Ritual and the origins of first impressions

Harriet Over[1], Adam Eggleston[1], Richard Cook[1,2]

[1] Department of Psychology,
University of York,
York, U.K.

[1, 2] Department of Psychological Sciences,
Birkbeck, University of London,
London, U.K.

Acknowledgements: We would like to thank Asifa Majid for valuable comments on an earlier draft. This research was supported by the European Research Council under the European Union's Horizon 2020 Programme, grant number ERC-STG-755719. Rich Cook was also supported by the ERC, grant number ERC-2016-StG-715824.

Address for correspondence:
Harriet Over
Department of Psychology
University of York
YO10 5DD
harriet.over@york.ac.uk

Abstract

When encountering a stranger for the first time, adults spontaneously attribute to them a wide variety of character traits based solely on their physical appearance, most notably from their face. While these trait inferences exert a pervasive influence over our behaviour, their origins remain unclear. Whereas nativist accounts hold that first impressions are a product of gene-based natural selection, the Trait Inference Mapping framework (TIM) posits that we learn face-trait mappings ontogenetically as a result of correlated face-trait experience. Here, we examine the available anthropological evidence on ritual in order to better understand the mechanism by which first impressions from faces are acquired. Consistent with the TIM framework, we argue that examination of ritual body modification performed by communities around the world demonstrates far greater cross-cultural variability in face-trait mappings than currently appreciated. Furthermore, rituals of this type may be a powerful mechanism through which face-trait associations are transmitted from one generation to the next.

Key words:

First impressions, trait inferences, facial traits, ritual, body modification

1. Introduction

Humans spontaneously attribute a wide variety of character traits to strangers based solely on their facial appearance [1, 2]. For example, adults may determine whether or not a person appears honest, kind, intelligent, extroverted or aggressive simply from looking at a photograph of their face [3]. Adults form these first impressions with striking speed and consistency. The ratings of different observers tend to converge on who appears trustworthy even when images of strangers' faces are presented for as little as 33 milliseconds [4]. These first impressions are an important topic for investigation because they exert a measurable influence over behaviour. In economic games, adults invest more resources in individuals who appear trustworthy [5, 6]. In more naturalistic settings, first impressions of trustworthiness have been shown to affect hiring decisions [7], criminal sentencing [8, 9], and even the outcome of elections [10].

The origin of these spontaneous first impressions remains a matter of controversy. Nativist accounts hold that first impressions are a product of gene-based natural selection. According to this perspective, the capacity to quickly distinguish friends from foe, and leaders from followers, was so crucial to the reproductive success of our ancestors that we have inherited an innately specified mechanism for judging others on the basis of their appearance [1, 11-15]. The Trait Inference Mapping framework (TIM) [16], on the other hand, holds that associations between appearance and apparent personality traits are the products of cultural learning [17]. Individuals grow up in communities in which they are exposed to systematic messages about how appearance relates to character.

The nativist standpoint has been bolstered by claims of broad cross-cultural agreement in first impressions [18, 19]. In this paper, however, we argue that the extent of cross-cultural agreement has been systematically over-estimated. We use the anthropological literature on ritual body modification to illustrate the extent of cultural variability in character inferences from facial appearance. Having outlined evidence that cultural learning plays a substantial role in the formation of first impressions, we discuss why certain types of ritual might be

powerful mechanisms for the cultural transmission of appearance-trait mappings.

2. Theoretical accounts of the origins of first impressions

The predominant view in the field is that first impressions from faces are the product of an evolved mechanism specialised for distinguishing friends from foe and leaders from followers [12-15, 20, 21]. We have recently proposed an alternative account of the origins of first impressions from faces. According to the Trait Inference Mapping (TIM) framework, first impressions are the products of mappings between points in face-space (in which we represent the appearance of others [22]) and trait-space (in which we represent the traits of others [23-25]), acquired through learning [16]. Put simply, where one encounters a predictive relationship between a particular face shape or feature and a particular character trait, a mapping or association forms between the corresponding face and trait representations. Thereafter, when we encounter a stranger who possesses one of these predictive features, their facial appearance automatically activates the associated trait representation. Learning may take place quickly. We know from research in other areas that extensive social learning takes place across the first several years of children's lives [26, 27]. For example, children learn about strangers through social referencing at least from the age of 10 months [28].

According to TIM, the innate contribution to first impressions is small but nonetheless important. Innate preferences for certain types of face or feature (e.g., smiling or attractive faces) may canalise the emergence of particular appearance-personality mappings. Some face-trait mappings may, therefore, emerge more consistently, and earlier in development, than others.

In line with other dominant perspectives in the field [e.g., 3], TIM is a dual-route model. While it is assumed that some first impressions are automatic, others are attributed to explicit, controlled reasoning. For example, an observer could perceive an individual displaying a particular behaviour (e.g., smiling or scowling) and consciously infer potential traits [29].

Learning accounts have traditionally been dismissed on the grounds that they cannot explain why the judgement of different participants tends to converge on inaccurate first impressions [5]. That is, while observers typically agree about who appears trustworthy, intelligent and aggressive, these spontaneous judgments are a relatively poor predictor of strangers' actual traits [30, 31]. In the absence of reliable face-trait contingencies, it is unclear whether direct learning through social interaction could produce the high-levels of inter-rater agreement that have been widely documented [3].

TIM resolves the apparent paradox by postulating a central role for cultural learning in the ontogeny of face-trait mappings [16]. Individuals are frequently exposed to cultural messages that systematically pair particular facial cues with particular character traits. For example, depictions of princesses in Disney films consistently pair feminine features, physical beauty, and large eyes with docility and kindness [32]. Similar face-trait contingencies are widespread throughout film, TV, literature, story-books, propaganda, art, and iconography. In addition to messages imparted by these products of cumulative culture, we propose that parents and other caregivers teach children, either explicitly or inadvertently, that individuals who vary in their facial features also vary in their character traits [16]. Thus, individuals may regularly encounter predictive relationships between appearance cues and character traits in their culture even where reliable contingencies are not a feature of their real-life social interactions.

Curiously, the fact that character inferences from appearance are typically erroneous is not widely seen as problematic for nativist accounts [33, 34]. According to this view, in the environment of evolutionary adaptation, it was beneficial to trust individuals with certain facial features (e.g., people with large eyes and positive facial expressions) and to be suspicious of others (e.g., those pallid skin and asymmetrical faces). In modern times, however, these heuristics regarding who to trust are ‘over-generalised’, or applied to more people than they ought to be, leading to erroneous first impressions [34]. Nevertheless, it remains unclear how and why observers in the ancient past were able to apply these heuristics selectively and accurately, whereas modern observers are not.

Moreover, while the over-generalisation account outlines the cues on which trait inferences are based, the mechanism by which those inferences are derived also lacks specification.

3. Cross-cultural perspectives on first impressions

One of the most promising means by which to distinguish between the nativist and cultural learning accounts is to examine the extent of cross-cultural agreement in first impressions from faces [17]. Evidence that first impressions are culturally universal would lend support to the nativist view [15, 18, 19]. Evidence for cultural diversity, combined with evidence of changes in face-trait mappings over time, would lend support to the view that first impressions are culturally learned [16].

Several studies have claimed to provide evidence of broad cross-cultural agreement in first impressions. For example, Sutherland et al. [18] compared the first impressions of Chinese and British adults when observing the faces of Asian and Caucasian strangers. They found evidence that the judgments of individuals from both cultures were structured around approachability. Zebrowitz et al. [19] compared the first impressions of adult observers from the US with the first impressions of adults from the Tsimane in Bolivia. Participants from both cultural groups showed within-culture agreement for impressions of faces from their own culture and some agreement in their impressions of faces from the other culture. Walker, Jiang, Vetter and Sczesny [35] manipulated images of Western and Asian faces in order to make them appear more or less aggressive, extrovert, likeable, risk seeking, socially skilled, and trustworthy. Asian and Western participants were both able to identify the enhanced images.

Although these data are sometimes discussed as providing evidence for cultural universality, this conclusion is premature. First, each of these studies found some evidence for cultural variability as well as agreement. For example, Sutherland et al. [18] found that the judgments of Chinese participants were less clearly structured around capability than were the judgments of British participants. Zebrowitz et al. [17] needed to use different trait terms to measure first

impressions in the two communities they worked with: whereas American participants were asked to rate the faces on intelligence, warmth and dominance, Tsimane participants were asked to rate the faces on knowledge, sociability, and respect. These contrasting terms were necessary because abstract concepts like 'intelligence' are not culturally relevant to the Tsimane [36]. Walker et al. [28] found that Asian participants needed more time to form their first impressions than did Western participants and were somewhat less consistent in their judgments as well.

Second, even if we were to accept that, taken together, these studies represented greater evidence for cross-cultural agreement than diversity, only a very small number of cultures have thus far been studied. A claim of universality gains only weak support from a comparison between two or three cultures. Third, in some studies the extent of agreement is artificially exaggerated by the incorporation of emotional expressions in the stimulus set. For example, it is not particularly surprising that smiling faces [e.g., 18] are preferred across cultures [37, 38]. Finally, these studies used a highly restricted range of cues incorporating only variation relevant to Western populations and ignoring ways in which individuals from other communities modify their facial appearance.

4. What is a ritual?

In light of the difficulties adapting existing lab-based paradigms to the study of cross-cultural differences in first-impressions, we sought to pursue a novel, complementary approach. In the remaining sections of this paper, we will consider how the study of certain types of ritual can help us understand the origins of first impressions.

We begin by outlining the features that characterise rituals. Examples of rituals studied in the literature are diverse, ranging from hanging Christmas stockings and reading bedtime stories, to staging coming of age ceremonies, weddings, and funerals [39, 40]. Defining ritual, and thus characterising what these examples have in common, remains a substantial challenge and a point of some contention in the literature [41, 42].

We take rituals to be socially shared group activities [43, 44]. Although the size of the groups involved can vary from the entire community (e.g., a wedding to which an entire village is invited) to an individual family (e.g., hanging Christmas stockings), the types of rituals we are interested in are social in character. Rituals are singled out by the community that participate in them as important and endowed with special meaning and significance [45]. For example, ritual cleansing of an object is marked as important in a way that regular cleaning is not. Similarly, eating Christmas dinner as a family has a social significance that a Wednesday night meal typically does not. Rituals also tend to be characterised by an emphasis on the particular way in which the component behaviours are performed. Thus the actions that compose a ritual may be carried out in a specific order and/or in a specific location [26, 43, 44, 46-48]. For example, the particular manner in which tea is made and served is crucial to a Japanese tea ceremony but rarely considered when making a lunch time brew [41]. Finally, rituals tend to be repeated multiple times within the community and appeal to the traditions of that group [41, 49]. For example, Christmas, Hannukah, and Diwali occur every year. Even when any given individual only directly participates in a ritual once or twice, as in a wedding or coming of age ceremony, individuals will often attend many such ceremonies over the course of their lifetime.

We argue that the study of ritual can help us to understand the norms and values important to a particular community. In the present context, we are particularly interested in types of ritual where participants alter their facial appearance, either temporarily (through make-up and costume) or permanently (through body modifications such as tattooing and dental extraction). By understanding how and why individuals alter their appearance, we hope to reveal the prevailing ideas about the relationship between character and appearance common within different cultures.

5. Rituals reveal our trait-appearance mappings

The approach we employ here is based on the view that the study of ritual can reveal the prevailing norms within a society. To illustrate this rationale,

consider the following face-trait mappings prevalent within Western cultures. First, that disfigured appearance is associated with evil, untrustworthy personality traits. Second, that physical beauty is a sign of kindness and virtue ("what is beautiful is good"). Third, that African-American appearance is associated with perceived laziness and stupidity. These face-trait mappings have been widely documented in lab-based research conducted in the US [50, 51]. However, evidence of these stereotypes can also be found in rituals present in this culture.

Halloween, celebrated on 31st of October, is a popular US tradition in which children dress up and go 'trick-or-treating'. Members of the community must give local children a treat (e.g., candy) in order to avoid retribution in the form of a prank. Common costume choices include witches, vampires, zombies, and other monsters (Figure 1). Many features of these costumes accord with cultural depictions of evil characters more generally (e.g., elderly, unattractive, pallid skin, missing teeth, large noses, scarred or otherwise disfigured appearance).

The 'beauty pageant' is a form of annual competition in which contestants are judged on their physical appearance, as well as on their personality, intelligence, confidence, charity work, prosocial ambitions, creative and artistic talents [52]. To improve their chances of winning competitions, adult contestants often seek to accentuate aspects of their appearance by styling their hair, wearing make-up, dieting and undergoing cosmetic surgery. Competition rules may also require the contestants to hide tattoos and facial piercings. The contestants in child beauty pageants frequently alter their appearance to conform to ideals of adult beauty [53], through the use of mascara and other make-up, fake tan, elaborate hair-styles, fake teeth, and false nails (Figure 1).

Minstrel shows were a common ritual activity in 19th and early 20th century America. Taking the form of family entertainment, shows communicated deeply racist stereotypes through a combination of dressing up, singing, dancing and comedy [54, 55]. White actors would wear 'black-face' make-up in order to caricature African Americans. These actors would perform formulaic and deeply

racist sketches that depicted African Americans as lazy, stupid, and cheerful [56].

Figure-1

6. Evidence of cross-cultural differences

Across the globe and throughout historical time, communities have chosen to modify their facial appearance in numerous ways including body painting, tattooing, scarification, skull modification, dental modification and the incorporation of Labrets or lip plates. These forms of facial modification are often an integral part of coming of age rituals and can mark group identity, status and social roles. In this section, we consider how and why communities around the world alter their facial appearance. We focus on three examples of ritual body modification – tattoos, dental work, and lip plates. This brief illustrative review suggests considerable cross-cultural variability in face-trait associations, consistent with the TIM framework [16].

6.1 Tattoos

Perceptions of tattoos are extremely culturally variable [57]. Tattooing dates back to at least 3,100 BCE [58]. Across different communities and historical eras, tattooing has been used to inspire both positive and negative first impressions. In Ancient Greece and Rome, tattoos were used as a form of punishment to identify criminals and runaway slaves [59]. The logic was that individuals who observed a person with tattoos would immediately recognise their shameful acts. Experimental research within contemporary Western communities has shown that participants typically negatively evaluate individuals with tattoos. For example, US American adults view individuals with tattoos to be less intelligent and less caring than individuals without tattoos [60-62]. Individuals with tattoos are also judged by Western observers to be less employable and more prone to criminality than individuals without tattoos [8, 63].

In other cultures, ritual tattooing has been used to signal membership within the community. For example, the Native Americans of the North West Coast used facial tattoos to signal ingroup membership. Thus encountering a novel

individual with a familiar, ingroup, tattoo would signal the presence of a likely collaborator [58]. The Maori in New Zealand use permanent markings, Tā Moko (somewhat similar to tattoos), to signal status within the community as well as ingroup membership (Figure 2) [64]. Individuals of high status would have distinctive designs that symbolised their elevated position within the group. Thus, observing such a marking would lead to positive rather than negative social evaluations.

In line with the cultural learning account, the same body markings can have different connotations for different communities. Whereas Tā Moko indicated a source of pride for Maori, they were typically seen as evidence of barbarism and criminality by the predominantly White New Zealand government [64]. Further in line with the predictions of TIM, different generations within the same community can also vary in their impressions of tattoos as cultural norms and messages change. For example, after a period of some decline in the prevalence Tā Moko, young individuals with Maori heritage are increasingly interested in it and view it as a source of cultural pride [64].

Figure-2

6.2 Dental modification

In Western cultures, straight white teeth are seen as a mark of health, attractiveness and high social status [65, 66]. Children often have dental work, including extractions and the application of braces, to straighten their teeth. Contestants in US beauty pageants sometimes apply Vaseline to their teeth to make them appear white and shiny or even wear fake teeth [52]. However, positive associations with straight white teeth are not cultural universal [65]. Different forms of dental modification such as removing teeth to create gaps, filing teeth to modify their shape, and intentional discolouration are common [65, 67]. These practices influence impressions of the individual's group membership, social status and character traits.

A number of cultures engage in dental filing to change the shape of their teeth

including communities living in the Amazon valley, Bali, Cameroon, Congo, Guinea, Zaire, Uganda and Tanzania [66]. Ritual filing of the teeth carries different social messages in different cultures. For example, in Bali, certain communities perform a coming of age ritual in which males and females have their incisors and upper canines filed in order to reduce their 'fang like' appearance. In addition to signaling maturity, dental filing is believed to minimize the influence of negative character traits of lust, anger, greed, arrogance, intoxication and jealousy [68]. The Makonde of Tanzania engage in a coming of age ritual in which they chip away part of the enamel from their upper and lower incisors. Teeth with the distinctive peg-shaped appearance that results are viewed as a sign of strength, maturity, and dominance [66].

Certain cultural groups in Southeast Asia deliberately blacken their teeth (Figure 2) [67-69]. This is done for aesthetic purposes but also to reduce the person's perceived similarity to dogs [66, 68]. Black teeth signal entrance into adult society in these communities and thus traits associated with maturity [66, 67].

Other communities engage in rituals where adult teeth are removed in order to create noticeable gaps between the remaining teeth. For example, the Dinka, Nuer and Maban living in the Sudan extract their lower incisors and sometimes also their canines in a coming of age ritual. Similarly, in South Africa, certain communities in Cape Town remove teeth as a rite of passage in adolescence [66]. Individuals with the culturally sanctioned gap in their teeth are recognised as ingroup members and, therefore, more likely to be trusted as potential collaborators [70].

6.3 Lip plates

Several communities permanently modify their facial appearance through the incorporation of Labrets or lip plates (Figure 2) [71]. For example, Labrets are common within Mursi women living in Ethiopa and signal ingroup membership and thus secure positive evaluation [71]. Interestingly for our purposes, within any given community some women will choose not to wear lip plates. For many Mursi people, this is associated with negative trait evaluations. The

anthropologist LaTosky [72] reports that a woman who does not wear a lip-plate when she is expected to, is considered 'karkarre', or lazy. According to LaTosky other traits associated with choosing not to wear a lip plate include being seen as less calm, less hardworking and less proud.

Consistent with a cultural learning account, the same physical cue can be interpreted differently by different members of the community. Cultural changes within the Mursi community are influencing the impressions of those who wear Labrets. The Ethopian government perceives Labrets as a sign of cultural backwardness and hopes to abolish the practice. Partly related to this, young Mursi women in the Makki region are increasingly choosing not to have their lips cut or choosing to let the holes in their lips shrink. These women perceive Labrets to be old fashioned and seek to communicate their modernity through the absence of a Labret [72].

6.4 A potential critique

The prevailing view in the literature is that face-trait mappings show cultural universality, consistent with an innate account of their origins. Contrary to this view, we have argued that examination of the literature on ritual body modification reveals widespread cultural variation in face-trait mappings – that different communities have very different ideas about the relationship between character and facial appearance. Critics of this argument may claim that we have redefined what is meant by "facial appearance" in order to exaggerate evidence of cross-cultural variability. The assumption here is that whereas traditional lab-based research has studied faces as they have appeared naturally throughout evolutionary history, we are citing "artificial" facial cues such as lip-plates, tattoos, and filed teeth.

It is important to recognise, however, that the stimuli used in lab-based research (both photographic and computer-generated images) do not depict faces as they appeared in evolutionary history. Rather, these stimulus images depict faces that have been modified in line with contemporary Western norms and ideals of beauty. For example, facial hair is groomed or absent; teeth are white and

straight; eye-brows appear thinned and shaped; the presence of make-up accentuates the appearance of the actors' eyes and mouth, and obscures blemishes. Where the hairline is visible, the individuals' hair is styled extensively. Some of the individuals depicted may have had cosmetic surgery to alter the appearance of their ears, lips, nose or cheekbones, or used facial treatments to make their skin appear youthful. Thus the appearance of the individuals used in lab-based research conducted in the West is no more "natural" – that is typical of the individuals that humans encountered in evolutionary history – than the appearance of the individuals described in the anthropological literature reviewed above. Rather, their appearance has merely been "modified" in different ways.

7. Rituals as powerful sources of face-trait learning

According to TIM, face-trait mappings are acquired ontogenetically (i.e., as a result of the correlated face-trait experience we are exposed to during our lifetime). TIM posits a central role for cultural learning, invoking the idea that, through different cultural mechanisms, we effectively "teach" our children which traits to associate with which types of faces. For the reasons we outline below, we hypothesise that the types of rituals considered in Sections 5 and 6 may be an important mechanism of cultural transmission through which face-trait mappings are passed on from one generation to another.

7.1 Communicating norms

Because rituals often involve large groups of individuals or indeed the community as a whole, they provide multiple opportunities for social referencing. Children have the opportunity to observe how numerous individuals within their community respond to the ritual participants and learn from those reactions [16]. Furthermore, the information provided during rituals is often endorsed by high status members of the community. For example, minstrel shows were endorsed by powerful companies as well as high profile members of the White majority, and took place within a context of a discriminatory political system [55]. Rituals thereby serve to communicate the norms of the cultural

group. When children observe or participate in rituals, they not only learn how people in their culture typically think, but also how they *ought* to think [39].

7.2 Salient emotional contexts

Rituals take place within emotionally salient contexts. For example, Halloween is a time of great excitement for children. Similarly, minstrel shows incorporated song, dance and comedy [55]. Forms of ritual body modification are also likely to be emotionally salient, as the processes can be fear-inducing and painful to endure. Where periods of heightened emotions accompany rituals, these contexts ensure the implicit messages are attended, deeply processed and frequently recalled [73].

7.3 Repeated presentation

By definition, rituals are repeated events, occurring at regular intervals within a community [26]. Thus, when rituals expose participants to correlated face-trait experience, the to-be-learned message is frequently repeated. As a result, associations formed between faces and traits are likely to be strongly reinforced. Insofar as each performance of the ritual is likely to adhere to a similar format, and critical discourse and innovation are discouraged, children may observe relatively few counter examples [26].

7.4 The role of children

Many rituals involve children, either as witnesses or active participants. The participation of children in ritual is significant because development is an inherently recursive process in which later experiences depend on earlier ones [16]. Once established, a face-trait mapping may become self-reinforcing. For example, we may remember and attend to examples consistent with our stereotype, but forget or overlook disconfirming evidence [74]. The associative learning literature suggests that the face-trait mappings we acquire early in life may prove particularly influential. Specifically, findings from renewal and counter-conditioning paradigms indicate that, once acquired, so-called 'first-learned' associations are hard to unlearn [e.g., 75]. Indeed, it may be impossible to fully unlearn the face-trait mapping we acquire as children [16].

7.5 Communication of simple messages

Several rituals in Western culture depict individuals with both caricatured appearance and caricatured traits. On Halloween, participants view extremely disfigured monsters threatening terrible mischief. At beauty pageants, attendees listen to beauty queens describe their charitable works and personal accomplishments. During minstrel shows, audience members observed white actors in caricatured make-up depict African Americans as so lazy and stupid they could barely form coherent sentences [55]. The crude pairing of caricatured appearance with unnuanced (and, in some cases deeply offensive) trait profiles likely facilitates the acquisition of face-trait pairings. Experimental research confirms that stereotypical presentations of this type increase bias in observers [50].

8. Conclusion

It is beyond doubt that the traits we spontaneously infer about others exert a pervasive influence over our day-to-day behaviour [3]. However, the origin of these first impressions remains controversial. Here, we have argued that examination of the rituals performed by communities around the world i) can reveal the prevailing face-trait associations within that culture, ii) suggests far greater cross-cultural variability in face-trait mappings than is currently appreciated, and iii) indicates that rituals may be an important cultural learning mechanism by which face-trait associations are passed from one generation to another.

To date, the vast majority of research on face-trait mappings has been conducted within Western cultures. As a result, researchers have tended to study facial cues and trait constructs as they are understood by Western populations. By seeking to adapt paradigms developed in Western university lab settings to cross-cultural research, authors may have inadvertently overestimated the extent of cross-cultural agreement in face-trait mappings, and in turn, erroneously attributed a major role for natural selection in their origin.

By examining the available anthropological evidence on rituals from around the world, we have pursued a different, but highly complementary approach. Our preliminary findings suggest that, far from being universal, both the cues on which these judgments are made, and the nature of the inferences drawn, vary widely across cultures. Furthermore, the same cues are used by different observers, and in different historical periods, to infer different traits. This variability provides evidence for the importance of cultural learning in the emergence of first impressions. An important avenue for future research is to understand how this cultural learning takes place. Here too ritual will be crucial, pointing towards some of the social experiences that lead children to form and retain inferences from appearance.

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Figures

Figure 1. Star of the US TV series 'Toddlers and Tiaras' and Little Miss America (2012) Isabella Barrett[1]. A witch mask from Fasching (carnival), Germany[2].

[1] Photo by Jennifer Marie Puglia CC BY 2.0 (https://creativecommons.org/licenses/by/2.0)
[2] Photograph by LenDog64, [CC BY 2.0 (https://creativecommons.org/licenses/by/2.0)])).

Figure 2. Tūhoe Maori activist Tame Iti from New Zealand wearing traditional Tā Moko[3]. A Mursi lady from Ethiopia with a lip plate[4]. An Akha lady from Thailand where some people practice teeth blackening[5].

[3] Photograph by Stuartyeates at English Wikipedia [CC BY-SA 3.0 (https://creativecommons.org/licenses/by-sa/3.0)]
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