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The Persistence of an Anti-Stereotyping Intervention

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THE PERSISTENCE OF AN ANTI-STEREOTYPING INTERVENTION

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Abstract

Research demonstrates that Black people are more likely to be mistakenly shot in experimental computer programs when posing no threat (Correll, Park, Judd, & Wittenbrink, 2002; Greenwald, Oakes, & Hoffman, 2003). Additionally, when primed with a Black face, participants recognize guns faster, and are more likely to mistake a harmless object (e.g. tool) for a gun (Judd et al., 2004; Payne 2001;2006). This may be related to stereotyping of Black people as aggressive, dangerous, threatening, and criminal (Correll, Park, Judd, Wittenbrink, Sadler, & Keesee, 2007; Devine & Elliot, 1995; Hugenberg & Bodenhausen, 2003; Payne, 2001). The link between weapons and Black people may explain disparities in decisions to shoot. The current research was designed to investigate whether training in associating Black people with tools as opposed to weapons would reduce implicit bias immediately, and the extent to which this reduction in bias endures. Though previous training programs have successfully reduced shooter bias and stereotyping immediately and up to 24 hours later (Kawakami, Dovidio, Moll, Hermsen, & Russin, 2000; Plant, Peruche, & Butz, 2005), no research has yet systematically investigated the persistence of training effects up to at least one week later, which is necessary before implementing bias-reducing training programs into social institutions like schools or police departments. Participants in the counter-stereotypic training condition selected cell phones when presented with images of Black individuals and selected guns when presented with images of White individuals, whereas participants in the stereotype-maintenance condition made the opposite selections. Participants bias was measured immediately and again 1 to 7 days following their training session. Preliminary results are reported and the implications of this research are discussed.

keywords: stereotypes, decisions to shoot, guns, racial bias

The Persistence of an Anti-stereotyping Intervention

Police brutality, racial profiling, mass incarceration, and police accountability have been garnering greater attention in the United States. Researchers have increasingly examined these issues as the list of Black individuals who have died during police encounters continues to escalate (Humburg, n.d.; Swaine et al., n.d.). The need for an effective intervention that can reduce biases among police and law enforcement officials has never been clearer. The present research was designed to investigate the immediate and long-term effectiveness of an anti-bias intervention that targets the stereotypes which may contribute to police brutality against Black people.

Research demonstrates that Black people are more likely to be mistakenly shot in experimental programs when posing no threat (Correll, Park, Judd, & Wittenbrink, 2002; Correll, et al., 2007; Greenwald, Oakes, & Hoffman, 2003; Plant, Peruche, & Butz, 2005). In a study by Correll and colleagues (2002), participants were instructed to determine whether a suspect that appeared on screen was holding a gun or a neutral object. If the object was a gun, they were told to hit a designated "shoot" button, whereas if the object was neutral, they were told to hit a designated "don't shoot" button. Results demonstrated that participants were quicker to shoot an unarmed Black suspect compared to unarmed White suspect, slower to not shoot Black individuals with neutral objects, and made more errors when Black people were holding neutral objects.

Furthermore, when primed with a Black face participants recognize guns faster, and are more likely to mistake a harmless object (e.g. tool) for a gun (Judd, Blair, & Chapleau, 2004; Payne 2001;2006). Moreover, Cunningham and colleagues (2004) found that amygdala

activation--which is associated with emotional fear responses-- was greater when participants were presented with an image of a Black face compared to a White face. Implicit racial bias of White community members has also been found to predict disproportionate Black homicides by police (Hehman, Flake, & Calanchini, in press). Additionally, people require less certainty to decide whether to shoot when the target is Black as opposed to White (Klauer & Voss, 2008). Mere exposure to weapons inclines people to offer more attention to Black faces, even causing police officers to identify stereotypical-looking Black people as criminals (Eberhardt et al., 2004). This link between weapons and Black people, as well as stereotyping of Black people as aggressive, dangerous, threatening, and criminal (Correll et al., 2007; Devine & Elliot, 1995; Hugenberg & Bodenhausen, 2003; Payne, 2001) may explain disparities in decisions to shoot.

The current research is designed to investigate the efficacy of training to reduce the Black- weapons link. Because the decision to shoot is often made in a split-second, these interventions must focus on implicit processes. Though many strategies have been developed to change implicit responses (over 500 studies), less than 30 have examined how long these effects last (Lai, Skinner et al., 2016) and one study found that of 9 interventions that initially reduced implicit prejudice (Lai, Forscher et al. 2016), none reduced bias one week later. Thus, it is critical to not only study strategies to reduce stereotyping, but to also develop interventions that are long-lasting (Paluck & Green, 2009).

Plant and colleagues (2005) investigated the duration of an intervention to reduce bias in the shooter task. Though they initially found participants held racial bias when asked to role play as police officers, results indicated that repeated exposure to stimuli where race was unrelated to the presence or absence of a gun reduced biases both immediately and 24 hours later. Though these findings are noteworthy, our study differs in that the focus will not be on decisions to shoot

like Plant and colleagues (2005). Instead, we are interested in the stereotypes that contribute to decisions to shoot, which to our knowledge has not been explored in the literature thus far.

There is little evidence so far to suggest that anti-bias interventions will last for more than 24 hours. However, previous research has focused on prejudice-reducing interventions and has not examined interventions that reduce stereotyping or discrimination (Lai, Skinner et al., 2016). It is often assumed that prejudice interventions will change a whole host of related behaviors, however this is not true when prejudice is measured explicitly (specific attitudes predict specific behaviors not behaviors in general e.g., Davidson & Jaccard, 1979), nor is there much evidence of this when prejudice is measured implicitly (Carlsson & Agerström, 2016; Greenwald et al., 2009; Oswald, Mitchell, Blanton, Jaccard, & Tetlock, 2015). Targeting the link between Blacks and weapons may be an effective strategy to change a variety of relevant biases, including both positive and negative stereotypes. Though research by Kawakami et al. (2000) and Plant et al. (2005) has demonstrated that anti-bias interventions can be effective and last for at least 24 hours, the current study investigated the link between Black people and weapons, included a greater number of trials than Plant and colleagues (2005), and examined whether training effects generalize to stereotypes beyond those related to criminality and weapons, including both negative and positive stereotypes. This is an important point because it is possible that by inhibiting the targeted stereotype, others became more accessible, especially positive ones.

I included questions regarding both the Black and Blue Lives Matter movements for exploratory purposes. There is a misconception that Blacks are more prone to engage in criminal behavior and I wanted to see if the anti-stereotyping intervention influences attitudes towards the Black and Blue Lives Matter Movements as well as affirmative action. By attempting to alter stereotypes of Blacks related to weapons and seeing if training effects could generalize to other

stereotypes, it is possible I may have changed related ideas involving affirmative action related to support of Black Lives Matter.

My study will employ different tasks for training and measurement, allowing us to investigate if stereotype associations change. Additionally, this study will investigate training effects beyond 24 hours and see if the intervention's effects persist up to 7 days later. Based on previous findings, I hypothesized that training in associating Blacks with cell phones instead of guns would reduce implicit bias immediately. However, I don't know if these effects will persist beyond 24 hours. The answer to these questions is critical to the development of anti-bias interventions that can be implemented in the real world in the hopes of reducing the killing of unarmed Blacks.

Possible Moderators of Stereotype Training

To my knowledge, no research has yet looked into whether implicit bias training is moderated by individual differences. Some researchers argue that authoritarian personalities are particularly inclined to engage in stereotyping and prejudice (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950). Altemeyer (2004) suggests those high in both social dominance orientation (SDO) and authoritarianism are some of the most highly prejudiced people within society. Previous research has also indicated individuals high in SDO hold negative attitudes towards minorities expressing strong racial identities (Kaiser & Pratt-Hyatt, 2009). Additionally, belief in a just world (JWB) can lead people to justify prevailing social systems and thereby sustain those systems (Jost, Kay, & Thorisdottir, 2009). This phenomenon may result in people being indifferent to social injustice as they perceive the world to be a just place and think that people get what they deserve. Those who score high on the belief in a just world scale have a

tendency to believe people get what they deserve because the world is ultimately a just place (Hafer & Begue, 2005). For these reasons, I included these measures for exploratory purposes in order to investigate if any of these individual differences moderate the effects of training. I predict that training will be less effective for those who score high on SDO and RWA measures, but will have no effect for those who score high in JWB.

Overview

I conducted an experiment to examine if training in associating Black people with tools as opposed to weapons would reduce implicit bias immediately and whether these effects are enduring. Participants were trained to associate Black people with cell phones and White people with guns or vice versa. The goal of this manipulation was to determine if stereotypes that link Black people to weapons can be altered. I investigated the effectiveness of the intervention on implicit racial bias immediately and after a delay of 1 to 7 days. I also assessed participants' explicit bias and examined preferences regarding racially-relevant affirmative action policies (i.e. support of body cameras among police officers). Additionally, I tested whether training effects generalized to both positive and negative stereotypes unrelated to weapons. I predicted that bias would decline after learning to associate Black people with tools rather than guns and that this effect would last for at least 24 hours. Data collection is currently ongoing, and I will continue to collect data until I have at least 200 participants.

Method

Participants and Design

42 participants have been recruited from a Southeastern United States university. The experimental design was a 2 (Type of Training: counter-stereotypic vs. stereotype-maintenance, between-subjects) x 2 (Time since training: immediately vs. delayed, within-subjects) design.

The final sample for preliminary analyses included 42 participants (22 female; 3 Asian, 4 Black, 15 White, 2 Mixed). The age range was 18-32 years with a median of 20 years.

Procedure

Participants completed the social dominance orientation scale (SDO; Pratto et al., 1994), just world belief scale (BJW; Dalbert, Montada, & Schmitt, 1987), and right-wing authoritarianism scale (RWA; Altemeyer, 1996) to determine if these individual differences moderate the effects of anti-stereotyping training. Participants were then randomly assigned to either a counter-stereotypic training condition or a stereotype maintenance condition in order to reduce the associative link between Blacks and weapons. Next, participants completed a race-weapons IAT (Greenwald & Farnham, 2000) in order to assess the strength of the association between Blacks and weapons. Subsequently, participants completed a go-no-go task to measure the strength of associations between Blacks and both positive (e.g. trend-setter) and negative (e.g. criminal) stereotypes.

Participants returned to the lab for the second part of the experiment 1 to 7 days later in order to investigate the persistence of training effects. Participants completed the same dependent measures as time 1 in addition to demographics and questions related to individual differences, identity, political events, affirmative action, and the warmth/favorability of groups. Participants answered questions about their perceptions related to the study's purpose, the relationship between the tasks, and the experimenter's hypotheses. Finally, participants were debriefed and thanked for their time.

Social Dominance Orientation. Given that some researchers argue that people high in SDO embrace prejudice and are inclined to support policies that maintain hierarchies and justify

prejudice (Guimond et al., 2003; Levin et al., 2012; Pratto et al., 1994; Sidanius et al., 2004), we included this measure to account for individual differences. The SDO scale consisted of 16 items from Pratto and colleagues (1994). Participants rated their agreement to statements ("*Inferior groups should stay in their place*.") on a 5-point Likert scale ranging from agree to disagree.

Belief in a Just World. Belief in a just world can lead to justification of the status quo and familiar social systems (Jost et al., 2009; Kay et al., 2009) and can lead to victim blaming (Hewstone, 1990). For these reasons, this measure was included to account for individual differences that may lead to heightened stereotyping. This scale consisted of the 6 Justice items from Dalbert (1999). Participants rated their agreement to statements ("*I firmly believe that injustices in all areas of life (e.g., professional, family, politic) are the exception rather than the rule*.") on a 5-point Likert scale ranging from strongly agree to strongly disagree.

Right-Wing Authoritarianism. This measure was included to account for individual differences that may moderate our effects. The RWA scale consisted of 34 items from Altemeyer (1996). Participants rated their agreement to statements ("*Our country desperately needs a mighty leader who will do what has to be done to destroy the radical new ways and sinfulness that are ruining us.")* on a 5-point Likert scale ranging from strongly disagree to strongly agree.

Associative Learning Task. Participants completed a rule-learning task designed to reduce the link between weapons and Black people. Each participant was randomly assigned to be in either the stereotype maintenance or counter-stereotypic training condition. On each trial participants were shown 3 pictures: one in the center, one on the right, one on the left. The pictures on the right and left were always of a cell phone and a weapon. The picture in the center was always a photo of a face of either a Black or White person. Participants in the counter-stereotypic condition were told to select guns when White faces were presented and select cell

phones when Black faces were presented in the center of the screen, whereas the stereotype maintenance condition were given the opposite instructions. Stimuli remained on screen until participants responded. If the response was correct, a blank screen appeared for 1000 ms before the presentation of the next trial. If the response was incorrect, a blank screen appeared for 100 ms, followed by a red "X" in the center of the screen for 800 ms, and a blank screen for 100 ms before the next trial began. Participants completed 8 blocks with a total of 40 trials (320 trials). The stimuli included 40 faces (20 Black, 20 White) and 12 objects (6 guns, 6 cell phones).

Race-Weapons IAT. Participants implicit stereotyping was measured using a race-weapons IAT (Greenwald & Farnham, 2000). Participants were asked to quickly categorize images of Black people and White people, Objects, and Weapons. Stimuli included photographs of six White faces (3 male, 3 female) and six Blacks faces (3 male, 3 female), along with six photos of harmless objects (water bottle, camera, coke can, ice cream cone, walkman, and wallet) and five photos of weapons (axe, cannon, morning star, grenade, sword). None of the stimuli presented during training were used in this task. Following standard IAT procedures, participants completed five blocks with the following instructions for categorization (1) press *e* for *Black*, *i* for *White*; (2) press *e* for *Object*, *i* for *Weapon*; (3) press *e* for *Black* or *Object*, press *i* for *White* or *Weapon*; (4) press *e* for *White*, press *i* for *Black*; (5) press *e* for *White* or *Object*, press *i* for *Black* or *Weapon*. Procedures following correct or incorrect responses were identical to the associative learning task. The critical categorization, blocks 3 and 5, consisted of 60 trials.

Go-No-Go Task. Participants completed a go/no-go task in order to measure stereotyping and to determine if training effects generalized to other positive and negative stereotypes unrelated to the Black-weapons association. This task involved responding (go) or inhibiting a response (no-go) to a stimulus. The task was split into 8 blocks of 60 trials each. If

the response was incorrect or the respondent took too long to answer, a blank screen appeared for 500 ms, followed by a red “X” in the center of the screen for 800 ms, and a blank screen for 500 ms before the next trial began. If the response was correct, the display was the same except the blank screen was replaced with a green circle.

Word stimuli that were either positive (e.g. cool, trend-setter) or negative (e.g. criminal, thug) in content were presented. Of the 480 stimuli, half were negative words and half were positive words. The task was split into 8 blocks, with 5 words related to Black or White, five words related to stereotypes, ten go stimuli and ten no-go stimuli (60 trials in each block). Participants completed the eight blocks to assess attributes with the following instructions for categorization (1) *go* for *Black* or *trend-setter, no-go* for *criminal*; (2) *go* for *Black* or *Criminal, no-go* for *trend*-setter; (3) *go* for *White* or *trend-setter*, *no-go* for *criminal*; (4) *go* for *White* or *criminal*, *no-go* for *trend-setter*; (5) *go* for *Black* or *dangerous*; *no-go* for *athletic*; (6) *go* for *Black* or *athletic*, *no-go* for *dangerous*; (7) *go* for *White* or *dangerous*, *no-go* for *athletic*; (8) *go* for *White* and *athletic*, *no-go* for *dangerous*. To avoid order effects, stimuli were randomly ordered. The response window was 800 ms. Dependent measures of interest included the hit rate for both go and no-go stimuli, along with mean response time. The words presented in each category were as follows: Blacks ("Black," "African-American"), Whites (White, European-American), trendsetter ("Trendsetter", "Fashion-Forward", "Stylish", "Cool", "Trendy"), criminal ("Criminal", "Thug", "Gangster", "Drug-Dealer", "Thief"), violent (“Dangerous", “Unsafe", “Violent", “Aggressive", “Threatening”) and athletic (“Athletic", “Sporty", “Fast", “Strong", “Fit”).

Symbolic Racism. This scale was administered to assess explicit prejudice. Participants rated their agreement to statements (*"It’s really a matter of some people not trying hard enough;*

if blacks would only try harder they could be just as well off as whites.") on a 5-point Likert scale with responses ranging from strongly agree to strongly disagree. This scale consisted of 8 items from Sears & Henry (2005).

Affirmative Action Questions. Participants completed questions regarding their main source of news and how they feel about police officials wearing body cameras. We asked these questions to investigate whether implicit stereotyping predicted affirmative action responses.

Warmth/Favorability. Warmth is a fundamental aspect of social judgment. To assess explicit evaluations we had participants rate the warmth and favorability of Blacks, Whites, and Police Officials. Response options ranged from 0 degrees (very cold/unfavorable) to 100 degrees (very warm/favorable).

Demographics. Participants completed demographic questions regarding their ethnicity, race, current gender identity, assigned sex at birth, age, political affiliation, religious affiliation, and the number of years they have spoken English. These measures were collected in order to determine if individual differences accounted for any differences found between groups.

Black and Blue Lives Matter Movements. Participants answered questions about the Black and Blue Lives Matter Movements *("Do you support the Black Lives Matter Movement? Why or why not? Please explain in as much detail as possible.*") and indicated who they voted for in the 2016 presidential election.

Exit Questions. Participants answered questions inquiring about the experimenter's hypothesis, how they thought the tasks they completed connected, and if they had completed any other studies that day. Again, these measures were collected to account for individual differences and to ensure the use of deception was sufficient.

Results

Preliminary analyses are reported, as data collection is currently ongoing.

Time 1

Right Wing Authoritarianism. Across all participants, the mean for RWA was 2.30 and the standard deviation was .697. To confirm that random assignment was successful, I also compared scores between groups. An independent samples t-test comparing the mean RWA scores of participants in the counter-stereotypic (M = 2.256, SD = .686) training and the stereotype maintenance (M =2.351, SD = .721) training found no significant difference between the two groups $t(40) = .439$, $p = .663$, d=.135.

Social Dominance Orientation. Across all participants, the mean for SDO was 1.81 and the standard deviation was .679. To confirm that random assignment was successful, I also compared scores between groups. An independent samples t-test comparing the mean SDO scores of participants in the counter-stereotypic (M =1.929, SD =.751) training and the stereotype maintenance (M =1.694, SD = .592) training found no significant difference between the two groups $t(40) = 1.129$, $p = .266$, d=.348.

Belief in a Just World. Across all participants, the mean for JWB was 3.30 and the standard deviation was .861. To confirm that random assignment was successful, I compared scores between groups. An independent samples t-test comparing the mean JWB scores of participants in the counter-stereotypic (M =3.333 , SD= .817) training and the stereotype maintenance (M =3.261, SD =.923) training found no significant difference between the two groups $t(40) = .266$, $p = .792$, d=.083.

Race-Weapons IAT. An independent samples t-test comparing the mean IAT scores of participants in the counter-stereotypic training and the stereotype-maintenance training found a significant difference between the two groups $t(40) = 2.899$, $p = .006$, $d=.543$. Participants in the counter-stereotypic condition ($M =.058$, $SD = .294$) had less stereotyping compared to participants in the stereotype-maintenance condition ($M =.238$, $SD = .365$).

Time 2

Symbolic Racism. An independent samples t-test comparing the mean symbolic racism scores of participants in the counter-stereotypic training and the stereotype maintenance training found no significant difference between the two groups $t(26) = .685$, $p = .499$, $d=.259$. There was no significant difference found among Symbolic Racism scores between participants in the counter-stereotypic condition ($M =2.099$, $SD=.578$) and participants in the stereotype-maintenance condition ($M =1.957$, $SD =.516$).

Warmth/ Favorability. An independent samples t-test comparing the mean warmth/favorability towards Blacks scores of participants in the counter-stereotypic training and the stereotype maintenance training found no significant difference between the two groups $t(25) = .082$, $p = .935$, $d=.033$. There was no significant difference found among warmth/favorability towards Blacks scores between participants in the counter-stereotypic condition ($M =77.08$, $SD=15.88$) and participants in the stereotype-maintenance condition ($M =77.67$, $SD =19.99$).

An independent samples t-test comparing the mean warmth/favorability towards Whites scores of participants in the counter-stereotypic training and the stereotype maintenance training found no significant difference between the two groups $t(25) = .101$, $p = .920$, $d=.038$. There was no significant difference found among warmth/favorability towards Whites scores between

participants in the counter-stereotypic condition (*M* =73.33, *SD*=18.87) and participants in the stereotype-maintenance condition (*M* =72.67, *SD* =15.45).

An independent samples t-test comparing the mean warmth/favorability towards police scores of participants in the counter-stereotypic training and the stereotype maintenance training found no significant difference between the two groups $t(23) = .491$, $p = .628$, d=.195. There was no significant difference found among warmth/favorability of police scores between participants in the counter-stereotypic condition (*M* =57.50, *SD*=24.36) and participants in the stereotype-maintenance condition (*M* =53.46, *SD* =16.25).

Race-Weapons IAT. An independent samples t-test comparing the mean IAT scores of participants in the counter-stereotypic training and the stereotype-maintenance training found no significant difference between the two groups $t(26) = 1.187$, $p = .246$, d=.457. Participants in the counter-stereotypic condition (*M* =.043, *SD* = .387) had no significant difference in stereotyping compared to participants in the stereotype-maintenance condition (*M* =.263, *SD* =.560).

Discussion

Preliminary results indicate that those who learned to associate Blacks with cell phones immediately had less stereotyping compared to those in the control condition. These findings are similar to previous studies that have looked at reducing stereotyping immediately and over time (Kawakami et al., 2000; Lai, Skinner et al., 2016; Plant et al., 2005).

This study is unique in that it is the first study, to my knowledge, to target the link between Blacks and weapons. This is important because these stereotypes may contribute to decisions to shoot and other forms of discrimination. The focus of research has typically been on

implicit prejudice interventions, and it is often assumed that if implicit prejudice is altered, that related behaviors will also change, however, there is not much evidence of this (Carlsson & Agerström, 2016; Greenwald et al., 2009; Oswald et al., 2015). This study is also the first, to my knowledge, to examine whether targeting one stereotype can influence other stereotypes. This is important because targeting the link between Blacks and weapons may be an effective strategy to change a variety of relevant biases, including both positive and negative stereotypes. Research must determine if training effects generalize to other stereotypes, both positive and negative, to determine if inhibiting one stereotype makes others more accessible. Before implementing these anti-bias programs into the real-world, research must determine if other stereotypes are heightened when others are inhibited as the consequences could be life or death.

This study also takes into account individual differences that are often overlooked in other anti-bias training studies. Individual differences may explain heightened or reduced stereotyping. These possible moderators need to be explored to determine not only for whom anti-bias interventions are most effective, but also to determine for whom these interventions are most necessary and for whom the effects persist.

Additionally, the current study is one of very few studies to examine the persistence of an anti-bias intervention for beyond 24 hours (Lai, Skinner et al., 2016). It is currently unclear if any anti-bias intervention that targets implicit responses lasts beyond a single session and it is unclear if there may be a sort of rebound effect where inhibiting stereotypes for one day may increase them the next day. More research is needed to determine how frequently training should be undergone for optimal effects. Exploring the persistence of anti-bias interventions is necessary before implementing programs into police departments.

This study is limited in that data collection is currently ongoing. However, data collection will be continued until I reach at least 200 participants.

There are several avenues for future research to examine. This study does not explore whether training effects persist outside of the lab to a real-world context. Future research should explore whether training effects generalize to other settings by having participants complete training and bias assessments in different locations (i.e. at home and in the lab) (Gawronski & Cesario, 2013). Research should also be conducted with actual police officials.

Conclusion

The current study examined whether training in associating Black people with tools rather than guns would reduce stereotypes associated with Black people. Preliminary analyses demonstrate that, in accordance with our hypothesis, that training in associating cell phones with Blacks reduced implicit stereotyping immediately. Our findings are consistent with prior research on bias training in demonstrating that biases are malleable at least immediately (Lai, Skinner et al., 2016). Research in this area has implications for seeing people as individualistic humans as opposed to seeing people in a biased manner because of particular group memberships. Additionally, these studies are needed to improve the accuracy of decisions made by police, not just in decisions to shoot. These studies are essential in order to relieve our nation of its centuries long history of oppression and to attain equal treatment within the criminal justice system. Research in this area is also critical for reducing the number of Black individuals killed by police while unarmed. With enough research, it is possible to control bias and the negative consequences it renders.

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