IAST CONFERENCE

DISGUST ACROSS BORDERS:

MULTIDISCIPLINARY PERSPECTIVES ON A CORE EMOTION

4 & 5 DEC 2025

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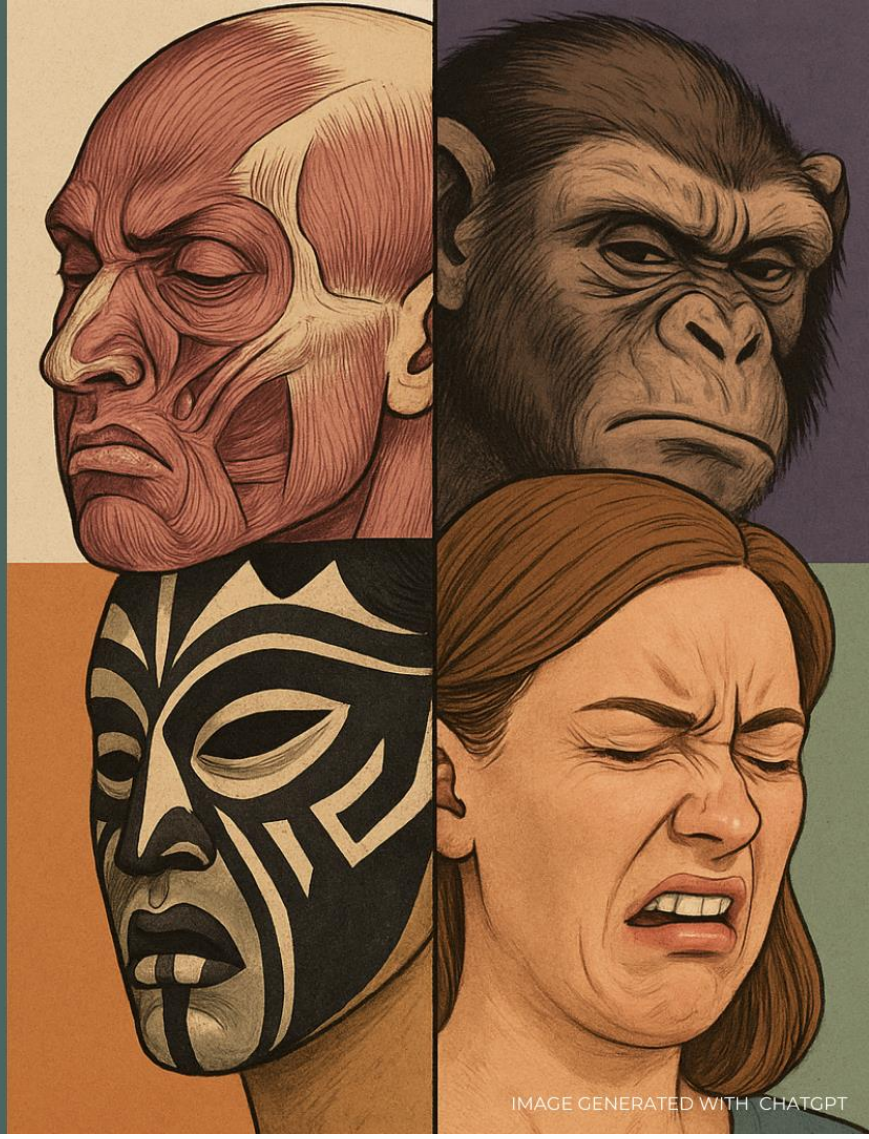

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ABSTRACTS BOOKLET

CONFERENCE VENUE

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Abstracts

Keynote Speakers 2
Talks 4
Theme 1: The origins of disgust 4
Theme 2: Pathogen disgust 6
Theme 3: Disgust across cultures 8
Theme 4: Applications 10
Flash Talks 12
Posters 16

Keynote Speakers

Caroline Amoroso, University of Virginia

Evolution and ecology of parasite avoidance: Principles and experiments

Parasite avoidance behavior is widespread across animals and is expected to play a large role in the repertoires of defenses that hosts have against infection. We tend to explain avoidance as an adaptive trait: shaped by natural selection. Yet we understand remarkably little about the processes that govern the evolution of avoidance. This presentation will outline central assumptions and predictions about avoidance evolution and provide evidence from experiments testing these ideas in the nematode host *Caenorhabidits elegans* and *Serratia marcescens.* The evidence suggests that not only is avoidance likely to evolve in response to pathogens, but it may also have consequences for the evolution of other defenses, like resistance. These results provide a framework for interpreting observations of avoidance in natural host-parasite interactions, with the goal of establishing general principles that govern the evolution of avoidance.

Paul Rozin, University of Pennsylvania

Is disgust a unitary emotion?

Along with many other authors on disgust, Jonathan Haidt, Clark McCauley and myself treated disgust as unitary, with a fixed program of expressions, elicitors and behaviors. We suggested that principally over cultural evolution, the disgust program, which motivated avoidance, was attached to more and more culturally devalued elicitors, by the process of preadaptation. A unitary view confirms that the English word "disgust" describes a coherent concept. I examined this issue in a recent (in press) paper: Dissecting disgust: progress and problems, with two coauthors, Corey Cusimano and Joshua Rottman. There are two challenges to a unitary disgust. One is that it is hard to comprehend a unitary theme that binds the enormous range of disgust elicitors, from rotting food to moral violations. Pathogen avoidance, the most popular theme, is clearly inadequate. But there is an overarching theme: disgusting entities are things we (and our culture) wish to avoid, and be rid of. It is the same theme that explains the very diverse array of things we find in a waste basket. A more serious second challenge to the unity of disgust is whether the same rigid disgust program, with its expressions, physiological responses, and behaviors is activated by all disgust elicitors. The story here is uncertain, and a number of investigators, particularly James Russell and his collaborators , have argued that in terms of the disgust program, there is evidence for duality. In the facial domain, there are probably at least two distinct expressions, which map on to different elicitors. Nausea, the distinctive physiological sign of disgust, may not be part of the experience of all elicitors. A focus of concern in much recent research, is whether there is genuine moral disgust, and if so whether it pertains to a subset of all moralities, such as

divinity violations or character flaws. A convincing case for moral disgust raises prominently the issue of whether disgust is a unitary emotion.

Philip Powell, University of Sheffield

Putting the gross in domestic product: Disgust and consumer behaviour

From blocking the trade of human organs to the rejection of misshapen fruit and vegetables, disgust often acts as a constraint on consumer markets. Yet the same emotion has also been deliberately harnessed in advertising, where provocative campaigns use disgust to capture attention and drive sales. This duality highlights a complex and contextual relationship between disgust and consumption; while 'gross' products may fail, products whose marketing leverages disgust to go viral may succeed. Understanding this relationship is both intellectually interesting and practically important. Disgust is not only a powerful emotional driver of individual choices, but it also connects directly to the sustainability agenda—where shifting consumption patterns is critical. Here, disgust frequently acts as a barrier (e.g., aversion to "ugly" produce or recycled materials), but can also be leveraged as a facilitator (e.g., disgust directed at wasteful or greedy consumption). In this talk, I explore disgust's dual role in consumer behaviour—as both constraint and catalyst. I examine its links to sustainable consumption, the ways in which certain consumption habits evoke social repugnance, and the opportunities this presents. Finally, I outline open research questions and suggest future directions for scholars of disgust, sustainability, and consumer behaviour.

Cindy Kam, Vanderbilt University

The politics of disgust

What role does disgust play in politics? Most existing accounts of disgust characterize it as a conservatizing emotion, one that directs the public towards the right. In contrast, I will argue that disgust is politically opportunistic: ready to be marshalled by strategic political entrepreneurs on either side of the political spectrum. I argue that part of the mischaracterization of the conservatizing role of disgust can be attributed to how scholars have differentially defined ideology. In my analysis of American public opinion across a plethora of policy domains, I have found that disgust can sometimes push the public in what is generally considered to be liberal direction in areas such as food safety and public health, and can sometimes push the public in a conservative direction in areas such as intergroup relations. I argue that the broader role of disgust in politics is to push for protection. Sometimes liberal policies satisfy this protectionist role, yet other times conservative policies do. Finally, I note that because disgust is a political opportunist without deep-seated ideological commitments, it can take on a unique role in bridging partisan divides.

Talks

Theme 1: The origins of disgust

Chair: Marie Charpentier

Martin Kavaliers, University of Western Ontario

Disgust in invertebrates: Avoidance of infection threat by a land snail

Invertebrates display various responses that are proposed to reflect internal states reminiscent of what are considered to be emotions or affect, though without implying sentience. In humans and other vertebrates disgust is a fundamental affective state associated with the avoidance of infection threat. Disgust affects how individuals interact with, and respond to, parasites, pathogens and potentially infected conspecifics and their sensory cues. The land snail, Cepaea nemoralis, displays a similar "disgust-like" state displaying behavioural avoidance responses to the chemical cues of infected and potentially infected snails. Brief exposure to the cues of snails treated with either a viral mimetic or Gram-negative bacterial endotoxin, lipopolysaccharide (LPS), elicited behavioural avoidance responses similar to those expressed by mammals. In addition, exposure to the cues of LPS treated snails led to a subsequent avoidance of unfamiliar individuals, paralleling the recognition of and avoidance responses of vertebrates to potential pathogen risk. In addition, the behavioural avoidance of bacterial and viral threat was affected by both the nature of the threat and infection status of the individual. Further, the avoidance of LPS treated snails was attenuated by an oxytocin receptor antagonist consistent with the roles of oxytocin in the modulation of responses to salient social factors and infection threats by vertebrates. These findings with land snails are indicative of evolutionarily conserved disgust-like states associated with behavioural avoidance to pathogen threat.

Patricia C. Lopes, Chapman University

Physiological shifts in hosts facing parasitic risk

Parasites are well known to influence host physiology and behavior following infection. However, evidence suggests that hosts may also respond to the mere threat of parasitism, even prior to infection. While this phenomenon has been primarily examined through behavioral ecology, its physiological dimensions remain largely unexplored. To address this gap, we conducted an experiment using healthy domestic canaries (Serinus canaria) that were exposed to conspecifics either infected with Mycoplasma gallisepticum (MG)—a pathogen that induces behavioral and visible physical symptoms—or to sham-infected, symptom-free controls. After six days of exposure, we collected samples from the observers' blood, liver, spleen, and hypothalamus, and stimulated a portion of the blood with lipopolysaccharides (LPS) to mimic an immune challenge. RNA was extracted from all five sample types and analyzed via RNA sequencing to assess differential gene

expression. While the hypothalamus, spleen, and unstimulated blood showed minimal transcriptional changes, the liver and LPS-stimulated blood revealed pronounced differences between treatment groups. Notably, pathways associated with immune activation—such as enhanced complement activity—were significantly upregulated in the stimulated blood of observers exposed to infected conspecifics. These findings indicate that animals may mount anticipatory physiological responses to perceived parasitism risk, expanding our understanding of host-parasite dynamics beyond direct infection.

Cécile Sarabian, IAST/Swansea University

Disgust beyond humans: Insights from our closest primate relatives and future directions

Although Darwin's evolutionary theory proposed continuity between human and animal emotional expressions, nonhuman primates (NHPs) were paradoxically among the last taxa to be studied in the context of disgust. If disgust is an adaptive system that evolved to detect and avoid disease risk, what about our closest phylogenetic relatives? In this talk, I will address five questions: 1. Do NHPs avoid disease risk? 2. If so, how and when? 3. What are the benefits of avoidance? 4. How do avoidance behaviors develop? And 5. What are the cognitive underpinnings of disgust? Using both experimental and observational approaches across wild and captive populations, findings show that NHPs exhibit aversion to sensory cues of biological contaminants and infection, manifested by lower feeding rates, increased food-processing behavior and avoidance of infected conspecifics; that decision-making involves trade-offs between nutrition, perception and infection risk; that individuals avoiding contaminated food and mates carry lower parasite loads and reduced parasite diversity; and that behaviors implicated in parasite transmission decrease with age. Distinct types of risk, such as infection versus predation, also engage different cognitive processes. Together, these results support the adaptive function of disgust in NHPs, with species-specific adaptations and potential applications to contemporary human-wildlife interaction contexts.

Marie Charpentier, CNRS

Behavioural immunity and parasite avoidance in mandrills (Mandrillus sphinx): Kinship, hygiene, and social transmission

Living in groups increases the risk of pathogen transmission, favouring the evolution of behavioural strategies that limit infection. In wild mandrills, we investigated how such "behavioural immunity" is expressed and transmitted. Mandrills use olfactory cues to discriminate parasitized conspecifics and flexibly reduce grooming of infected partners, a strategy that decreases exposure to contagious protozoa. Yet, this avoidance is selectively expressed across social partners: while infected non-kin and distant kin are avoided, close maternal relatives continue to receive grooming, showing that kinship can buffer against the costs of infection when social benefits are high. Beyond partner choice, mandrills also

adopt more fine-grained hygienic tactics, such as reducing grooming of high-risk body regions when parasite prevalence is elevated. These hygienic tendencies vary consistently between individuals, with some females being systematically more hygienic than others. Strikingly, this variation is socially inherited: mothers and maternal relatives share similar levels of hygiene, suggesting vertical cultural transmission of parasite-avoidance behaviours. By combining long-term behavioural monitoring in the wild with targeted experimental approaches, our work reveals a diverse repertoire of behavioural defences shaped by ecological risk, kinship, and social learning. These findings highlight the evolutionary foundations of disgust-like mechanisms in non-human primates and their role in structuring social relationships under parasite pressure.

Theme 2: Pathogen disgust

Chair: Mats Lekander

Edwin Dalmaijer, University of Bristol

Disgust is characterised by quick but short-lived efferent and slower but sustained afferent neurogastric interactions

Disgust is a multi-faceted emotion, but a core function in humans and apes is to avoid ingesting potentially contaminated food. Aberrations of stomach rhythms ("proto-nausea") have been reported during episodes of disgust, and could be causally related: we have previously shown that pharmacological normalisation of stomach rhythms reduces disgust avoidance. Here, we investigated the underlying mechanism of neurogastric interactions in disgust in healthy adult humans (N=55). We recorded simultaneous electroencephalography (EEG) and electrogastrography (EGG), and quantified information dynamics between brain and stomach using Granger causality. We replicated proto-nausea during disgust, and found temporospatial differences in event-related potentials for disgust versus control stimuli. Crucially, we found an early and short-lived period during which brain activity predicted stomach activity, with a U-shape profile across EEG frequency bands. We found a later and longer-lasting period during which stomach activity predicted brain activity that increased towards higher EEG frequencies. Neurogastric connectivity from occipital cortex to the stomach increased during disgust; and decreased bidirectionally over right-central regions. This suggests the stomach is sensitive to disgust due to information it receives from the brain, and that the brain is also receptive to aberrations in stomach rhythm during disgust. We argue that this system could be adaptive: encountering potential contaminants suggests that an environment is unsafe for foraging, but it is cognitively costly to keep this information in memory. However, disrupting gastric rhythm has a longer-term effect due to its slow nature. The stomach could thus act as a reservoir for caution without cognitive costs.

Daniela Dlouhá, Charles University

Disgust sensitivity and motherhood: Longitudinal changes from pregnancy to postpartum

The adaptive aspect of disgust lies in its protective role against pathogens. Elevated disgust has been observed in women during pregnancy and the early postpartum period, but it remains unclear how it changes with subsequent childcare. This longitudinal prospective study investigated changes in disgust sensitivity from late pregnancy to 18 months postpartum. Women completed the Disgust Scale-Revised (DS-R) and the Three Domains of Disgust Scale (TDDS) in the third trimester (N=275) and then again at 6–12 weeks postpartum (6wPP; N=241), and six months (N=108), twelve months (N=83), and eighteen months (N=52) after delivery. We observed significant changes in DS-R contamination disgust, which was higher during pregnancy and at 6wPP and then consistently decreased, and in TDDS sexual disgust, which was first elevated at 6wPP and then decreased. Additionally, multiparas consistently reported higher DS-R animal-reminder disgust than primiparas, this difference lessened over time. Elevated disgust in the early postpartum may reflect a need for protection when the newborn's immune defenses are not yet fully developed. Elevated sexual disgust could serve an adaptive function by leading to a longer birth interval. Finally, prior experience with childcare may increase mothers' sensitivity to vulnerability and mortality, as reflected in parity-specific changes in animal-reminder disgust.

Eva Landová, Charles University

Emotional salience of evolutionary and modern disgust-relevant threats

Disgust is a fundamental emotion that evolved to protect organisms from pathogens and toxins, shaping behaviours critical for survival. This study explores how ancestral (e.g. spoiled food and insect), modern (toxic substances and radioactivity), and pandemic-related visual stimuli (sneezing, masks, and hospitals) elicit disgust emotional response, specifically their ability to trigger attention (distraction effect in task irrelevant design on reaction time vs voluntary gazing), automatic psychophysiological response (skin resistance, SR), and emotional memory. Ancestral threats like disgusting animals and spoiled food were the most salient stimuli according to subjective evaluation. The living subjects (animals as well as threats with a human context) increased memory performance. We found a distracting effect of disgust-eliciting stimuli on the reaction time across all categories except spoiled food. However, no differences in involuntary visual attention (to the distractors) were observed between disgust-eliciting and neutral stimuli. Participants also physiologically responded by a change of SR with the highest probability to disgust-evoking animals (38 %) and sneezing (52 %) suggesting only ancestral cues of pathogen disgust trigger automatic physiological response. Pandemic-related stimuli formed a unique category, with visible infection cues (e.g., sneezing) triggering stronger disgust than abstract cues like masks or hospital environments. The findings highlight the

evolutionary roots (with specific reaction to spoiled food) of disgust and its limited adaptation to modern contexts.

Mats Lekander, Stockholm University

Doctors' judgement of visual cues of health: A case control study of expertise, clinical speciality and years of experience

With disgust as a core emotion driving avoidance in proactive immune defensive behaviour, detection of sick individuals is necessary to reduce infectious risk. Is such detection reflexive or reflective in nature? We investigated whether medical doctors are better than nondoctors in identifying sick individuals from facial photographs, and whether general practitioners (GPs) are better than non-GPs. One hundred forty doctors (70 women, 1 nonbinary; 61 GPs) and 71 university-educated nondoctors (43 women) classified individuals as sick or healthy from facial photos taken when healthy and when made experimentally sick with an injection of bacterial endotoxin. Doctors were not better than nondoctors in discriminating between sick and healthy individuals ([OR]=1.04, 95% (CI) [0.93–1.17]), and GPs performed like other specialties (OR=1.01; 95% CI [0.88–1.16]). Longer clinical experience was associated with lower accuracy (OR=0.92; 95% CI [0.86–0.98]). Overall sensitivity was 68.2% (95% CI [65.8–70.5]), and specificity 63.6% (95% CI [61.6–65.6]), without significant group differences. Doctors rated their ability to detect sick individuals as better than did nondoctors (b=0.39; 95% CI [0.33–0.45]), but this was not associated with accuracy (OR=1.02, 95% CI [0.95–1.09]. The 25% most accurate raters used more cues than the least accurate 25%, emphasising skin tone, eyes and lips. Medical education or experience does not appear to enhance the ability to detect sickness from facial cues, and self-perceived skills seem weakly related to true accuracy. Instead of deliberate and informed reflection, reflexive emotion-driven processes are likely more influential in driving avoidance of contagious individuals.

Theme 3: Disgust across cultures

Chair: Lei Fan

Joshua Tybur, Vrije Universiteit Amsterdam

Testing the universality of disgust across 36 societies

Contemporary evolutionary accounts conceptualize disgust as comprising three functionally distinct subdomains: : (1) pathogen disgust, which motivates avoidance of infectious microorganisms; (2) sexual disgust, which motivates avoidance of sexual contact; and (3) moral disgust, which motivates coordination against low-value social transgressors. This adaptationist framework yields specific predictions regarding the cross-cultural invariance of disgust elicitors—predictions not entailed, or explicitly

contradicted, by alternative theoretical models that anticipate substantial cultural variability. The present study tested these predictions by assessing disgust responses across 36 societies and 18 languages (N = 30,671). Participants indicated whether they would experience disgust in response to 32 items representing eight categories, including pathogen cues, sexual behaviors, and moral violations. Across all societies, pathogen cues (95%), third-party sexual behavior (80%), and moral violations targeting others (79%) were most consistently identified as eliciting disgust. In contrast, moral violations targeting the self (59%), violence threats (23%), physical trauma (21%), and positive events (3%) were less frequently categorized as disgusting. The rank ordering of elicitors was consistent across all societies, and multilevel analyses indicated that variance in responses was predominantly attributable to individual-level, rather than cultural-level, differences. Consistent with predictions derived from an adaptationist framework, these findings indicate substantial cross-society regularity in the existence of pathogen, sexual, and moral disgust.

Tom Kupfer, Nottingham Trent University

Dissociable psychological disgust mechanisms across 67 countries: Oral–gastric for pathogen avoidance, skin–surface for ectoparasite defence

Emotion terms vary across languages, but whether this reflects variation in psychological mechanisms remains contested. We tested this for disgust across 67 countries in a preregistered study. Participants viewed two 60-second clips targeting pathogen and ectoparasite threats (order randomised) and rated ten sensations. A two-factor model (oral–gastric; skin–surface) fitted well at the country level and showed configural and partial metric invariance across large-sample sites; scalar invariance did not hold, so we focus on within-person contrasts rather than between-country means. Results show a clear double dissociation: pathogen cues elicited stronger oral–gastric than skin–surface sensations, whereas ectoparasite cues showed the opposite pattern. Analyses further indicated that reported 'disgust' was more strongly associated with oral–gastric sensations for pathogen cues, but not for ectoparasites - consistent with flexible lexical usage alongside function-specific response profiles. We conclude that disgust comprises two dissociable psychological mechanisms: an oral–gastric mechanism for pathogen avoidance and a skin–surface mechanism for ectoparasite defence. Even if culture shapes labels and some elicitors, the underlying mechanisms for pathogen avoidance and ectoparasite defence are consistent across cultures.

Lei Fan, Aarhus University & University of Oslo

Moral disgust and anger across borders: Linking to forms of aggressive punishment in Western, East Asian, and cross-cultural contexts

Anger and disgust are core moral emotions, yet they serve distinct functions in moral punishment. This talk synthesizes findings from a series of studies across Western and

East Asian populations, focusing on how these emotions guide aggressive behavior and social inference. In two projects conducted in the Netherlands, the UK, and the US (total N > 2,800), we found consistent functional divergence: anger was associated with both direct and indirect aggression, whereas disgust was linked primarily to indirect forms of punishment (e.g., gossip, exclusion). These patterns emerged in both emotional experience and third-party observation and anticipation. To test the generalizability of these findings beyond WEIRD samples, we conducted two large-scale studies in Japan (N = 1,231; N = 930)—a high-context Eastern culture with strong emotional restraint. Despite these differences, the results closely replicated Western patterns: anger predicted both direct and indirect aggression, while disgust remained tied to indirect motives. Observers also inferred aggression from emotion expressions in consistent ways. We conclude with a preview of an ongoing Dutch–Japanese study on the cross-cultural perception of moral emotional expressions. While anger and disgust may serve stable social functions, we test whether cultural differences in expression and perception lead to mismatches, asymmetries, or variation in interpretive consistency. These perception gaps may distort moral inference across cultures and offer a new lens on intergroup processing—highlighting the role of emotion signaling in shaping social understanding across borders.

Theme 4: Applications

Chair: Sylvie Borau

Jared Piazza, Lancaster University

Does disgust keep us avoiding meat?

Disgust toward the sight and smell of meat is a form of core, pathogen disgust that can lead to meat aversion, especially among women. Yet people can come to avoid meat for other reasons, often moral in nature, with the subsequent avoidance of meat eroding its sensory appeal over time. An important question for animal advocates is how and when to mobilise meat disgust, for example, through meat-borne pathogen cues or animal-origin reminders, versus other pathways to meat aversion, especially given findings that many meat avoiders return to eating meat. Some emerging evidence suggests that moral motivations may be more predictive of sustained meat avoidance than avoidance based on core disgust alone. Cross-sectional and longitudinal studies tend to find heightened disgust responses and greater dietary commitments among ethically motivated meat avoiders, relative to health-oriented meat avoiders. These firmer commitments may be the result of increased imagistic associations between meat, violence, and decay, and the increased centrality of diet for a person's identity, among ethically motivated vegetarians/vegans. Arguably, core disgust interventions may be more effective at early stages of dietary change (to prompt meat avoidance and openness towards additional

motivations) and with low-sympathy targets (e.g., fish) for which ethical motivations may prove challenging to mobilise.

Jorge Tobajas, University of Córdoba

Applications of disease avoidance and disgust in wildlife management and conservation: The conditioned food aversion

Disease avoidance and the emotion of disgust are key components of the behavioral immune system, playing crucial roles in reducing the risk of pathogen exposure and poisoning across species. In the context of wildlife management and conservation, these mechanisms offer innovative, non-lethal tools to mitigate human–wildlife conflict and improve conservation of threatened species. One promising application is conditioned food aversion (CFA), a strategy in which wildlife learns to associate specific food items with gastrointestinal malaise, leading to long-term avoidance. This approach has been successfully applied to deter animals from consuming toxic species, threatened species' eggs, or crops, thereby reducing mortality and promoting human-wildlife coexistence. By leveraging disgust-like responses and avoidance learning, CFA can contribute to conservation goals without relying on lethal control methods. Moreover, it provides a framework to understand how innate avoidance of contaminated or risky resources can be redirected towards conservation outcomes. This presentation explores the theoretical basis of CFA, reviews case studies of CFA in wildlife management, and highlights the potential of this method to enhance conservation strategies. Integrating behavioral ecology and conservation practice linked to disgust, CFA exemplifies how natural avoidance systems can be harnessed to reduce conflict, protect biodiversity, and promote sustainable wildlife management.

Sylvie Borau, Toulouse Business School

The expanding circle of moral disgust: From animal suffering to robot mistreatment

This talk synthesizes findings from two independent research examining how disgust shapes moral judgments about animal and robot abuse. The first research (N=3,310) investigated French participants' responses to undercover animal abuse videos, examining whether negative emotions (including disgust) mediate increased engagement with animal protection causes. Results showed that exposure to animal abuse significantly increased donations to NGOs and petition signing. However, contrary to expectations, a cooling-off period designed to reduce immediate emotional intensity did not diminish behavioral outcomes, suggesting that emotional moral responses may be more cognitively robust than previously assumed. The second research (N=1,848) explored US participants' moral responses to robot abuse across three experiments. Findings revealed that witnessing robot mistreatment generates substantial moral concern, with participants showing disgust-like responses and protective attitudes toward non-sentient entities. Notably, deliberative thinking enhanced rather than

reduced these moral responses, challenging assumptions that robot empathy represents irrational emotional bias. Together, these studies reveal disgust as a powerful moral emotion that extends beyond traditional sentient boundaries. While animal abuse triggers visceral protective responses rooted in empathy for suffering, robot abuse activates similar disgust mechanisms despite the absence of sentience. This suggests that disgust functions as a domain-general moral response that can be triggered by violations of care and protection norms, regardless of the target's capacity for suffering. These findings have important implications for understanding moral psychology, activism effectiveness, and developing ethical frameworks for human interactions with both biological and artificial entities.

Flash Talks

Emily Bagley, University of Cambridge

The 'stickiness of disgust': Testing the hypothesis of disgust intractability in the context of instrumental reversal learning

Flexibly learning which stimuli to avoid is fundamental to adaptive behaviour, helping avoid potential dangers in an uncertain world. Models of fear and loss learning in particular have dominated the psychological literature on flexible learning, and have been used to explain a range of psychopathologies. In recent years it has become evident that disgust learning may differ, however: notably, Pavlovian learning about disgusting outcomes is 'intractable'— resistant to extinction, perhaps explaining why disgust-related psychopathology is resistant to treatment. Here, we investigate whether the 'intractability' of disgust extends to flexible instrumental learning, developing an online reversal learning task and modelling framework (n=340). We hypothesised that individuals learn differently when learning to avoid disgusting outcomes (disgusting videos and sounds), relative to matched versions of the task where they learn to avoid fear-inducing outcomes and losing points. Initially, differences in learning were assessed using win-stay and lose-shift probabilities (NB 'win' refers to neutral/non-punishing outcomes and 'lose' refers to punishing fear, disgust and points-based outcomes). This revealed differences in learning between the emotions, driven by a difference between disgust-learning and points-based learning: although participants showed no change in win-stay probability in the disgust block ($Z=-0.603$ $p=0.547$), lose-shift probability is decreased when learning about disgust relative to points learning ($Z=3.743$, $p<0.001$). We found no difference between fear-based and disgust-based learning on either metric ($Z=-1.240$, $p=0.616$; $Z=1.467$, $p=0.142$). Q-learning models similarly revealed higher learning rates when learning about points relative to disgust learning ($Z=4.11$, $p<0.001$) with no difference between fear and disgust learning ($Z=0.273$, $p=0.785$).

Çağla Çınar, University of Amsterdam

Do vegetarians' disgust toward meat influence their social judgements of meat eaters?

Does personally experienced disgust toward engaging in a behavior shape how one evaluates others who engage in that behavior? Despite its prominence in theories of moral cognition, this hypothesis has rarely been tested directly. To test it, we capitalize on vegetarians, who vary in both disgust toward meat and attitudes toward meat eaters. In two studies (N = 466 and 477) of vegetarians in the United States and United Kingdom, we assessed personal disgust toward meat, pathogen disgust sensitivity, vegetarian motivations, and negativity toward meat eaters. In both studies, personal meat disgust was associated with greater negativity toward meat eaters, independent of pathogen disgust and moral motivations for avoiding meat. This association was stronger than the relation between meat disgust and evaluations of other social targets and actions. These results provide novel evidence that personal disgust toward a behavior is specifically associated with social judgments of others who engage in that behavior.

Michael Donner, Vrije Universiteit Amsterdam

The role of transgressor social value in moral emotions

The same moral violations can elicit different emotional responses across individuals. Sometimes people respond with anger rather than disgust, and other times with disgust rather than anger. What accounts for these differences? We propose that the social value of the transgressor may differentially influence moral emotions. Specifically, disgust is more likely to be experienced toward norm violators of low social value to observers. We tested this hypothesis in a large UK-based sample using a recall task. Participants were randomly assigned to recall a time when they either felt disgust or anger toward a transgressor they knew personally. We then measured participants' social value of the transgressor (using both a financial trade-off task and ad hoc items) as well as their emotional reactions to the transgressor. Although the prompt did not affect ratings of social value, consistent with our hypothesis we found that disgust (but not anger) reactions were associated with lower perceived social value of the transgressor (on both measures). These findings add to the growing body of research that suggests disgust toward moral violations might serve distinct functions from those of anger.

Laura Gagliardi, University of Milan, École Pratique des Hautes Études – PSL & Institut Lyfe

Exploring driving mechanisms of disgust reactions and justifications elicited by meat

Disgust reactions significantly impact food choices, particularly in meat consumption, yet the factors influencing their intensity and how individuals justify them remain

underexplored. I will present results relative to two different studies designed to shine a light on mechanisms driving disgust to meat. Study 1 provides a novel examination of both disgust intensity and justification patterns across seven meat categories. Findings show that the meat category is the main factor influencing disgust reactions and justifications, indicating that internal properties or conceptual perceptions are major factors shaping disgust. Results also show that disgust sensitivity and gender significantly impact responses, with women reporting higher disgust intensity. Importantly, the study reveals a previously unidentified interaction effect between familiarity and perceived naturalness of the meat: familiarity moderates the relationship between perceived naturalness and disgust intensity, indicating a possible strategy to enhance acceptance of sustainable food alternatives, currently hindered by perceived lack of naturalness. The justification patterns exhibited systematic variation by meat type, indicating wide ranging concerns (e.g. naturalness for genetically modified meat, ethics for endangered animals' meat). Study 2 investigates how atypicality in meat type and production process influences perceptions of disgust. The study includes 3 experiments. It first manipulates typicality of the basic level category (e.g., beef, chicken, rabbit, etc) relative to the superordinate category of MEAT [Experiment 1], then typicality of the mode of meat production (e.g. in vitro, factory-farmed, etc.) [Experiment 2], and finally explores combined effects [Experiment 3]. Results for Study 2 are currently pending.

Jan Havlíček, Charles University

The development of disgust sensitivity in preschool children

Preschool age appears to be a crucial period in the development of disgust sensitivity. Around the age of five, children are developing an understanding of contamination, an important cognitive mechanism thought to underlie the responsiveness to more disgust elicitors. Prior to this age, children are generally more willing to touch or even eat items that would be considered contaminated from an adult perspective, especially if the visible source of contamination is removed. Despite its significance, this developmental stage remains underexplored. In the present study, we aimed to test changes in disgust sensitivity over a one-year period, assessing the same group of children first at age four and then again at age five. In total, 207 children (105 girls and 102 boys) were interviewed twice using the Children Disgust Scale (CDS) in public kindergartens. We found a statistically significant increase in overall CDS scores, with children at age five reporting higher disgust sensitivity than at age four. A similar effect was observed in both subscales: the Disgust Avoidance subscale and the Disgust Affect subscale. Moreover, no significant sex differences were found in either year, suggesting that such differences may emerge later in development.

Daqing Liu, York St John University

Disgust at tainted souls: Examining the character hypothesis of disgust by describing dark personality traits

Disgust is commonly reported in response to sociomoral violations, but whether and how it differs from anger in these contexts is often debated. Giner-Sorolla and Chapman (2017) found evidence for a character hypothesis of disgust: Disgust responds to judgment of bad moral character, more so than anger, whereas anger is more responsive to harmful actions and consequences. Extending research on the emotional consequences of bad-character judgment to perception of dark personality traits, our three pre-registered experiments (Ns = 191, 180, 157) tested participants' emotional responses to observable behavioral signals of sadism, narcissism, and Machiavellianism respectively. Harmful consequences were also manipulated in two of the experiments. Results supported the character hypothesis of disgust, shedding light on the difference between the two often intertwined moral emotions and the multi-faceted concept of bad moral character.

Michal Stefanczyk, University College of Professional Education

The notorious sex difference in disgust sensitivity - what six empirical studies addressing six evolutionary hypotheses aimed at explaining that sex difference showed

Cross-culturally, and since the beginning of studying disgust, women score higher than men in disgust sensitivity. Although a number of hypotheses explaining this phenomenon was proposed, there are hardly any studies that empirically tested them. Thus, I conducted six studies, predominantly based on the theoretical paper of Al-Shawaf, Lewis & Buss (2018), testing the a) self-presentation hypothesis, b) coalitional hunting and warfare hypothesis, c) food preparation hypothesis, d) dark personality hypothesis, e) testosterone hypothesis, and f) parenting hypothesis (total N = 2970, roughly 50% male), which cover evolutionary, sociocultural, and physiological approaches to disgust sensitivity and its variation between sexes. Two additional projects (N = 1715) extended the ideas behind these hypotheses. The results, spanning from null, to supporting a hypothesis, to actually suggesting a direction of an effect opposite to the expected one, show how complex and still scientifically uncharted the origins of sex differences in disgust sensitivity are.

Posters

Jérémy Hardouin, Czech University of Life Sciences

Behavioral responses of wild boars and deer to olfactory cues of infection and predation

Disgust is increasingly recognized as a critical defense mechanism against pathogens, yet its behavioral and ecological consequences remain far less understood than those of fear-driven predator avoidance. While animals frequently adjust their foraging to reduce predation risk, whether they also forego resources to avoid infection is less clear. Our research investigates this underexplored aspect of the "landscape of peril", in which animals must navigate both predator and pathogen risks, by testing ungulate responses to olfactory cues of disease and predation. In controlled enclosure experiments, wild boars (*Sus scrofa*) and fallow deer (*Dama dama*) were exposed to pathogen-associated odors (cadaverine, skatole, butyric acid), predator olfactory cues (wolf, bobcat, human urine), and controls (distilled water, vanillin). Scented sponges were placed near feeding sites to simulate natural risk signals, and behaviors such as latency to approach, vigilance (time spent scanning the environment), number of visits, and total foraging time were recorded using a multi-camera trap system. Preliminary results show that both pathogen and predator cues elicited behavioral responses. Wild boars responded more strongly to cadaverine, with significantly less visits and foraging, whereas other cues had weaker effects. In contrast, fallow deer reacted more to predator cues, with bobcat urine reducing both visits and foraging, while wolf urine reduced foraging only. By documenting cue-specific responses in ungulates, this study adds to the scarce empirical evidence on risk perception and suggests that pathogen avoidance, like predator avoidance, can influence foraging decisions, which may have broader ecological implications.

Jan Havlíček, Charles University

Body odour disgust sensitivity across pregnancy and the postpartum period: A longitudinal study

Olfactory perception is a key component in the elicitation of disgust. General disgust sensitivity fluctuates during pregnancy as part of the behavioral immune system's protective mechanisms, but it is currently unknown whether a similar pattern applies also specifically to odor-elicited disgust. This longitudinal study examined changes in body odor disgust sensitivity during pregnancy and the postpartum period among 276 women, recruited in health centers. Participants completed questionnaires focused on body odor disgust, general pathogen disgust, anxiety, and nausea and vomiting in pregnancy at multiple points from early pregnancy until six months postpartum. The results revealed that body odor disgust sensitivity peaked in the first trimester, declined through the later

trimesters, and reached its lowest point in the early postpartum period before increasing again at six months postpartum. This trajectory was found for body odor disgust directed at both one's own and other person's bodies. Importantly, body odor disgust sensitivity could not be explained solely by a general pathogen disgust sensitivity, which suggests a distinct role for olfactory disgust in pregnancy. Our findings support the Compensatory Prophylaxis Hypothesis, which highlights the adaptive increase in disgust sensitivity during the especially vulnerable period of early pregnancy. The postpartum decline in body odor disgust may reflect either desensitization to infant odors or reduced social exposure. Future research could further explore the physiological and psychological factors which contribute to these changes.

Hana Hubová, Charles University

Disgust sensitivity in adolescents: Intersexual and age-related differences

Beginning in early childhood, disgust gradually develops and undergoes various changes throughout life, affected by a range of factors, from immunological and hormonal to environmental. Higher levels of disgust have repeatedly been observed in women compared to men, possibly reflecting greater reproductive investment, parental responsibilities, and an increased need for protection against pathogens. However, due to limited research on intersexual differences in children's disgust sensitivity, it remains unclear whether these differences are present early in development or emerge later, during adolescence. Based on these premises, we tested whether adolescence marks the emergence of sex differences in disgust sensitivity and whether girls' sensitivity increases after menarche. Using the Child Disgust Scale (CDS) and the pathogen and moral domains of the Three-Domain Disgust Scale (TDDS), disgust was assessed in children (N=233, 136 girls) aged 10 to 15 years. Significant intersexual differences were found only in children aged 10 (for TDDS pathogen, CDS avoidance and CDS total score) and 11 (for TDDS pathogen, CDS affect, avoidance and total CDS), with girls reporting significantly higher disgust sensitivity. A significant decrease in disgust sensitivity with age was observed in girls (for TDDS pathogen, CDS avoidance and total CDS), but not in boys. No significant effects of pubertal stages (based on self-report questionnaire scores) or menarche in girls were found. Therefore, sexual maturity does not appear to be the key factor in the emergence of intersexual differences in disgust sensitivity. Their origin may lie in earlier developmental stages, shaped by biological predispositions and social learning.

Šárka Kaňková, Charles University

Maternal disgust sensitivity from pregnancy to postpartum and its impact on the development of disgust sensitivity in the child

Disgust plays a key role in pathogen avoidance. In children, it evolves alongside cognitive and sociocultural development. This development begins around age three, with parental modeling becoming especially influential. This study examined whether maternal disgust

sensitivity predicts disgust sensitivity in the child and whether parity and maternal psychological characteristics influence this relationship. Data were collected from 163 women (60% primiparae) who repeatedly completed questionnaires on disgust sensitivity (Disgust Scale-Revised and Pathogen domain of the Three Domains of Disgust Scale), state anxiety, positive/negative affectivity, and perceived stress at four time points: in the first trimester of pregnancy, six weeks, one year and three years postpartum. At three years postpartum, mothers also completed the Child Disgust Scale. Path models showed that maternal disgust sensitivity at each time point significantly predicted maternal disgust sensitivity at the next point, and maternal disgust at three years postpartum significantly predicted children's disgust sensitivity. Parity was directly associated with child disgust sensitivity, with higher sensitivity reported in children of multiparous mothers, while no link emerged between parity and maternal disgust. Moreover, higher negative affectivity and perceived stress in the first trimester were related to higher maternal disgust at that time. This suggests that children's disgust sensitivity may be shaped by maternal disgust sensitivity and maternal psychological characteristics in early pregnancy may play a role in this process. Older siblings may also play a role by serving as models or introducing new pathogens into the household, triggering disgust sensitivity in the younger child.

Keiichi Kimura, Nagoya University

Trypophobia involves both disgust and fear, as evidenced by the subjective ratings, but behaviorally reflects fears only

Trypophobia refers to an aversion to clusters of holes, like lotus flower seed heads. Although this aversion is thought to be a byproduct of evolutionary adaptation, the mechanism remains unclear. One hypothesis posits that trypophobic reactions derive from fear of dangerous animals, such as venomous snakes. Another assumes trypophobia is an evolutionary response to prevent infectious diseases (i.e., disgust). Studies suggest both fear and disgust contribute to trypophobia at the subjective level, but none have examined their behavioral outcomes. To clarify how trypophobia involves fear and disgust, this study used two experiments to assess subjective ratings and behaviors toward trypophobic images. In Experiment 1, participants rated their feelings of disgust and fear toward artificial cluster images varying in hole flatness, number of holes, and array irregularity. Concave and convex clusters, typical characteristics of trypophobic images, were rated higher on both fear and disgust scales than flat clusters. In Experiment 2, participants performed a visual search task using images from Experiment 1. Studies showed that fear and disgust differ in attentional dynamics, with fearful stimuli being noticed quickly and harder to disengage from, while disgusting stimuli are only harder to disengage from. In Experiment 2, images of trypophobic clusters were rapidly identified and disrupted the visual search process. This finding supports the notion that fear, rather than disgust, plays a significant role in the behavioral manifestations of trypophobia. This study indicates that while trypophobia encompasses both fear and disgust on a subjective level, it is primarily fear that influences behavioral responses.

Mats Olsson, Karolinska Institutet

The disgusted brain at the point of contagion

Disgust is a strong cue to avoid potentially contagious or poisonous objects such as rotten food, dirt, bodily products, and other sickness-related cues in conspecifics. It has also been shown that merely observing disgusting or sick individuals can trigger an immune reaction, i.e. even without direct contact with pathogens. In this study, we set out to map the neural encoding of the proximity to disgusting and potentially infectious objects to our body. More specifically, we presented clean and dirty versions of objects at varying distances from the participant's hand, including direct contact between the hand and the object, while assessing perceived disgust and neural correlates using functional magnetic resonance imaging (fMRI). Looking at relevant areas in the brain for processing disease-relevant and disgusting stimuli, we could clearly observe activations in areas such as anterior insula, amygdala and anterior cingulate cortex. Whereas perceived disgust was clearly peaking when a dirty object touched the hand, factorial analyses of brain activation did not parallel those results but rather showed a similar increase of activation from clean to dirty objects irrespective of distance to the hand. The results are discussed in terms of whether infection is spread through air or contact.

Iveta Štolhoferová, Charles University

Like father, like son? Sensitivity to disgust in children and their parents

Parental disgust is expected to be related to disgust of their children due to heredity, shared environment and social learning in particular. Nevertheless, how parental characteristics predict variation in children's disgust sensitivity is not well understood. The main aim of this study was to examine how various aspects of parental disgust-related measures explain variation in four-year-old children's disgust sensitivity. We recruited 271 four-year-olds (133 girls and 138 boys) along with one of their parents (243 mothers and 28 fathers). Children's disgust sensitivity was assessed with the Child Disgust Scale (CDS), completed both by the child (self-report) and by the parent (parental report). Parents further completed the Disgust Scale-Revised (DS-R), the pathogen scale of Three Domain Disgust Scale (TDDS), and the Perceived Vulnerability to Disease Scale (PVD). Using linear regression, all three parental measures predicted children's CDS scores, but only when using the parental reports. In contrast, children's self-reported CDS was predicted only by parental TDDS scores. Further examination showed that this was due to very low correlation between self- and parent-reported CDS scores: r=0.15. Interestingly, parents tended to largely underestimate their child's sensitivity to disgust, ascribing them significantly lower scores than the children reported themselves. We discuss the validity of both reports, the role of parents in shaping their children's disgust sensitivity, and the importance of collecting data from both children and their caregivers.

Arnaud Tognetti, CNRS

Sick faces trigger social avoidance in humans

A behavioral defense against disease involves detecting sickness cues in others and responding adaptively, such as by avoiding social interactions. While studies have shown that humans can discriminate sickness cues above chance in faces after sickness induction, whether this discrimination affects approach-avoidance behaviors remains uncertain. Here, we investigated whether naïve observers maintain greater interpersonal distances – a relevant proxy for avoidance behaviour – from individuals displaying ecologically relevant inflammation-induced sickness cues. In a prior study, facial photographs were taken of 17 individuals when sick (two hours after an endotoxin injection causing a transient systemic inflammation) and healthy (following placebo injection). In the current study, 247 participants (mean age = 23.72; 134 women) viewed these faces while completing a computerized interpersonal distance task. Specifically, participants adjusted the apparent proximity of each face to indicate their preferred conversational distance, then rated each face for perceived health. They also completed questionnaires assessing personal health, immune status, and perceived vulnerability to disease. Preliminary analyses reveal that participants preferred greater distance from sick faces compared to healthy ones ($\beta = 0.519$, $p = 0.011$), and that preferred distance increased with perceived sickness severity ($\beta = -0.029$, $p < 0.0001$). In contrast, factors such as participant gender, self-rated health, and the actual immune status of the photographed individuals had little effect on avoidance behavior. These findings suggest that subtle facial cues of illness can prompt interpersonal distancing, supporting the notion that human behavioral immunity operates proactively to reduce infection risk.

Amelia Waliszewska, "Varsovia" University of Business and Applied Sciences

The taste of disgust: Verification of the food preparation hypothesis among culinary students

Food on the one hand is essential for survival, on the other, it poses a potential pathogen threat. According to the food preparation hypothesis, individuals responsible for preparing meals exhibit heightened disgust sensitivity as a protective mechanism, reducing the risk of consuming or serving contaminated food. The aim of the study was to verify the hypothesis by examining whether students enrolled in culinary schools display greater sensitivity to pathogen- and food-related disgust than peers not engaged in gastronomy. Disgust sensitivity was assessed among culinary students whose practical experience in food preparation increases with each year of education. Three measures were used: the Food Disgust Scale, the Picture Food Disgust Scale, and the pathogen subscale of the Three Domains of Disgust Scale. The research sample included 500 students from five classes in cookery and nutrition and gastronomy technician programs, while the control group comprised high school peers without educational or practical involvement in food preparation. Overall, no significant differences were found between culinary students and non-culinary peers; however, fifth-year culinary students exhibited

significantly higher pathogen- and food-related disgust, along with gender differences in pathogen-related disgust. These findings suggest that culinary education alone does not increase disgust sensitivity; rather, heightened sensitivity emerges in fifth-year students, likely reflecting increased responsibility for preparing meals for others. This supports the idea that social responsibility in food preparation may enhance pathogen-avoidance mechanisms. Additionally, observed gender differences align with previous research indicating that females tend to exhibit stronger pathogen-related disgust, possibly reflecting evolutionary protective adaptations.