Mikea, and Vezo could suggest that these are not different ethnic groups at all, but subunits within a common ethnic group. There are several problems with this conclusion.

One problem is that ethnicity is just a word, one that is used inconsistently (Linnekin & Poyer, 1990; Southall, 1970, 1971). Whether we call Masikoro, Mikea, and Vezo ethnicities or subgroups within an ethnicity does not explain

why Masikoro, Mikea, and Vezo have many of the ethnic-like qualities described by Moya and Boyd (2015), including markers, stereotypes, and essentialized differences.

Second, if Masikoro, Mikea, and Vezo are subunits of something larger, what is that larger group? It has no name, which is why we have used the somewhat awkward moniker “southwestern Malagasy.” “Malagasy” is too large, for Masikoro, Mikea, and Vezo feel greater kindred with each other than with Malagasy from the High Plateau or east coast. The larger groups are not precolonial kingdoms, for Masikoro, Mikea, and Vezo dwell in the ancient realms of both the Andrevola and Maroseragna kings.

Third, it is possible that the pattern of cultural differentiation documented by Handley and Mathew (2020) among East African pastoralists, in which there is greater cultural difference among ethnicities than among subsections within ethnic groups, is not a general phenomenon. Barth (1969) argued against defining ethnic groups by shared cultural traits; he was amazed by the high cultural diversity among those who claim to be “Pathan” in Pakistan and Afghanistan, and the seeming arbitrariness according to which they distinguished themselves from others.

Could markers be instrumental to farming, foraging, and fishing livelihoods?

A butcher wears a smock and a diver wears a wetsuit. They do not necessarily wear smocks and wetsuits to signal their professions. Rather, these are tools that assist with the handling of raw meat and swimming in cold water, respectively. An anonymous peer reviewer suggested that Masikoro, Mikea, and Vezo clothing could also be instrumental for the tasks of farming, foraging, and fishing. Maybe the short-shorts worn by Masikoro men permit a wider range of leg motion needed when weeding a manioc field; perhaps Vezo women tie their sarongs on the side rather than the front because this facilitates entry and exit from a canoe. This could explain the lack of marking in the marketplace, for southwestern Malagasy do not need to dress for subsistence work when buying and selling.

Some of the markers identified by the judges have clear instrumental benefits. Vezo women wear *tabaky* paste on their faces as a sunblock to protect themselves from the intense sunlight reflected off the sea when gathering on the reef. The flannel cape worn by Masikoro men is a tool used by cattle guards, for they must travel far and light while coping with rapidly falling temperatures at dusk. Dress and grooming could be simultaneously instrumental to a profession and still send signals; a Masikoro man could wear his cape in non-herding contexts to signal his prowess as a herder, as do medical professionals when wearing scrubs in public. Other markers such as hairstyles are less easily explained by professional needs.

One way to sort out the instrumental versus signaling functions of markers could be to observe their rate of change. Instrumental features would change with the pace of technological change, whereas signaling features would change at the pace of fashion. This awaits future analysis.

Conclusions

Ethnicity may, in some cases, divide humanity into teams that are internally cooperative, externally competitive, culturally differentiated, and clearly bounded, in which group success has a greater influence on individual fitness than individual choices and traits, consistent with notions of parochial altruism and some models of cultural group selection (Choi & Bowles, 2007; García and van den Bergh, 2011; Handley & Mathew, 2020; Jones, 2018). But ethnicity does not always work this way. Moya and Boyd (2015) argue that ethnicity is not a singular social phenomenon resulting from one trajectory of selection, but that different kinds of social groupings have various ethnic-like properties, each of which may result from different selection legacies.

The southwestern Madagascar case developed here does not typify parochial altruism. Masikoro, Mikea, and Vezo are culturally similar and interdependent, and yet they broadcast signals about their ethnic identity that others are able to read. The signals do not seem to help them assume complementary roles in the market; indeed, Masikoro, Mikea, and Vezo may dress up to the standards of the group with the greatest bargaining power. The signals do not seem to cue within-group cooperation for novel tasks; southwestern Malagasy may prefer a diversified team in these settings. The signals may cue social learning of subsistence skills from those with locally adapted knowledge, but markers pertain to ethnicities, and subsistence knowledges are specialized to local areas. Ultimately, the purpose of the signals remains unclear.

The southwestern Madagascar example demonstrates how complicated ethnic phenomena may be. Masikoro, Mikea, and Vezo identities sometimes work like ancestries, and sometimes appear to be professional specializations. Masikoro, Mikea, and Vezo identities likely fulfill different functions today, in a milieu of peace and trade, than they did when they first emerged during the violence of the Andrevola and Maroseragna kingdoms. Clothing choices may be simultaneously instrumental for specific livelihoods and a social signal of membership.

A significant question for future research is, to what degree are the various ethnic groupings of the world more like the internally cooperative, externally competitive East African herders studied by Handley and Mathew (2020), versus the interdependent Mikea, Masikoro, and Vezo? What can we generalize about ethnicity?

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s12110-021-09412-w>.

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Data Availability Data and R code are available at https://github.com/erik-ringen/HUNA_markers.

Declarations

Ethics approval This research was approved by the University of Georgia's Institutional Review Board, STUDY00004860.

Conflicts of Interest The authors are aware of no conflicts of interest.

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