

## Special Thematic Section on "Decolonizing Psychological Science"

# A Postcolonial Feminist Critique of Harem Analogies in Psychological Science

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### Abstract

Since the 1930s, psychologists have used the term *harem* as an analogy for social relations among animals. In doing so they draw upon gendered and racial stereotypes located in the history of colonialism. We present an experimental study on the *harem analogy* as a means of confronting and challenging colonial undercurrents in psychological science. We investigated whether the use of this colonialist image in studies of animal societies could subtly affect thinking about Middle Eastern Muslim people. Two-hundred and forty-nine participants read about animal societies; in the experimental condition these were described as "harems" and accompanied by the analogy of harems in Middle Eastern Muslim societies. In the two control conditions, animal societies were either described as "groups" or "harems", with no mention of the analogy. In the experimental condition, participants falsely remembered descriptions of Muslim people of the Middle East as applying to animals. This finding replicates the "resistance is futile" effect (Blanchette & Dunbar, 2002; Perrott, Gentner, & Bodenhausen, 2005) by which false remembering of analogical statements as previously seen literal descriptions is taken as suggestive of analogical mapping between two disparate concepts. As such, the study contributes to debate between feminist and evolutionary psychology about the value-neutrality of psychology, and to postcolonial critique of the partiality of mainstream psychological accounts of the universality of nature and society.

**Keywords:** postcolonial feminism, harem, analogy, metaphor, scientific racism, feminist psychology, resistance is futile framework

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Solly Zuckerman's (1932) *The Social Life of Monkeys and Apes* was a highly influential synthesis of research on the social behaviour of non-human primates. Historian of primatology, Donna Haraway (1991) positioned Zuckerman as central to the establishment of sexual physiology and dominance as means of understanding primate social orders. Another notable feature of Zuckerman's writing is his commentary on his contemporaries' work, namely his dissatisfaction with anthropomorphic analogies in research. He asserted that "Analogy...will have to give way to analysis if there is to be an end to irrelevant and anthropomorphic classifications of animal society" (Zuckerman, 1932, p. 22). However, Zuckerman himself also relied on an anthropomorphic analogy to describe the social order of primates. He described "the harem" as "a system in which every adult male attempts to secure for himself as

many females as possible” (1932, pp. 190-191). By so doing Zuckerman drew upon a colonial image of Middle Eastern social systems and expanded its range to descriptions of animal societies that seem to pre-date human existence and human politics.

Scientific analogies draw on concrete familiar references and use them to direct and to build understanding of more abstract and less familiar entities (Gentner & Holyoak, 1997). In Zuckerman’s case, the word ‘harem’ drew on a colonial image of Middle Eastern social systems that would have been familiar to Western readers to communicate his observations about complex social systems among unfamiliar non-human primates. Such uses of this particular analogy have since become common in contemporary psychology. A search of the database PsychInfo revealed 200 records that used the term ‘harem’ prior to 2011. Closer inspection of these records showed that psychologists since the 1970s have largely used “harem” to refer to animal societies, as Zuckerman (1932) did (see Figure 1). In such articles, the term ‘harem’ directs and builds readers understanding of such diverse social systems as sexual dominance among coral-reef fish (Robertson, 1972), female zebras’ competition over one dominant male (Fischhoff et al., 2007), and male warbler aggression towards females (Westerdahl et al., 2000), scaffolded by their imagery of human harems.

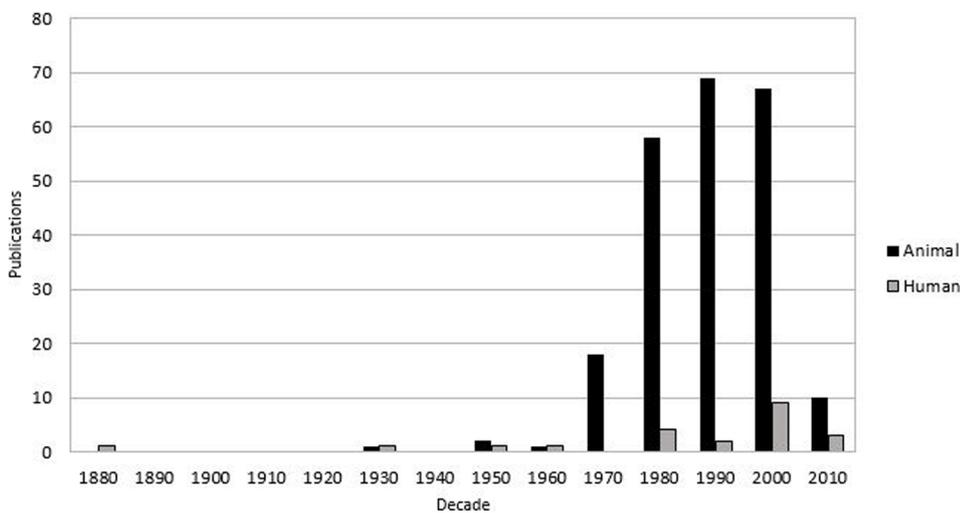


Figure 1. Articles in the PsychInfo database that use the word *harem*.

This article critiques the use of the term ‘harem’ for its implications for scientific and gendered forms of racism. In it, we investigate the extent to which such uses might allow for anthropomorphism by allowing readers to confuse the attributes of unfamiliar animal societies with stereotypic representations of people of the Middle East. By so doing, we hope to contribute to the aims of this special section to denaturalise mainstream discourse by exposing how the seemingly neutral harem analogy is implicated in global systems of oppression.

## Postcolonial Feminism

There is considerable debate over the meaning of the term ‘postcolonial’ when labelling critical theory; a common usage is to indicate social commentary and revolutionary struggles originating in previously colonised countries. While this is often the case, with many eminent postcolonial writers originating from such contexts, there are also perspectives that find this definition limiting. The “post” in postcolonial has been criticised as locating colonialism firmly in the past, thus ignoring neo-colonialism or the continuing after-effects of colonial practices (see Loomba,

1998, for discussion). The term 'postcolonial' has also been used to represent a critical standpoint from which colonial discourse and practices, and their continuing effects, can be deconstructed and challenged (de Alva, 1995; Hsieh, 1997). As writers in a Western context this definition better represents our usage of the term 'post-colonial theory'. Postcolonial feminism, while inheriting these difficulties of definition, attempts to extend postcolonial critique through uncovering and analysing the intersections between colonial practices and gendered oppression. Postcolonial feminism responds to criticisms of postcolonial theory's androcentrism and its failures to account for the gendered dynamics of colonialism. Postcolonial feminists, such as Mohanty (2003) and Narayan (1997, 1998) have also critiqued the western mainstream feminist movement and its complicity in colonialism and continued ethno-and Euro-centrism.

We adopt a postcolonial feminist perspective in our analysis of the harem in evolutionary theory. Our work is not about harems, per se; rather, we confront the problematic aspects of the *discourse surrounding* the harem that arose from a history of "Othering" Middle Eastern societies. We argue that evolutionary theory's use of the harem reflects and potentially reproduces racist stereotypes of Muslim and Middle Eastern women as hypersexualised passive objects and men as essentially barbaric and oppressive. Below we review the history of the use of this term in colonial and psychological discourse. We then introduce the "resistance is futile" effect, by which analogical references are mis-remembered as literal truth, as a means of understanding the potential effects of such colonial stereotypes permeating scientific analogies. We report a study examining this effect with respect to memory for text about animal 'harems' and discuss its implications for postcolonial feminist criticism of psychology. We discuss the implications of this approach and our findings for decolonizing psychology by denaturalizing its taken-for-granted analogies.

## The Harem in Colonial Discourse

The word 'harem' generally refers to separate living quarters for women within a (sometimes polygynous) household. Despite pre-dating the rise of Islam, harems became repeatedly associated with Islam in Western accounts of Middle Eastern cultures during the expansion of European colonization in the late 19<sup>th</sup> century (Ahmed, 1982, 1992). Postcolonial feminists have examined the means through which culturally essentialist constructions of Eastern cultures as barbaric and oppressive are produced through homogenised representations of colonised women; the symbolic "Third World Woman" in (post)colonial discourse centres gendered oppression in cultural representations and positions colonised women's lives and bodies as discursive (and literal) battlegrounds for opposing colonialist and nationalist forces (Mohanty, 2003; Narayan, 1997, 1998).

The harem was constructed by Western authors in two ways. First, it was stereotyped as a space of absolute oppression, in which women were entirely disempowered and objectified, to validate representations of the Middle East as less 'civilized' than the West and implicitly justify European colonial intervention. Second, the harem figured in hyper-sexualised fantasies, conjuring images of enslaved, scantily clad women who were readily available sexual objects for men (see Ahmed, 1982, 1992; Lewis, 1996; see also Hasan, 2005 on early European discourses and Jarmakani, 2008 on later examples from U.S. history). Stereotypic representations of the harem implied the rigid control of women by men, who in turn were subjected to the stereotype of Muslim Arab men as vulgar, oppressive, and savage 'Terrible Turks' (Goffman, 2002). Jarmakani (2008) documents how this stereotype of Muslim men as dangerous and barbaric shifted over time within North American discourse on the Middle East. The initial image of 'Omar', the feminised and benign Ottoman Sultan, surrounded by scantily clad 'harem girls', preserved the Orientalist representation of the harem as a space of sexual opulence and dominance, whilst

neutralising the Terrible Turk's threat to Western society. The 'Terrible Turk' stereotype retained its association with violence, but this violence was directed purely at women, allowing for 'white saviour' narratives to uphold colonial ventures as 'civilising missions' and reconstruct Western men's sexual objectification of Muslim women as a mechanism of liberation.

Such colonial images exemplify the process of 'Othering' (Said, 1978), by which groups are both erased of their subjectivity and spectacularized for their differences from unstated norms that are unmarked in their particularities. Said (1978) described Orientalist rhetoric in Western scholarship as positioning the Middle East as backwards and frozen-in-time, justifying colonialism as a civilising mission, and obscuring the pursuit of Western colonial power. Postcolonial feminist theory has since emphasized how women travel writers and feminists who commented upon the harem functioned outside of the male-dominated Orientalist canon that Said (1978) described. However, such writers often constructed the same dichotomy between 'civilised' Western society and 'barbaric' Eastern society suggesting the need to liberate Muslim women from an oppressive system justifying colonial and imperialist action (Ahmed, 1982, 1992; Jarmakani, 2008).

### The Harem in Psychological Discourse

Colonial discourse influenced mainstream psychology long before Zuckerman (1932) used the term 'harem' as an analogy for animal societies. The first entry in PsychInfo that uses the term 'harem' was authored by psychiatrist John Nisbet in 1889 (see Figure 1). Nisbet (1889) constructed polygyny within the harem as oppositional to Western monogamous marriage and, therefore, as a sign of barbarism and inferiority. He justified colonialism as a "penalty" for the "misguided fanaticism and mistaken self-indulgence" of Middle Eastern polygamy (Nisbet, 1889, p. 196), and he located the social interaction between women within the harem as the cause of the assumed intellectual inferiority of Middle Eastern men. His labelling of the Middle East as the 'changeless East' (pp. 196) is typical of Orientalist discourse on the Middle East from this period. As such, Nisbet's (1889) work is typical of Social Darwinian thought of the late 19<sup>th</sup> century, which constructed intersecting racial and gender hierarchies in which White Christian cultures were perceived as superior, advanced, and civilized (Hofstadter, 1944; Shields & Bhatia, 2009).

Although distant in time, such Darwinian discourses can continue to affect the construction of understanding about groups in the present. For example, Goff, Eberhardt, Williams, and Jackson (2008) demonstrated through priming studies that mental associations between Black people and apes, which featured heavily in biological rationales for racial hierarchies, were beyond the conscious awareness of White participants. However, White participants' judgments about Black targets were also affected in a range of ways when ape imagery was subliminally primed. Such dehumanizing associations are often kept alive by analogies in popular discourse. For example, Black defendants are described with ape-associated words more often than White defendants in newspaper reports (Goff et al., 2008). Whilst Goff et al. (2008) studied dehumanizing inferences by which attributes of animals affect judgments of humans; we studied anthropomorphism by examining how colonial stereotypes about harems would be attributed to animal societies.

Anthropomorphism has been studied in terms of its motivational determinants, with the perceived similarity between animal targets and humans influencing the extent to which anthropomorphic characteristics are applied (Epley, Waytz, & Cacioppo, 2007). Jahoda's (1999) historical analysis of colonial discourse focused on the way in which colonised peoples were constructed as animal- and child-like in order to reinforce and reify oppressive power imbalances. Building upon Jahoda's (1999) work, Saminaden, Loughnan, and Haslam (2010) have argued that

these representations persist in contemporary society and demonstrated that “traditional” people are more readily associated with animals than “modern” people, on both implicit and explicit measures. Thus, the ease with which evolutionary psychologists applied colonial representations of the harem onto animal behaviour, and the preservation of this anthropomorphic analogy in contemporary literature, signifies the enduring nature of the colonial discourse described by [Jahoda \(1999\)](#) and functions as a mechanism of neo-colonialism.

[Figure 1](#) shows that more recent uses of the term ‘harem’ in PsychInfo’s records have generally been in theoretical articles analysing the harem from a postcolonial perspective. For example, [Akşit \(2010\)](#) analysed Iranian writer Fatma Aliye’s negotiation of public and private spaces in her depictions of the harem. We welcome such engagement between postcolonial feminism and psychology. However, our approach to colonial discourse in psychology is informed by a belief that this handful of literary engagements is unlikely to change mainstream Psychology’s core assumptions about its status as a value-neutral science. Like [Spears and Smith \(2001\)](#), we aimed to conduct a psychology experiment as a form of politics that works by making behaviour visible. Through our memory experiment, we hope to specifically draw out the critical potential of cognitive research to make visible the active construction of meaning when terms drawn from human societies are used to scaffold readers’ understanding of unfamiliar animal societies.

## Feminist Critique of Evolutionary Psychology

Feminists have long criticized evolutionary theory for its use of metaphors and analogies drawn from human social arrangements, such as investment, inheritance, exchange, and rape. Drawing upon such aspects of human sociality as analogies to guide understanding of unfamiliar animal groups risks the confusion of those particular human arrangements with nature. One consequence of this confusion is that systems of dominance among humans, such as patriarchy and capitalism, can appear to have a basis in nature to be apolitical, inevitable, or legitimate ([Haraway, 1991](#); [Harding, 1986](#); [Keller, 1992](#)). Such evolutionary discourse draws upon long standing constructions of ‘nature’ as an essential and immutable character untainted by human intervention ([Williams, 1988](#)). Thus, attributing a quality to ‘nature’ legitimizes its existence. In contemporary Western societies, popular versions of evolutionary psychology typically legitimize heterosexual gender roles through such ‘naturalistic fallacy’ thinking ([Cassidy, 2007](#); [McCaughey, 2008](#)). Colonialism has also been a frequent source of such seemingly neutral scientific analogies, most obviously in the naming of ‘ant colonies’ ([Sleigh, 2007](#); see also [Haraway, 1991](#)). We argue that labelling animal societies ‘harems’ naturalizes the racist and gendered stereotypes that ground the harem concept in colonial discourse. Such naturalization of power through analogical thinking about animals may be one way that mainstream psychology fails to be “vigilant about the potential for unwitting collusion in enhancement of a powerful minority” in its descriptions of human and animal nature ([Adams, Bruckmüller, & Decker, 2012](#), p. 142).

## Analogical Inferences: The “Resistance is Futile” Hypothesis

As noted above, feminists have often argued that evolutionary psychology is unwittingly political when it uses metaphors drawn from human societies to scaffold understanding of natural animal sociality. [Hegarty and Pratto \(2010\)](#) recently noted that scientific analogies and metaphors are not merely descriptions; they are active forms of thought that draw novel connections between concepts and create new associations ([Glucksberg & Keysar, 1990](#)). In an analogy or a metaphor, the target representation (the unfamiliar object to be understood) and the source representation (the familiar object to which the target is being compared) are understood at a higher level of abstraction than either is alone. They come to occupy a common category that is constructed in the course of understanding ([Glucksberg, 1998, 2003](#)). As such, uses of terms such as ‘harem’ do not simply reflect the pre-

existing nature of animal sociality; they require that readers of scientific texts actively construct its meaning. Indeed, scientists often employ and value open-ended metaphors and analogies precisely because they are productive and they engender new ideas and new ways of framing problems (Dunbar & Blanchette, 2001). As the etymology of the word *metaphor* suggests, metaphors *move* people in their thinking.

Such movement in thinking has been studied via memory for analogies in historical texts. People do not always accurately remember the sources of their memories (Johnson, Hashtroudi, & Lindsay, 1993) and can confuse analogical inferences that they create themselves with literal text that they have previously read. Blanchette and Dunbar (2002) presented participants with a target concept, such as a passage on the debate over the legalisation of marijuana; and a source concept, a passage on the historical prohibition of alcohol in the United States. They then tested the participant's analogical inferences between the target and the source by measuring false recognition of statements about the target concept that incorporated elements of the source concept. For example, a statement about Prohibition (the source), "People still drank but had to buy their alcohol on the black market", was altered to produce an analogical statement: "Although it is illegal, people still smoke marijuana. Only they have to buy it on the black market." Participants mistakenly identified the analogical statement as one they had read before, demonstrating that cognitive mapping between prohibition and the legalisation of marijuana had changed the participants' representation of the target concept (i.e., marijuana laws), incorporating knowledge about the source concept (i.e., the Prohibition era). Blanchette and Dunbar (2002) conducted four studies, manipulating variables such as the length of the memory test and the time delay between the presentation of items and the test. Participants mis-remembered an average of 54% of the analogical items across these experiments, regardless of the other manipulations. This study demonstrated how analogical inferences from social history can lead to false recognition of novel analogical statements.

Such analogical inferences can be important forms of social influence, because they can be confused with literal text even when they are at odds with the participant's own beliefs. Perrott, Gentner, and Bodenhausen (2005) extended Blanchette and Dunbar's (2002) study by exploring whether people would resist counter-attitudinal analogical inferences. They presented participants with texts that analogized the current status of lesbians and gay men (the target concept) with the historical persecution of left-handed people (the source concept). They found that participants misremembered analogies between the two types of discrimination as literal descriptions that they had heard before, as with Blanchette and Dunbar's (2002) study. For example, the sentence "Left-handed people have been persecuted simply because of an irrational fear of human differences" was altered to refer to "Gay people" (Perrott et al., 2005, p. 702). Participants in the analogy conditions mis-recognised an average of 37% of the analogical items across the two studies, regardless of their attitudes towards gay people or their explicit evaluations of the soundness of the analogy.

A potential issue with these studies concerns the possibility that higher recall of analogical items in the analogy group might not result from analogical mapping. Instead, higher recall of analogical items might reflect their similarity to text that participants in the analogy conditions, but not in the control conditions, had previously encountered in experimental materials. To investigate this possibility, Perrott et al. (2005) conducted a second study in which they paired each item with a non-analogical statement of equal surface similarity to the passage. For example, the "actual" analogical statement "Gay people are different in certain ways *but* these differences *are* easily accommodated in society" was paired with the "mock" statement "Gay people are different in certain ways *and* these differences *aren't* easily accommodated in society" (emphasis added). Thus, the "mock" statement presented the same surface similarity to the experimental materials, without the mapping of attitudes towards left-handedness

onto sexuality. Exposure to actual-mock pairs was counterbalanced and no pair was contained in the same block. While the previous effects for analogical items were replicated, the two conditions did not differ in false recall of the new non-analogical surface-similar items. This suggests that the higher false recall of analogical statements is indicative of analogical mapping, rather than mere recall of similar text. Perrott et al. (2005) named this effect the “resistance is futile” hypothesis, suggesting that analogical transfer occurs irrespective of attitudes because it occurs outside of conscious awareness.

## Present Study

Research on memory for historical analogies provides only indirect support for Hegarty and Pratto's (2010) argument that evolutionary psychology's use of metaphors might render it a political enterprise that moves people's thinking about the forms of human sociality that can be found in the 'natural' animal 'kingdom'. We posit that the harem analogy in evolutionary discourse is a remnant of colonial discourse. We have argued that experimental research has potential as a means of confronting scientific racism in psychological science and thus, present an experimental study on the harem analogy as an example of this practice. The present study uses the “resistance is futile” framework to test whether scientific analogies such as the harem analogy can alter implicit thinking about social groups. The present study expands the framework by testing for such misrecognition of analogical inferences beyond such social history domains as drug enforcement (Blanchette & Dunbar, 2002) and minority rights (Perrott et al., 2005) to the domain of natural history.

We tested the “resistance is futile” hypothesis that such memory errors would occur among participants with both positive and negative attitudes towards the target group. Stereotypes of gender relations in Muslim societies being particularly and essentially patriarchal are central to contemporary Islamophobic discourse. The stereotype of the violent, misogynistic Muslim man has gained considerable strength in recent history and appears as a somewhat socially accepted piece of rhetoric. Therefore, we expected that participants would directly express a range of attitudes toward Muslim men, affording the test of this hypothesis. This allows us to undertake a preliminary analysis of possible interactions between expressed attitudes and implicit analogical transfer. Finally, we sought to clarify whether any such analogies would be prompted solely by the use of the word 'harem' or would only occur when the colonial analogy was made explicit.

## Method

### Participants

Eighteen participants completed the study on paper in the presence of the researcher and were recruited via posters from the student population at the University of Surrey, UK. The remaining 231 participants completed the study online and were recruited via email and advertisements on various online forums (e.g., Facebook and tumblr). We used a chain referral method of sampling over these online forums, reaching primarily British people in the researcher's local social network. Therefore, although we did not explicitly ask about participants' nationality, the majority of participants presumably live in the UK, with the possibility of the study advertisements reaching a number of participants in the United States and elsewhere. A combination of closed- and open- ended measures led to sixty-three different descriptions of ethnicity, the most common being “White English” ( $n = 80$ , 32.1%) and “White European” ( $n = 41$ , 16.5%).

On open-ended measures, the 249 participants identified their gender as “woman” ( $n = 186$ ), “man” ( $n = 52$ ), or used other terms ( $n = 11$ , e.g., “bakla”, “genderqueer”, “intersex”, and “trans male”). Their ages ranged from 13 to 61 years ( $M = 22.4$ ,  $SD = 7.62$ ).

## Design

The study had a 3 x 4 mixed design. Participants were randomly assigned to either the Analogy Harem Control, or Group Control conditions. Within each condition, participants completed the same memory test that yielded four scores: text items, analogical items, plausibly false items, and blatantly false items.

## Materials and Procedure

Following Perrott et al. (2005), the study consisted of a learning phase, distracting filler items, and a test phase. Participants were briefed that they were taking part in a study “looking to understand memory and text comprehension”.

### Learning Phase

In the learning phase all participants read a three-paragraph piece of text presenting findings about animal mating behaviour. The text was paraphrased from the articles found in the PsychInfo review described above (e.g., Fureix, Bourjade, Henry, Sankey, & Hausberger, 2012; Robertson, 1972; Voigt & Streich, 2003). The first two paragraphs were identical across conditions, except that the animals were described as being organised into “groups” in the Group Control condition but into “harems” in the Harem Control condition and in the pivotal Analogy condition. The third paragraph differed between the two control conditions and the Analogy condition. In the control conditions, the final paragraph of the text described the methodology and aims of researchers of animal mating behaviour. In the Analogy condition, the final paragraph reminded the reader of uses of the term ‘harem’ to apply to human societies. The paragraph draws upon several important themes in colonial representations of the harem—namely, the domineering male head of the household, the image of the Sultan and his sexualised ‘harem girls’, and polygyny in the Middle East—but deliberately avoided using explicitly evaluative language. For example, the paragraph does not label the harem as ‘oppressive’ or the head of the household ‘dominant’ so as to avoid priming participants with a specific value judgement on the harem (see Appendix for materials).

### Filler Tasks

Upon completing the learning phase, participants completed a series of anagrams, a pattern recognition task, and a word search task. Participants completing the study on paper were given ten minutes to complete as many of the tasks as possible. Online participants were instructed to spend around ten minutes completing the filler tasks.

### Recognition Test

The final phase of the project was presented as a test of recall in which participants were presented with sixteen statements and asked to “Please indicate whether you think the statements below appeared in the text you read in the first section of this study.” Four of each statement type were presented in a predetermined random order in each condition (see Appendix for materials). The four text items had appeared in the texts presented to all participants in all conditions (e.g., “In coral-reef fish [groups/harems] the male travels around his territory and establishes his dominance”). The four analogical inference items did not appear in any text but were sentences taken from the passage on the harem in Muslim cultures (which appeared only in the Analogy condition) with

words referring to humans replaced by words referring to animals (e.g., “Animal social groups are often polygynous, with several females occupying the harem alongside children, and other female relatives”).

The plausibly false items paraphrased previously unseen information from the same research papers used to construct the main body of text (e.g., “Many males will die trying to defend their [harems/groups] from competing males”). Finally, the blatantly false items contradicted key information in the texts (e.g., “Many [harems/groups] break up because the animals within them cannot distinguish between the males and females in the group”). Each participant received a score from 0 to 4 for each measure of memory according to the number of items of each type that they indicated that they had previously read.

### Attitude Measure

Participants rated their agreement with the statement “I have a generally positive impression of this social group” in relation to five social groups on a 7-point Likert scale ranging from 1 (*Strongly agree*) to 7 (*Strongly disagree*). The five groups were *City Bankers*, *Evangelical Christians*, *Secondary School Teachers*, *Muslim Men*, and *Police Officers*.

### Debriefing

An in-depth debrief was provided to all participants in order to challenge associations between Muslim (or Middle Eastern) cultures and animals that may have developed during the study. For participants who completed the study on paper, we had a brief discussion at the end of the session. The questions that these participants raised guided our development of a detailed debrief for online participants. The debrief stressed that the image of the harem presented in the study was grounded in racist stereotypes constructed during the colonial era.

## Results

We first screened the data retrieved on-line according to the time taken to complete the survey. The 277 on-line participants completed the study without time restrictions, taking between 5 and 354 minutes ( $M = 21.77$ ,  $SD = 23.75$ ). In addition to the 249 participants included in the analysis below, inspection of the histogram of time taken suggested 28 outliers who completed the survey in less than 8 or more than 41 minutes. We excluded their data from analysis. Spearman's rho correlations found no significant relationships between time spent on the survey and performance on the memory test or attitude measures among the remainder of the participants (all  $|r| < .05$ ). There were no overall differences between participants who performed the tasks on paper and online.

### Analogical Mapping

We assessed analogical mapping as the false recall of analogical items as previously-read text. Preliminary analysis of the four memory scores found none to be normally distributed, with the text item score distribution being negatively skewed and the analogical items, plausibly false items, and blatantly false items being positively skewed. Accordingly, we used Kruskal-Wallis tests to investigate differences in recognition of each of the four item types across conditions. There were no significant differences between conditions for the text items ( $\chi^2(2, 249) = .02$ ,  $p = .99$ ), the plausibly false items ( $\chi^2(2, 249) = .4.96$ ,  $p = .08$ ) or the blatantly false items ( $\chi^2(2, 249) = .89$ ,  $p = .64$ ). Post-hoc Mann-Whitney U tests explored the marginal difference between conditions on measures of plausibly false items and revealed that participants in the Analogy condition scored higher than those in the

Group Control condition ( $M = .66$ ,  $SD = .98$  and  $M = .43$ ,  $SD = .94$  respectively); however, this difference was not significant after the application of the Bonferroni Correction,  $z = -2.20$ ,  $p = .03$ . There were no significant differences in comparisons between the Group Control and Harem Control conditions or the Harem Control and Analogy conditions, both  $z$ s  $> .95$ ,  $ps > .15$

We observed a statistically significant difference in false recognition of analogical items across the three conditions,  $\chi^2(2, 249) = 25.23$ ,  $p < .001$ . Post-hoc Mann-Whitney U tests explored this omnibus test. Participants in the Analogy condition recorded a higher mean score for false recognition of analogical items ( $M = 1.15$ ,  $SD = 1.11$ ) than in the Group Control ( $M = .60$ ,  $SD = .97$ ) and Harem Control conditions ( $M = .52$ ,  $SD = .90$ ) (see Table 1). After applying the Bonferroni Correction, we found significant differences between the analogy condition and each of the two control conditions, both  $z$ s  $> 3.71$ ,  $ps < .001$ , but not between the two control conditions,  $z = -.42$ ,  $r = .03$ . This false recognition of 28.8% of the analogical items in the Analogy condition is similar to the proportions of false recognitions found in Perrott et al. (2005).

## Resistance is Futile

Finally, we examined attitudes toward Muslim men to assess the “resistance is futile” hypothesis. A Kruskal-Wallis test showed no significant differences by condition in attitudes toward Muslim men,  $\chi^2(2) = 1.26$ ,  $p = .53$  (Group Control condition  $M = 3.49$ ,  $SD = 1.56$ ; Harem Control condition  $M = 3.5$ ,  $SD = 1.44$ ; Analogy condition  $M = 3.76$ ,  $SD = 1.51$ ), suggesting that participants’ attitudes were not affected by the experimental conditions. There were no significant correlations between attitudes toward Muslim men and recall of any of the four types of test item, either in the experiment as a whole or in any of the three conditions (all  $|r| < .2$ ). In other words, false recall of analogies between animal societies and Muslim Middle-Eastern human societies happened irrespective of participants’ attitudes. This finding extends the “resistance is futile” effects observed by Perrott et al. (2005) with regard to analogies between human groups to analogies that cross species boundaries.

Table 1

Mean Memory for Text by Condition (Standard Deviations in Parenthesis)

Memory item	Harem condition	Group condition	Analogy condition
Text	3.26 (.98)	3.23 (1.00)	3.18 (1.09)
Analogy	.52 (.90)	.60 (.97)	1.15 (1.11)
Plausibly False	.56 (.96)	.43 (.94)	.66 (.10)
Blatantly False	.21 (.61)	.16 (.41)	.33 (.80)

## Discussion

In this paper we have argued that when evolutionary psychologists refer to animal social groups as “harems” they draw upon a history of gendered stereotypes and colonial oppression in the Middle East to construct their meaning. Feminist psychology has examined the way in which scientific analogies and discourse about ‘nature’ can be used to reify gendered oppression. We suggest that in creating an anthropomorphic analogy evolutionary psychologists have reified the colonial image of the harem through associating it with popular conceptions of ‘nature’ as essen-

tialised and beyond critique. The present study opens up exploration of the potential of the harem analogy to alter implicit thinking about Muslim and Middle Eastern people. We present evidence indicative of analogical inferences between animal groups and representations of the harem as a challenge to the notion that scientific analogies are politically neutral and detached from the human contexts from which they draw their meaning.

In this study, participants who read about animal 'harems' and who were reminded of the origin of the harem analogy in colonial discourse wrongly inferred that colonial statements about Middle Eastern and Muslim societies applied to animals. False recognition of 28.8% of the analogical items by participants in the Analogy condition is comparable to the rates of false recognition found in Perrott et al. (2005) and approaching rates found by Blanchette and Dunbar (2002). Thus, as in other studies of analogical inference, we interpret these memory errors as evidence of poor source monitoring and locate our results within the "resistance is futile" experimental paradigm. Our preliminary study of attitudes suggests that colonial analogies were falsely recognized as previously-read scientific descriptions of animal mating behaviour by participants with relatively positive and relatively negative attitudes to Muslim men. As such, the study extends the "resistance is futile" hypothesis from social history to natural history.

An alternative explanation for high rates of false recognition in the Analogy condition concerns differential exposure across conditions to text that bears strong surface similarity to the target items. That is, the items that we used to assess analogical mapping included long portions of text that we drew directly from the final paragraph that we used in the Analogy condition, text to which participants in the other conditions had no previous exposure. Accordingly, high rates of false recognition in the Analogy condition may reflect superficial similarity to the text of those items rather than analogical mapping, per se. The same alternative explanation applies to the original research on which we based our procedure, and the authors in that work (Perrott et al., 2005) conducted a second study in which they demonstrated that the pattern of high rates of false recognition in the Analogy condition did not extend to items that reflect only surface similarity and not analogical transfer. This provides some assurance that analogical transfer, not surface similarity, is the explanation for high rates of recall in the Analogy condition that we observed in the present study. Even so, a definitive test of this alternative explanation for our results requires additional work. In the meantime, without denying the limitations of the present study, we turn our attention to the broader implications of the work for the topic of "decolonizing psychological science".

## Theoretical Implications

The current study may explain why the representations of harems in human societies used in evolutionary theory might appear to have a 'natural' basis. Coral-reef fish, zebras, and warblers do not have identical behaviour patterns, but conceptualizing all of their behaviour patterns as 'harems' anchors readers' understanding of unfamiliar animal societies in a common reference point rooted in colonial discourse. When people confuse analogical inferences about harems with genuine memory for texts about scientists' observations, they anthropomorphize unfamiliar animals' complex sociality to a greater extent than they consciously realize. The historical construction of colonised people as animal-like (e.g., Jahoda, 1999; Saminaden et al., 2010) facilitates the analogical transfer between animals and humans. As such, the use of the term *harem* to refer to animals partially instantiates the argument that the uses of analogy in evolutionary psychology can have political consequences (Hegarty & Pratto, 2010; Keller, 1992). The scientific authority granted to evolutionary theory may give particular weight to the constructions of society evolutionary psychologists choose to present. People who read about animal 'harems' that are typified by the sexual domination of males over females may infer that the stereotype, which reduces the harem to a site of gender oppression, is based upon 'natural', scientific fact. As evolutionary psychology has had considerable

popularity in such Western nations as the UK (see [Cassidy, 2007](#)) and the USA (see [McCaughey, 2008](#)), popularizations of evolutionary psychology may have engendered belief that the ‘harem-as-oppression’ is a natural form of social organization rather than a colonial stereotype. This would serve to reify stereotypes of gender relations in the Middle East, which are frequently used to justify military action and Islamophobia.

We base this conceptualisation of how scientists use ‘nature’ and its effects on readers’ understanding from critiques by mainstream feminists and feminist psychologists. What is unclear in this is how this scientific discourse on ‘nature’ as immutable and politically neutral works alongside other constructions of nature. Nature has also been historically constructed in a binary between feminine ‘nature’ and masculine ‘science’ ([Williams, 1988](#)). Similarly, nature is implicated in the colonial discourse on the ‘primitive’ versus ‘civilisation’ ([Shields & Bhatia, 2009](#)). Further study on the position of ‘nature’ in these intersecting discourses would be extremely beneficial to our understanding and to critique of essentialism in science. We hope that this study of the harem analogy will prompt research on analogy that considers how anthropomorphic accounts of animal nature not only obscure clearly political questions about human societies, but also affect people’s active thinking about human societies because such analogies require active thinking to be comprehended at all.

The replication here of the “resistance is futile” effect ([Perrott et al., 2005](#)) suggests that harem analogies in evolutionary theory might serve as a form of persuasion, mediated by readers’ failure to monitor what they have read and what they have inferred from reading a scientific text about animal behaviour. As such this study responds to calls for synthesis between the psychological literatures on memory distortion and persuasion ([Nash, Wheeler, & Hope, 2015](#)). But resistance to the social influence that occurs through analogy may be particularly futile when reading analogies about natural history rather than to social history. Whilst the treatment of left-handers and gay people might be understood by many people as social or political topics ([Perrott et al., 2005](#)), evolutionary descriptions of animal societies are widely understood as being ‘scientific’ and therefore non-political within the terms of Western understandings of science (see [Shapin, 1996](#)). In academic psychology, debates between evolutionary psychology and feminist psychology have also sometimes been framed as debates between ‘science’ and ‘politics’ (e.g., [Buss & Malamuth, 1996](#)). The extension of the “resistance is futile” hypothesis to a domain that is understood as scientific suggests the need for a more nuanced understanding of the relationship between ‘science’ and ‘politics’, especially given [Shapin’s \(1996, p. 196\)](#) observation that “the more a body of knowledge is understood to be disinterested and objective, the more valuable it is as a tool in moral and political action”.

## Experiments as Politics

Our use of an experimental method to pursue a postcolonial criticism of evolutionary psychology was informed by this understanding of the relationship between science and politics as paradoxical. We deliberately focused on a representation of the Middle East that is hiding in plain sight in orthodox mainstream psychological discourse, and we aimed to show the relevance of postcolonial feminism to mainstream psychology’s claim to know the nature of sociality directly, using the experimental method as a means of ‘doing’ politics ([Spears & Smith, 2001](#)). Psychologists increasingly recognize the shortcomings of psychological theories that purport to be universal but which are based on observations among ‘minority world’ people ([Kağitçibaşı, 1995](#)) or WEIRD people ([Henrich, Heine, & Norenzayan, 2010](#)). To deal with the legacy of this partial history, psychologists will need not only to diversify their samples, but also to engender critical reflection upon the taken-for-granted assumptions about personhood that have become canonical from studies of such societies ([Adams et al., 2012](#)). Within this project, there may be critical uses of experiments—the indigenous psychology of capitalist societies of the 20<sup>th</sup> century

(Danziger, 2006)—that provide evidence for modes of ‘Othering’ in scientific interpretation through the construction of difference (see also Hegarty & Bruckmüller, 2013). As we hope that we have demonstrated here, experiments do not necessarily have to reproduce the violent promise implicit in the idea of ‘carving nature at her joints’. They can also be used to cast light on the particular constructions of ‘nature’ in which psychological discourse has long been trafficking.

## Future Directions

In this study, the use of the colonial term “harem” rather than “group” did not, on its own, lead to analogical inferences. Analogical inference items were not falsely recognized when the sentences from which they were drawn were not presented in the harem control condition. This finding does not imply that there is no active colonial meaning-making prompted by the use of the term ‘harem’. Rather, such meaning-making was not the object of study here. Metaphorical meanings are often processed in parallel with literal meanings (Glucksberg, 2003), and more fine-grained cognitive studies might reveal meaning making that occurs through the use of the single word *harem*. Following work on dehumanizing associations (Goff et al., 2008), we plan to develop the current findings both with priming studies and with analyses of popular discourse to examine the range and frequency of anthropomorphizing and dehumanizing associations to the concept of the ‘harem’. An important development of this study would be a deeper analysis of the relation between attitudes and analogical transfer, as the gender dynamics of Islamophobic discourse are complex and require a more in-depth analysis, particularly in regards to attitudes towards Muslim women. Similarly, the effects we report would be strengthened by further studies that test for explicit knowledge about the harem and the inclusion of different but related memory test items to exclude the possibility of false recall due to similarity. Although previous work has addressed this possibility, further tests would help strengthen the case for analogical inference and the framework in general.

Beyond the “resistance is futile” framework, we note the potential for experiments to ‘do’ the politics of decolonising psychological science. We have drawn upon postcolonial and feminist arguments that evolutionary theory has dehumanised the global majority through constructions of evolution that place white men as a pinnacle of evolutionary success. Work on associations between animals and “traditional” peoples (e.g., Saminaden et al., 2010) has investigated the relevance of these arguments to contemporary thinking about human nature and modernity. The present study has used postcolonial and feminist critique to make visible the position of evolutionary theory within global systems of oppression and to reconstruct it as an object of study. Extensions of this research would enable empirical investigation of critiques that evolutionary psychology continues to reify such ethno- and androcentric discourse, potentially within the paradigm of experimental research on attributions of human nature and uniqueness (see Haslam, 2006, for an overview). Moreover, researchers might experimentally manipulate metaphors taken from the field of psychology to test whether these conceptual tools implicitly construct human nature within the ethnocentric evolutionary hierarchies described by Jahoda (1999). Similarly, researchers might use experiments to investigate the effects of exposure to the harem analogy upon attributions of human nature, uniqueness, and dehumanisation of the Muslim, Middle Eastern societies from which the analogy derives its meaning. The feminist critique of evolutionary psychology as naturalising oppressive gender roles could benefit from experimental studies of the interaction between evolutionary accounts of sexual violence and participants’ attributions of blame. While evolutionary theory is the target of analysis here, investigators can also use experimental methods to further challenge racist discourse identified in other sub-fields, as in Chakkarath’s (2010) critique of stereotypes in cross-cultural social psychology. We suggest that experimental methods combined with critical theory can prove a useful tool for creating richer understandings about psychological science’s participation in oppressive systems.

## Conclusion

This study has adopted a postcolonial feminist analysis in situating the harem analogy in evolutionary psychology within its historical context. Through deconstructing the colonial discourse embedded in the harem analogy, we have exemplified how science has naturalised gendered and racist stereotypes through the use of scientific analogy. Historically, science has upheld neo-colonialism and systems of oppression through using the ontology of nature and epistemology of experiments as a means to naturalise and legitimise oppressive discourse. Narratives about 'nature' written into scientific discourse have been revealed to construct hierarchies favouring white, 'western' society. Postcolonial theory is rightly sceptical of experimental psychology and its claims to 'value-free' science, given the violent history of scientific racism, and has thus far been largely a literary endeavour. In this study we reclaim experimental methodology as a tool to interrogate psychology's ontological construction of nature. Our experimental study of the harem analogy demonstrates how the neo-colonial tendencies of psychological discourse can be interrogated for their effects on implicit stereotyping. We offer this as an addition to existing theoretical critiques as a means of decolonising psychological science.

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## Competing Interests

The authors have declared that no competing interests exist.

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## Appendix

### Learning Phase Materials

#### First body of text, used in all conditions:

Animals have been found to organise themselves into a variety of social groups in both the wild and in captivity. Some experts put this down to natural tendencies to socialise with other animals; others suggest that the way animals interact could be influenced by sexual competition. One form these social groups can take is the [harem/group] in which a male lives with one or more breeding females within a territory that he defends. This arrangement can be seen across a large variety of species; from coral-reef fish to guinea pigs, to baboons, and horses. It is often thought that the arrangement of the [harem/group] reduces sexual competition among males by ensuring that the paternity of offspring is easily known.

In many species [harems/groups] are maintained through small acts of aggression by the male towards the females in his territory. For example, in coral-reef fish [harems/groups] the male travels around his territory and establishes his dominance over them through short aggressive encounters with them. In horse [harems/groups] the stallion often maintains dominance by threats of violence and subtle social cues, rather than actual aggression against females. More often the male has to behave aggressively towards other males to keep control of his [harem/group]. Scientists found that when the male leader of a sac-winged bat harem/group was removed from the group other nearby males attempted to take control of the [harem/group.] When they returned the original male leader, he immediately started fighting the new male sac-winged bats to regain control over the females in the [harem/group]. However, there is also considerable variation in how [harems/groups] work in different animal species. For example, baboon [harems/groups] can contain more than one male jointly controlling the females and the territory.

#### Final paragraph used in the two control conditions:

The research on animal mating behaviour and social group organisation is conducted both in the wild and in controlled conditions. For example, studies of fish are sometime done by breeding fish into large tanks and then taking away the male of the [har-

em/group] at different times to see what happens. In the coral-reef fish this can cause the larger females of the group to change sex and become the male [harem/group] leader. Research done in natural settings can involve long periods of observation and sometimes DNA testing to track the parentage of animals within the [harem/group]. These studies hope to understand what makes some species form groups and what makes some live alone; what makes some species have monogamous relations for their entire lives and what makes others breed with several different mates, as with the polygynous [harems/groups].

#### **Final paragraph used in the Analogy condition:**

The term harem originates in the Middle East, referring to the separate living quarters for women in Muslim households. These households were often polygynous, with several wives occupying the harem alongside children and other female relatives. Within a harem it is strictly forbidden for any man other than the head of the household to have sexual relations with any of the females. One of the largest harems was the Imperial harem, owned by the Sultan of the Ottoman Empire. The women in these harems not only produced children for the Sultan but also served him sexually. The Sultan would often be sent attractive women by fellow men to add to his harem. The wives that had the highest rank in the harems often dominated the other women in the harem and could have significant political influence through their husband and children.

### **Recognition Test Items**

#### **Text items**

- Animals have been found to organise themselves into a variety of social groups in both the wild and in captivity
- It is often thought that the arrangement of the [group/harem] reduces sexual competition among males
- In coral-reef fish [groups/harems] the male travels around his territory and establishes his dominance
- In horse [groups/harems] the stallion often maintains dominance by threats of violence and subtle social cues, rather than actual aggression against females.

#### **Analogical inference items**

- Animal social groups are often polygynous, with several females occupying the harem alongside children, and other female relatives.
- It was strictly forbidden for any male coral-reef fish other than the head of the group to have sexual relations with any of the females.
- The females in these baboon harems not only produced children for the male leader but also served him sexually.
- The females that had the highest rank in the sac-winged bat harems often dominated the other females in the harem.

#### **Plausibly false items**

- Red deer stags with the loudest mating calls often have the largest [harems/groups] of females.
- Many males will die trying to defend their [harems/groups] from competing males.
- More aggression from the male leader is seen in horse [harems/groups] that are kept in captivity.
- Females within the [harem/group] share responsibility for their collective offspring and help protect the [group/harem] from predators.

#### **Blatantly false items**

- The baboon [harem/group] is comprised of several small, weak males that are sexually dominated by an aggressive female.
- Some [harems/groups] are made up of several species, for example male sac-winged bats forming [groups/harems] with female horses and coral-reef fish.

- The main purpose of horse [harems/groups] is for the male to gather enough females to break through fences put in place by humans.
- Many [harems/groups] break up because the animals within them cannot distinguish between the males and females in the group.