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Meaning in Music:

Deviations from Expectations in Music Prompt Outgroup Derogation

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Abstract

Encountering stimuli that violate expectations can elicit compensatory behavior. One notable result of such compensatory responses is the derogation of outgroups. The present research investigated for the first time if *music* that defies expectations fosters the derogation of outgroups. In Study 1, exposure to unconventional relative to conventional music increased wagers placed in favor of an ingroup winning a hypothetical rugby match against an outgroup. In extension of this finding, Study 2 revealed that unconventional music led to lower allocated budgets for support of a minority. Study 3 confirmed that music led to harsher punishments of a hypothetical outgroup offender after being exposed to an unconventional edit of a music piece relative to its regular version. The consequences of these findings are discussed in relation to intergroup relations and theories of meaning maintenance.

Keywords: Meaning, Outgroup Derogation, Music, Self-Regulation

Meaning in Music:

Deviations from Expectations in Music Prompt Outgroup Derogation

Music has the power to affect us in a range of different ways. It can induce a wealth of emotions (Juslin, & Västfjäll, 2008; Zentner, Grandjean, & Scherer, 2008), can help sell products to consumers (Alpert & Alpert, 1990), can make workers more productive (Oldham, Cummings, Mischel, Schmidtke, & Zhou, 1995), aids parent infant bonding (Edwards, Scahill, & Phelan, 2007; Edwards, 2011), contributes to self-regulation (Van den Tol, 2013; Van den Tol & Edwards, 2011), and is even used in treatment of certain neurological disorders (Särkämö et al., 2008; Schlaug, Altenmüller, & Thaut, 2010). Music is a powerful phenomenon.

Consistent with the notion that music occupies a central role in life and society, people's average exposure to music is vast, with some estimating that people are exposed to music for an average of 3.66 hours per day (Lonsdale & North, 2011). These musical encounters may involve self-selected music, but many do not. For example, people are exposed to music through television, radio, or in public places. Moreover, music that is not self-selected may sometimes disconfirm expectations. It is this type of music encounter that the present investigation is primarily focused on. Specifically, it is argued that exposure to music that is difficult to reconcile with existing expectations about music structure and sound elicits compensatory efforts expressed in intergroup biases. It is hypothesized that exposure to such 'strange' sounding music can contribute to ingroup favoritism and outgroup derogation, even if the music itself is not linked to the groups in question. The reasons for proposing such an effect is primarily derived from recent developments in research on 'meaning maintenance' processes.

Meaning Maintenance

In recent years, the study of people's creation, maintenance, and defense of a sense of 'meaning' has become increasingly popular. One of the leading theoretical frameworks that has inspired much of this research is the *meaning maintenance model*, proposed by Heine, Proulx, and Vohs (2006; Proulx & Heine, 2006). Within this model, *meaning* is defined as mental representation of expected associations. The meaning maintenance model is grounded in the works of existential philosophers such as Camus (1955), Heidegger (1953), and Kierkegaard (1843/1997) and views human beings as "meaning-makers" (Heine et al., 2006, p.89). Encountering information which violates or contradicts expectations results in attempts to compensate against the source of 'meaninglessness' (i.e. deviation from expected relations). Proulx and Heine (2009) refer to this as 'meaning maintenance' and describe the most common type of meaning maintenance strategy as 'reaffirmation.' Reaffirmation occurs when, in response to a meaning threat, people bolster other non-violated meaning frameworks, allowing them to restore a sense of symbolic unity.

Consistently, studies have demonstrated that, for example, threats to one's social system leads to efforts to affirm social justice values (Jost, Banaji, & Nosek, 2004) and that threats to a sense of individual control results in the reaffirmation of belief in alternative controlling powers such as god or government (Kay, Gaucher, Napier, Callan, & Laurin, 2008). Furthermore, the model proposes that people maintain meaning by reaffirming even completely separate, nonrelated frameworks. For example, Proulx and Heine (2008) observed that participants engaged in the reaffirmation of moral beliefs following an implicit perceptual anomaly (the experimenter changed person without the participants noticing). Similarly, Proulx, Heine and Vohs (2010) demonstrated that reading a surreal short-story resulted in participants identifying more with their culture. In this study, participants exposed to an absurd story scored higher on a cultural identity scale than those exposed to a

meaningful fable. Randles, Proulx, and Heine (2011) provided a meaning threat by subliminally exposing participants to pairs of words that were unrelated, like "turn frog" or "bull left." If participants had been exposed to incongruent pairs of words, they subsequently recommended a higher bail for an arrested prostitute, reflecting an attempt to bolster meaning-providing frameworks.

Group Evaluation and Meaning

One way in which meaning regulation may be achieved in the face of a meaning threat is through the evaluation of groups. Research on mortality salience demonstrates that people primed with thoughts of death identify more closely with their ingroups (Castano, Yzerbyt, Paladino, & Sacchi, 2002; Greenberg et al, 1990) and become more negative towards outgroups (Greenberg et al., 1990; Florian & Mikulincer, 1998), even in minimal group contexts (Harmon-Jones, Greenberg, Solomon, & Simon, 1996). The meaning maintenance model views death as a specific disruption to one's meaning framework that can render life itself as meaningless by "severing individuals from their external environment and in a sense from themselves" (Heine et al, 2006, p. 98). According to terror management theory (e.g., Greenberg, et al., 1990) engaging in outgroup derogation as a response to mortality salience reflects attempts to defend one's worldview against the threat posed by opposing belief systems. Given that worldviews help explain and make sense of the world in many ways, they are an important source of meaning and in this regard the evaluation of groups can serve as a meaning maintenance process.

Indeed, research evidences that outgroup derogation is triggered by a variety of meaning threats. For example, Greenberg and colleagues (1990) found that Christians asked to consider their own death showed more positive evaluations of fellow Christians and more negative evaluations of Jewish individuals. Consistently, research by Ochsmann and Mathay (1994) indicated that mortality salience fosters physical distancing from foreigners.

Moreover, exposing people to uncertainty can prompt distancing from socially deviant individuals. (Van den Bos, et al., 2007). In addition, studies have demonstrated that people recommend harsher punishments for transgressors as a response to meaning threats like boredom (Van Tilburg & Igou, 2011), and being told one's life lacks meaning (Heine, et al., 2010). Thus, processes such as intergroup bias and outgroup devaluation follow from meaning threats.

Music and Meaning and Violation of Expectations

Consistent with prior research indicating that for example incongruent pairs of words trigger meaning reaffirmation processes (Randles, Proulx, and Heine, 2011), it is likely that deviations from expectations in music have similar effects. Like language, music has a structured syntax (Levitin & Menon, 2003; Patel 2003). This syntax of music is composed of notes, chords, and rhythms which are grouped into hierarchical structures (Lerhdal & Jackendoff. 1983). Similar to learning language, prior experience with hearing music creates meaningful structures that set expectation for the rules that music syntax should follow (Juslin & Vasjfall, 2008). To illustrate, Levetin and Menon (2003) use the example of hearing 'la-ti-do' (the chord progression I–V–IV) which to many sounds rather unresolved relative to hearing 'ti-la-do' (the chord progression IV–V–I). As with language, music that deviates from common meaningful structures in the perception of the listener may make people resort to the reaffirmation of other meaning-sources, such as through the derogation of outgroups.

Following the meaning maintenance model (Heine et al., 2006; Proulx & Heine, 2006), exposure to unconventional music—music that defies expectations—may trigger compensatory responses. We examined these in the context of being confronted with an outgroup. Specifically, it was hypothesized that exposure to unconventional music would result in more negative evaluations of outgroups.

Study 1: Rugby Wagers

Inspired by the research by Dechesne and colleagues (2000), we first tested if unconventional music affected confidence in ‘beating’ an outgroup in the context of sports competition; in particular the English national rugby team (outgroup) in contest with the Irish one (ingroup). Subsequent to the music exposure, attitudes towards the expected outcomes of this competition were assessed by asking participants how much money they would be willing to wager on an Irish victory in a hypothetical rugby match against England. It was predicted that participants exposed to the unconventional music would subsequently be willing to wager more than those exposed to more conventional music, essentially reflecting greater confidence that the outgroup would be beaten.

Method

Participants. Sixty people in the Irish cities of Limerick and Dublin participated in the current study. Care was taken to assure the inclusion of only participants born in Ireland due to the nature of the dependent measure. Participants were randomly assigned to one of two music conditions (unconventional vs. conventional). Three participants were excluded from the sample after preliminary analysis identified them as extreme outliers (over three standard deviation above the mean), resulting in a final sample of 57 participants.

Materials and Procedure.

Participants were given a questionnaire and MP3-player with headphones. After reporting demographic information they listened to one of two pieces of music. Those in the unconventional music condition listened to the music piece *Interstellar Narcotics* by the electronic music artist *Venetian Snares*. This artist is known for making music in odd numbered time signatures that can arguably be considered unconventional to most people. For example, music magazine *Sound on Sound* report: “this is music that resolutely defies categorization, or even comparison” (Sellers, 2002). Those in the control condition also heard

a piece of electronic music but the song was *Da Funk* from French musicians *Daft Punk*. Daft Punk produces an arguably much more typical sound. Each song lasted approximately 4 minutes and contained minimal lyrics. While listening to the full song, participants were asked to write down any feelings that the music elicited. This was done to ensure that participants remained carefully focused on the music and did not become distracted. After hearing the piece of music, participants rated how much the music deviated from what they expected to hear (1 = *not at all*, 7 = *extreme deviation*), they indicated the level of arousal they felt (1 = *no arousal*, 7 = *intense arousal*) and indicated the valence of the music (-3 = *very negative*, 3 = *very positive*).

Next, participants were asked to imagine that a rugby game was taking place between Ireland and England and had to place a bet on the outcome of the match, how much (in Euros) they would be willing to stake on an Irish victory. Higher wagers were thus indicative of greater confidence in beating the outgroup. Finally, participants were thanked and debriefed.

Results and Discussion

A One-Way ANOVA revealed a significant difference in music deviation scores with those in the unconventional music group ($M = 5.17$, $SD = 1.56$) scoring significantly higher than those in the control group ($M = 3.61$, $SD = 1.62$), $F(1,55) = 13.83$, $p < .01$, $\eta^2 = .20$. No differences in arousal emerged ($F < 1$). Also valence significantly differed, as those in the unconventional group ($M = -0.10$, $SD = 1.45$) reporting the music to be significantly more negative than those in the control group ($M = 1.57$, $SD = 0.88$), $F(1,55) = 27.63$, $p < .01$, $\eta^2 = .33$.

Importantly, a one way ANOVA revealed that the mean wagers differed significantly in the predicted direction, with those in the unconventional music group ($M = 31.45$, $SD = 27.69$) betting more than those in the conventional music group ($M = 15.25$, $SD = 15.59$),

$F(1,55) = 7.33, p < .01, \eta^2 = .12$. These findings are consistent with the hypothesis that hearing music that defies expectations results in more negative evaluations of an outgroup, when compared to hearing conventional music.

In extension of the above, the effect of music condition was marginal after controlling for valence, $F(1,54) = 3.66, p = .06, \eta^2 = .06$; valence was not significantly associated with the wagers, $F(1,54) = 0.24, p = .63, \eta^2 = .00$. Moreover, probing the *change* in the effect of the music on bets due to the inclusion of the covariate using the 1,000 bias-corrected and accelerated bootstrapping approach (Hayes, 2012) indicated, that the music effect was not significantly modified by valence, $-3.09 < B_{95} < 6.06$.

The somewhat ambiguous role of valence may possibly stem from having participants write down their feelings during the song. Therefore the role of valence was carefully accounted for in Study 3. Study 2, we first extended our focus to another index of outgroup derogation.

Study 2: Minority Budgets

In Study 2 potential outgroup derogation in the context of resource allocation to a minority (out)group (e.g., Tam, Chiu, & Lau, 2007) was examined. Within the Irish context, a prominent and often marginalized minority group is the travelling community. This group has been described as "an identifiable people, identified by themselves and by other members of the community, as people with their own distinctive lifestyle, traditionally of a nomadic nature but not now habitual wanderers" (The Travelling People Review Body, 1983). It was predicted that Irish, non-traveler participants exposed to unconventional music would allocate smaller portions of a hypothetical social services budget to members of the travelling community in comparison to the control condition.

Method

Participants and Design. Sixty students from the University of Limerick participated in the current study. Care was taken not to include participants born outside Ireland or Irish participants with a traveler community background. Each participant was randomly assigned to one of two music conditions (unconventional vs. conventional).

Materials and Procedure. The procedure of Study 2 was identical to that of Study 1, with the exception that the wagers measure was replaced with a budget allocation task. As part of this task, participants were presented with a resource allocation scenario designed to assess attitudes towards the Irish travelling community. Specifically, participants were asked, in millions of Euro, what portion of an imaginary 100 million Euro social services budget they would set aside to be spent on services for members of the travelling community. The smaller this budget, the higher the level of outgroup derogation.

Results and Discussion

A one-way ANOVA revealed that the experimental group ($M = 5.50$, $SD = 1.63$) reporting their music to have deviated more from expectations than the control group ($M = 3.20$, $SD = 1.69$), $F(1,58) = 28.71$, $p < .01$, $\eta^2 = .33$. Valence also differed significantly between groups with those in the control group ($M = 1.47$, $SD = 1.14$) indicating higher valence than those in the experimental group ($M = -0.87$, $SD = 1.41$), $F(1,58) = 49.85$, $p < .01$, $\eta^2 = .46$. There was no significant difference in levels of arousal ($F < 1$).

As predicted, a one-way ANOVA indicated a significant effect of music type on budget allocations, with participants in the unconventional music condition setting aside a lower portion of the budget to the travelling community ($M = 4.39$ mil., $SD = 5.90$) compared to those in the conventional music condition ($M = 9.2$ mil., $SD = 9.74$), $F(1,58) = 5.36$, $p = .02$, $\eta^2 = .09$. A t-test that corrected for the unequal error variances, $F(1,58) = 8.84$, $p < .01$, revealed a similar result, $t(47.77) = -2.31$, $p = .02$.

The findings from Study 2 indicate that exposure to unconventional music indeed increases outgroup derogation, in the form of allocating significantly lower portions of a hypothetical social services budget to members of a minority group. Although the effect of music condition turned non-significant after controlling for valence, $F(1,57) = 1.37, p = .25, \eta^2 = .03$, valence was not significantly associated with the budgets, $F(1,57) = 0.59, p = .45, \eta^2 = .01$. As in Study 1, the *change* in the effect of the music on bets due to the inclusion of the covariate was not significant, $-2.46 < B_{95} < 0.96$. In Study 3, we sought to extend these findings using music pieces with minimal differences in their affective character.

Study 3: Outgroup Jail Sentences

Studies 1 and 2 evidence the effect of deviant music on outgroup attitudes. However, given the ambiguous role of valence in these findings, we must carefully account for any confounding effect it may have had before establishing full support for our predictions derived from the meaning maintenance model. Study 3 was designed to fully account for the role of valence and also to complement the findings from studies 1 and 2 using another music genre, an alternative measure of identification, and a different manipulation. People were exposed to either a regular version of a blues song by the artist ‘Dr. John’ or the identical music piece after editing its basic structure. Using the same piece of music, but differently edited, allowed us to keep the valence and arousal associated with the music highly similar across conditions. It was predicted that this edited version would solicit greater outgroup derogation as measured by having people administer hypothetical jail sentences to an outgroup offender within an intergroup conflict paradigm (Van Tilburg & Igou, 2011).

Method

Participants and design. Eighty-six students from the University of Limerick were randomly assigned to either the control or unconventional music condition of a computer-based study. Rather than excluding non-Irish participants, we excluded twenty-three non-Irish

people from the final dataset, resulting in a final sample of 63 participants (30 women, 33 men; $M_{\text{age}} = 19.87$, $SD = 4.01$).

Materials and Procedure

After providing informed consent and reporting demographic information, participants listened to a piece of music. Participants in the control condition were exposed to the 2 minutes and 20 seconds long instrumental song *One Late Night* by the blues artist *Dr. John*. Participants in the unconventional music condition listened to the same piece of music that had been edited by an experienced musician to make it appear less coherent while keeping the length and tempo the same. Effectively, the song was ‘chopped-up’ in such a way that it contained the same elements as the original, except that the sequence of themes and melodies was rather inconsistent. After listening to the song, participants rated the extent to which the music deviated from expectations on the item “How much does this song deviate from what you would usually expect to hear when listening to music?” (1 = *not at all*, 7 = *very much*). Also, they rated their affect in terms of affective valance and arousal on the items “How positive or negative do you feel right now?” (1 = *very negative*, 7 = *very positive*), and “How intense would you describe the feelings that this music elicits?” (1 = *not at all*, 7 = *very much*), respectively.

Next, participants were presented with a scenario describing the occurrence of an Englishman who had allegedly abused an Irishman (Van Tilburg & Igou, 2011). The scenario explained that an Englishman was taken into custody after he had severely beaten up an Irishman; the Englishman had admitted to having committed the crime based on anti-Irish sentiments. After reading the scenario, participants were requested to indicate the appropriate jail sentence (in months) for the Englishman. Higher jail sentences were thus indicative of a more negative attitude towards the outgroup member. After completing the study, participants were thanked and debriefed.

Results and Discussion

A one-way ANOVA confirmed that the average perceived deviation of the edited song was significantly higher ($M = 4.94$, $SD = 1.75$) compared to its original ($M = 3.90$, $SD = 1.63$), $F(1,61) = 5.93$, $p = .02$, $\eta^2 = .09$. Similar analyses did not reveal differences in affective valence ($F < 1$) or arousal ($F < 1$). Thus, the manipulation was successful and subsequent results unlikely reflect differences in mood among participants.

In addition to the above, a one-way ANOVA indicated that participants who had been exposed to the unconventional music gave significantly longer jail sentences to the English offender ($M = 41.48$, $SD = 32.52$) compared to the control condition ($M = 27.83$, $SD = 17.23$), $F(1,61) = 4.21$, $p = .05$, $\eta^2 = .07$. A subsequent t-test that did not assume the variances to be equal confirmed the reliability of the between subjects effect, $t(49.59) = 2.11$, $p = .04$. Given the ambiguous role of valence in Study 1 and 2, we also conducted this analysis whilst controlling for valence. This analysis revealed that the music condition still had a significant effect, $F(1,60) = 4.17$, $p = .05$, $\eta^2 = .07$, and valence had no significant association with the jail sentences, $F(1,60) = 0.03$, $p = .86$, $\eta^2 = .00$. Also the change in the effect of music after controlling for valence was not significant, $-3.81 < B_{95} < 1.47$. As predicted, listening to music that defies expectations hence fuels more negative evaluations of outgroup members in comparison to conventional music exposure, regardless of valence.

General Discussion

Overall, the results provide support for the hypothesis that unconventional music can lead to outgroup derogation. In Study 1 the hypothesis was tested by asking Irish participants how much money they would wager on England being beaten by Ireland in a hypothetical rugby game between the two nations. The results revealed that those who heard the unconventional music wagered significantly more on an Irish victory over the English outgroup. In Study 2, participants allocated a smaller portion of a hypothetical social services

budget to a minority group (the traveler community) after being exposed to unconventional music compared to those who had heard more typical music. These findings were extended in Study 3 in which we additionally ruled out the role of affect which played an ambiguous role in the prior studies. Specifically, rather than exposing participants to either one of two completely different songs, we exposed all participants to the same song varying only the music structure. Indeed, participants gave harsher sentences to an outgroup offender after hearing unconventional music compared to the conventional version. Hence, it appears that the deviation in structure itself was enough to elicit outgroup derogation.

Contributions, Limitations, and Future Research

The current research offers theoretical and practical contributions to the domains of meaning-maintenance, social identification processes, and music psychology. The investigation of the psychological mechanisms through which people create, maintain, and defend meaningful understandings of the world and ourselves has received much attention in recent years. The findings from this research support the predictions made by the meaning maintenance model and are consistent with studies demonstrating that people compensate for ‘meaning threats’ by reaffirming meaningful frameworks elsewhere in the context of absurd stories (Proulx & Heine, 2009), absurd art (Proulx, Heine & Vohs, 2010), and incongruent word pairs (Randles, Proulx & Heine, 2011). Our findings add music as a potential source of meaning threat. Indeed, scholars in music psychology have voiced the importance of research that addresses people’s perception and responses to meaning in music (Cross & Tolbert, 2009), and complementary research has uncovered the value of nostalgic music as a specific source of meaning (e.g., Hepper, Ritchie, & Sedikides, 2012; Routledge et al., 2011).

Management of inter-group relations plays a fundamental role in society and everyday life, and it is important to identify factors that may jeopardize honest attempts to improve cultural relations. This research reveals that unconventional music fosters derogation of

outgroups, which holds important implications. Traditional music from one culture or society can often sound unconventional to outsiders (Lynch, Eilers, Oller, & Urbano, 1990), and some forms of cultural exposure may counter-intuitively contribute to greater tensions between groups. Celebrations of culture and tradition are often accompanied by music and as a result attempts to celebrate and share diversity may have the reverse effect and lead to greater out-group discrimination. Further research must identify ways to counteract these effects, for example through exposure to non-culture specific music at a young age as suggested by Schellenberg and Trehub (1999).

A number of studies have demonstrated that a specific schematic violation known as counter-stereotyping can lead to a *decrease* in prejudice (Blair, Ma & Lenton, 2001; Crisp, Walsh & Hewstone, 2006; Vasiljevic & Crisp, 2013) and fosters more flexible, less heuristic thinking (Gołowska, Crisp, & Labuschagne, 2013; Vasiljevic & Crisp, 2013). For example, Vasiljevic and Crisp (2013) primed participants by asking them to generate 5 counter stereotypes (e.g. male-midwife, female-fireman), which lowered prejudice toward a number of outgroups and increased a preference for egalitarian values. Perhaps the critical difference between this research and research on meaning maintenance process, such as the current study, concerns how participants are presented with schema violating information. Given that in counter-stereotype research participants are generally asked to generate their own incongruent stereotypes, this type of meaning disruption may not violate expectations to the same extent as this research (see also Proulx et al., 2010). Thus the difference between the counter-stereotype research and our current findings may be reconciled by considering how people appraise different meaning violations (Marguc, Gillebaart, & Foerster, 2010). Future research should focus on moderating factors that may influence these appraisals to uncover in detail why one response may be motivated over another.

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