



Stereotype threat contributes to social difficulties in people with schizophrenia

Julie D. Henry^{1*}, Courtney von Hippel^{2*} and Lisa Shapiro¹

¹University of New South Wales, Sydney, Australia

²University of Queensland, St Lucia, Australia

Objective. The experience of stereotype threat (where the prospect of conforming to a stereotype, or of being treated in terms of it, becomes self-threatening) affects members of social groups about whom devaluing stereotypes exist. Although a widely endorsed stereotype of schizophrenia concerns social skill impairment, it is unclear whether the experience of stereotype threat impacts social functioning in this group. The purpose of the present study was to test whether people with schizophrenia would perform more poorly in a social setting in which they felt stereotyped as mentally ill.

Methods. Thirty individuals with schizophrenia engaged in conversations with two confederates, one of whom they were told knew nothing about them (control conversation), and the other of whom they were told had been informed of their diagnosis (stereotype threat conversation). In reality, neither confederate had been informed of participants' mental health status.

Results. Although participants with schizophrenia did not perceive any differences in their own social behaviour across the two conditions, their social skill was rated by the confederates as poorer in the stereotype threat conversation on three out of the six measures used.

Conclusions. These results suggest that social skill difficulties in people with schizophrenia may be exacerbated by their awareness that others know of their diagnosis. These findings have implications for disclosure of mental health status.

Stereotype threat, or the feeling that one is the target of demeaning stereotypes, can disrupt performance in a wide variety of domains. In slightly more than a decade of research on the topic, the performance-impairing effect of stereotype threat has been replicated across numerous populations and tasks (for a review, see Steele, Spencer, & Aronson, 2002). Importantly, it is not necessary for people to be treated in a stereotyped fashion for stereotype threat effects to emerge; people need only believe that they are

*Correspondence should be addressed to Dr Julie D. Henry, School of Psychology, University of New South Wales, Sydney, New South Wales 2052, Australia (e-mail: julie.henry@unsw.edu.au) or Dr Courtney von Hippel, School of Psychology, University of Queensland, St Lucia, Queensland 4072, Australia (e-mail: c.vonhippel@psy.uq.edu.au).
 Julie D. Henry and Courtney von Hippel have contributed equally.

being stereotyped for the negative consequences of stereotype threat to emerge. Thus, the mere knowledge that others know their mental health status should be sufficient to raise the specter of the stereotype among people with mental illnesses, potentially causing them to struggle even more with the types of activities that are made more difficult by their illness.

There is substantial support for this line of reasoning in research on stereotype threat in non-clinical populations. For example, women who believe that a math test typically reveals gender differences perform more poorly on the math test as a consequence of that belief (Spencer, Steele, & Quinn, 1999), and this performance disruption is not contingent on differential treatment by others. In a particularly compelling demonstration of the power of feeling stereotyped, Asian-American women who were asked to indicate their ethnicity prior to a mathematics test (inducing awareness of a positive stereotype) performed better than Asian-American women who were asked to indicate their gender (inducing awareness of a negative stereotype) prior to the test (Shih, Pittinsky, & Ambady, 1999). Such studies demonstrate that when people are faced with a difficult task in a domain in which they are negatively stereotyped, awareness of the possible application of the stereotype to the self disrupts their ability to focus all of their efforts on the task at hand (Krendl, Richeson, Kelley, & Heatherton, 2008; Schmader & Johns, 2003).

Schizophrenia, social functioning, and stereotype threat

One of the hallmarks of schizophrenia is disruption in social functioning. Indeed, social function impairment is a prerequisite for diagnosis of schizophrenia (American Psychiatric Association, 2000). Lay stereotypes also emphasize social impairment, with a common focus on social abnormalities and the beliefs that individuals with schizophrenia are socially incompetent (Angermeyer & Matschinger, 2004; Farina, 1998; Hayward & Bright, 1997). Specific symptoms such as avolition, blunted affect, hallucinations, and other types of disordered thinking undoubtedly contribute to the social difficulties that are experienced by people with schizophrenia. Nevertheless, to the degree that social functioning is difficult for people with schizophrenia, and to the degree that they are aware that others stereotype them as socially incompetent (Watson, Corrigan, Larson, & Sells, 2007), stereotype threat also has the potential to contribute to social difficulties by interfering with their ability to focus their efforts on the social demands of the situation. As a consequence, the knowledge that others are aware of one's diagnosis might disrupt social functioning among people with schizophrenia in much the same way that knowledge that a test leads to gender differences might disrupt mathematical reasoning among women.

Some support for this possibility can be found in classic research in which people with severe mental illnesses such as schizophrenia were falsely led to believe that others knew about their psychiatric history (Farina, Gliha, Boudreau, Allen, & Sherman, 1971). Under such circumstances, these individuals found a maze-like game more difficult and performed more poorly. This finding is consistent with research on the mechanisms of stereotype threat, which has shown that feeling stereotyped disrupts working memory (Schmader & Johns, 2003) and activates areas of the brain that are responsible for emotion processing but not for relevant problem solving (Krendl *et al.*, 2008). Nevertheless, it remains to be seen whether core symptoms of severe mental illnesses such as schizophrenia might be exacerbated by the awareness that one may be the target of demeaning stereotypes. The goal of the current research is to test this possibility.

Method

Participants

Thirty participants (13 males) were recruited from outpatient clinics at the Prince of Wales Hospital in Sydney on the basis that they had been diagnosed by treating psychiatrists with schizophrenia ($n = 21$) or schizoaffective disorder ($n = 9$) in accordance with the *Diagnostic and statistical manual of mental disorders* criteria (DSM-IV-TR, American Psychiatric Association, 2000). None of the participants with schizoaffective disorder were in a current mood episode. Exclusion criteria included a history of substance use and neurological disease. Participants for whom English was not their first language were also excluded. All participants were aged over 18 ($M = 38.7$, $SD = 10.97$), medicated, in a stable phase of illness, and receiving atypical antipsychotic medication (in terms of chlorpromazine equivalents, $M = 343.2$, $SD = 224.68$).¹ On average, participants had received 13.4 years of education ($SD = 2.40$), and their current and premorbid intelligence as indexed by the *Wechsler Abbreviated Intelligence Scale* (WASI; Wechsler, 1999) and *National Adult Reading Test* (NART; Nelson, 1991) was estimated to be 97.0 ($SD = 17.03$) and 104.1 ($SD = 12.85$), respectively.

Although in the present study social skills were not measured directly (other than in the context of the stereotype threat manipulation and measures), social dysfunction forms part of the core diagnostic criteria for this disorder (American Psychiatric Association, 2000). Further, social function impairment is more prominent in chronic schizophrenia and participants in the current study had an average illness duration of 15.8 years ($SD = 9.07$), with the average age of onset 23.1 years ($SD = 6.30$). It is also of note that negative symptoms are a particularly important predictor of social outcomes such as smaller and more dysfunctional social networks (Hamilton, Ponzoha, Cutler, & Weigel, 1989). This is unsurprising given that negative symptoms are characterized by behavioural deficits, such as apathy, avolition, withdrawal, and disengagement. In the present sample, the sum of subscale global ratings was higher for the *Scale for the Assessment of Negative Symptoms* (SANS; Andreasen, 1983a) than for the *Scale for the Assessment of Positive Symptoms* (SAPS; Andreasen, 1983b), indicating a relatively more prominent level of negative symptom severity ($M_s = 8.1$ and 5.1 ; $SD_s = 4.31$ and 3.95 , respectively). Thus, although social skills were not directly assessed in the current sample, the sample diagnosis and demographics strongly suggest that social deficits were likely to be an important issue among the participants.

Procedure

After providing consent, participants engaged in the first of two social interactions. To provide some temporal distance between interactions, participants then completed a separate set of measures for approximately 1 h (the SAPS, SANS, WASI, and NART), after which they engaged in the second interaction. Participants' social skills were assessed with the conversation probe (CP) role-play test, which provides a framework to measure social behaviour elicited during relatively naturalistic social interactions (Penn, Corrigan, & Racenstein, 1998). The CP requires participants to initiate and maintain a 3-min conversation with a confederate. To standardize the procedure, confederates

¹ While this conversion is controversial as applied to atypical antipsychotics it is nevertheless useful for assessing broad trends across patient groups.

were trained on how to initiate and contribute to the conversations. The two administrations of the CP differed with respect to the confederate with whom the participant interacted and the stereotype threat condition.

Prior to the first CP role play, all participants were told: 'We're looking at how people form first impressions when they meet new people. I'm going to introduce you to someone called (name of confederate), who is participating in another study we're running here at the University. I'll leave the two of you alone for a few minutes so you can spend some time getting to know one another'. Participants in the stereotype threat conversation were further told, '(name of confederate) does not have schizophrenia. (Name of confederate) has been told that you have been diagnosed with schizophrenia'. Participants in the no threat conversation were alternatively informed: '(name of confederate) does not have schizophrenia. Please note that (name of confederate) doesn't know anything about you'.

After these instructions, the test administrator introduced participants to the confederate and restated the purpose of the upcoming brief conversation. The participant and confederate were then left for 3 min to converse. At the conclusion of the CP, the test administrator gave the confederate and participant a separate social skills questionnaire (outlined below) and then escorted the confederate out of the room. Prior to the second CP, all participants were told: 'Earlier on, you had a conversation with (name of confederate) as part of our research about how people form impressions of each other. This time, you are going to meet a different person called (name of confederate) who is also participating in another study at the University'. Stereotype threat was manipulated in the opposite manner from the first CP, and participants were then introduced to the new confederate. Immediately after each CP, confederates, and participants provided several ratings about their own and their interaction partner's behaviour during the CP (see below).

Confederates were kept blind to participant mental health status by including control participants in the conversations (matched to the patient group in age, education, and gender), such that each confederate had one conversation with a participant with schizophrenia and one conversation with a matched control participant. Each of the confederates had an equal probability of interacting with a participant with schizophrenia or a matched control participant. Confederates were also blind to experimental condition (stereotype threat vs. no threat). Order of the threat versus no threat conversations and which confederate participants interacted with were both counterbalanced. The confederates were young females aged between 25 and 30 who had received tertiary training in psychology and took part in the study either for financial remuneration or as part of a requirement for their degree in psychology.

It should be noted that the decision to use deceptive techniques was made only after careful consideration of the ethical implications. Specifically, deceptive techniques were only used because effective non-deceptive alternative procedures were not available to test the research question of interest. Further, use of deceptive techniques were considered to be justified because of the prospective clinical value of ascertaining whether part of the reason why people with schizophrenia have difficulty with social functioning is their awareness that others know of their diagnosis. Such a finding would have potentially important implications for disclosure of mental health status. Further, it was not anticipated that the deceptive procedures used in the present study would cause distress, and the debriefing procedure at conclusion of participation indicated that this was the case - none of the participants showed any evidence of distress relating to any aspect of the study. All procedures were approved by the Human Research Ethics

Committee of the South Eastern Sydney and Illawarra Area Health Service as well as the University of New South Wales.

Measures

Confederate's ratings of participants' social skills

No consensual theoretical framework exists regarding the parameters and methods used for the evaluation of social skill deficits, but it is accepted that such skills incorporate many distinct components (e.g. Corrigan & Toomey, 1995). Accordingly, after each CP, confederates completed six questions focused on quantifying different aspects of participants' social performance. Items were rated on seven-point scales, with 1 denoting 'very impaired' and 7 'exceptional' to assess the following specific social skills: (i) ability to initiate conversation throughout the interaction, (ii) appropriateness of speech content, (iii) ability to switch topics appropriately, (iv) ability to take turns, and (v) conversational appropriateness. The final item (vi) required confederates to rate their level of agreement with the statement 'I felt comfortable during the interaction', on a seven-point scale anchored by strongly disagree and strongly agree. Finally, confederates also indicated whether participants disclosed their mental health status during the interaction to determine whether the stereotype threat manipulation impacted disclosure.

Prior to commencing the experiment, confederates were trained in the use of these scales. Following this training, the initial three interactions conducted were video recorded and confederates watched these recordings together to discuss in detail their reasons for allocating particular scores to items, in an effort to identify and resolve any potential areas of disagreement. Subsequent analyses indicated that there was no effect of confederate on skill rating, supporting the efficacy of this training procedure.

Participants' perceptions of the interactions: participants indicated the extent to which they agreed with the following statements, rated on a seven-point scale anchored by strongly disagree and strongly agree; (i) 'I felt comfortable during the conversation', (ii) 'I found it difficult to think of things to talk about', and (iii) 'I think the other person enjoyed the conversation with me'. The fourth item (iv), 'Were there any awkward pauses?', was rated on a three-point scale anchored by none and many. To uphold the face validity of the task of how people form first impressions, these items were embedded among items that asked participants to indicate the impressions they formed of their conversation partner (the confederate). For ease of reporting, items completed by both the confederate and participant were scored so that higher scores were indicative of better social performance.

Results

Confederates' perceptions of the interactions

As can be seen in Figure 1, there was a consistent trend in confederate ratings such that participants with schizophrenia were considered to perform better socially in the no threat relative to the threat conversation. A within-subjects multivariate analysis of variance (MANOVA) with the six social skill measures as dependent variables revealed a significant effect of conversation, $F(1, 29) = 6.70$, $p = .015$. Subsequent comparisons revealed that confederates rated participants in the stereotype threat conversation as being more impaired in initiating conversation, $t(29) = 2.18$, $p = .04$, and switching

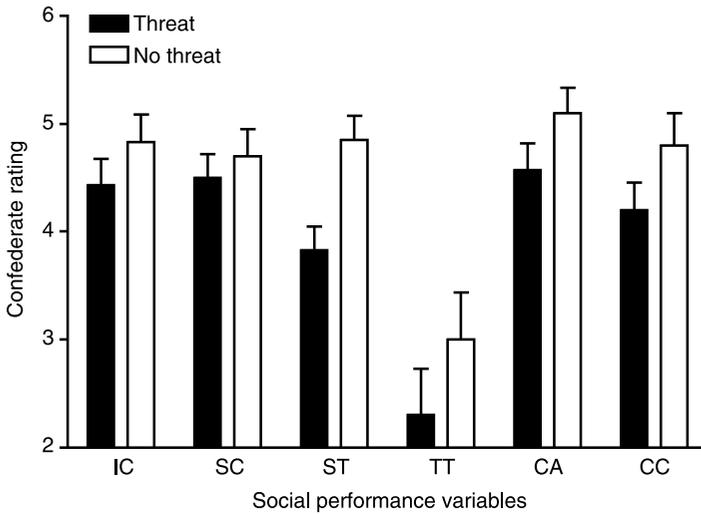


Figure 1. Mean confederate ratings of participant's social performance during the two conversations (bars represent SE). For all items, higher scores indicate better social skills performance. Items were scored on a scale of 1–7. Note. IC, ability to initiate conversation; SC, appropriateness of speech content; ST, ability to switch topics appropriately; TT, ability to take turns; CA, conversational appropriateness; and CC, confederates level of comfort.

topics appropriately, $t(29) = 3.75$, $p < .01$, compared to participants in the control conversation. Confederates also indicated that they felt less comfortable when they interacted with participants who were in the stereotype threat conversation, $t(29) = 2.26$, $p = .03$. No significant differences emerged for items assessing participants' speech content, ability to take turns, and conversational appropriateness ($ps > .05$).²

Participants' perceptions of the interactions

Figure 2 shows participants' perceptions of the interactions. For neither conversation were participants' perceptions significantly correlated with confederates' social skill ratings (r s from .03 to .33, $ps > .05$). Participants' perceptions of the conversations were analysed in a within-subjects MANOVA, with the four social skill measures as dependent variables (personal comfortableness, difficulty conversing, perceived partner enjoyment, and presence of awkward pauses). These analyses indicated that there was no significant effect of conversation, $F(1, 29) = 0.10$, $p = .79$, suggesting that the stereotype threat manipulation did not impact participants' perceptions of the conversations.

Discussion

The current findings provide evidence that people with schizophrenia have difficulty with social functioning in part due to their awareness that others know of their

² It should be noted that self-disclosure of clinical information across the two conditions occurred infrequently, and did not differ across the two conditions. Further, none of the cognitive or clinical measures mediated or moderated any of the stereotype threat effects observed.

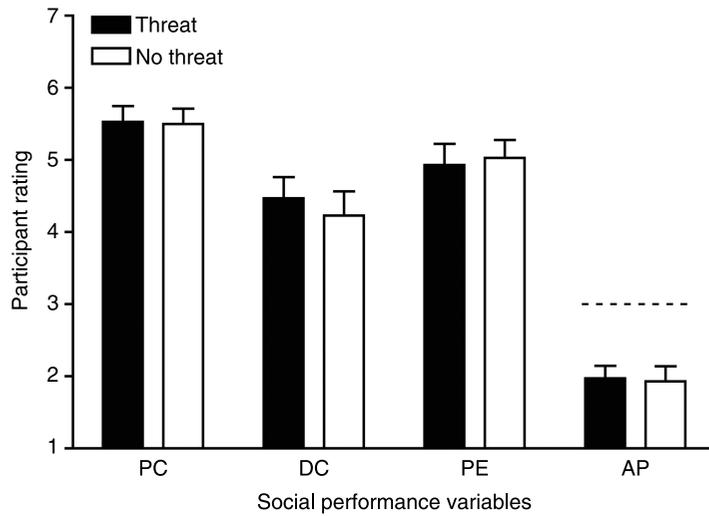


Figure 2. Mean participant ratings of social performance during the two conversations (bars represent SE). For all items, higher scores indicate better social skills performance. Items were scored on a scale of 1–7, except for item AP which was scored from 1 to 3 (as denoted by the dashed line above this item). Note. PC, participants' level of comfort; DC, participants' difficulty conversing; PE, partners' enjoyment; and AP, awkward pauses.

diagnosis. In the current study, confederates rated the participants with schizophrenia as having poorer social skills on three of the six measures when the participants believed that the confederate was aware rather than unaware of their mental health status, and this finding emerged despite the fact that confederates were never told of their mental health status. In contrast to these confederate ratings, participants' perceptions of their own social functioning did not differ as a function of their beliefs about the confederate's awareness. This dissociation between self-perceptions and performance differs from the effects of stereotype threat on non-clinical samples. Here, research has shown that people expect to perform more poorly when under conditions of stereotype threat (Stangor, Carr, & Kiang, 1998), and also have increasingly negative thoughts about their performance when they are feeling stereotype threat (Cadinu, Maass, Rosabianca, & Kiesner, 2005). Such studies suggest that targets of stereotypes typically appear to have some knowledge or concern that their performance may be disrupted by stereotypes of others. The fact that participants in the current research were unaware of their performance decrements under stereotype threat makes sense in light of previous research demonstrating that individuals with schizophrenia have poor awareness of their symptoms generally (Kupper & Tschacher, 2008; Wong, Chiu, Mok, Wong, & Chen, 2006), and difficulty appraising their own social behaviour specifically (Carini & Nevid, 1992; Harrow & Miller, 1980).

Nevertheless, although participants did not perceive differences in their social behaviour between conditions, some of their responses during the debriefing process illustrate that knowing the other person was aware of their mental health status concerned them. For instance, one participant explained that the person they interacted with; ' . . . would be likely to discriminate against me because of stereotypes [about the illness] and the way that people with schizophrenia act'. Comments such as these show that at least some of the participants were aware of the negative stereotypes

about their social behaviour and that this awareness evoked concern about the potential consequences of the interaction, or a feeling of stereotype threat (Steele, 1997; Steele & Aronson, 1995). Nonetheless, in contrast to the stereotype threat studies referred to earlier that involved non-clinical samples, participants seemed unaware that these concerns actually disrupted their social skills during the interaction. This finding suggests that future research might profitably consider the social cognitions that people with schizophrenia do have during stereotype threat interactions, as measures of social thoughts and attributions might provide critical information on the nature of stereotype threat effects among this sample.

Whilst there was a trend for all facets of social skill to be rated as poorer in the threat relative to the no threat conversation, significant differences were observed in participants' ability to initiate conversation and switch topics appropriately. As noted previously, it has been shown that feeling stereotyped disrupts working memory (Schmader & Johns, 2003) and activates areas of the brain that are responsible for emotion processing but not for relevant problem solving (Krendl *et al.*, 2008). Because initiation of conversation and switching topics appropriately both impose demands on core cognitive control processes (self-initiation and mental flexibility, respectively; see Crawford & Henry, 2005), it is possible that in the present study stereotype threat exerted its effects by disrupting the control operations implicated in these specific facets of social functioning. The finding that confederates felt less comfortable interacting with participants in the threat conversation is also of considerable interest, as it suggests that stereotype threat may have long-term implications. The extent to which one is able to enjoy and feel comfortable in an interaction is an important determinant of willingness to engage in future interactions with that person, and consequently the development of personal relationships and social support networks (John & Gross, 2004).

Limitations and future directions

Because the primary focus of the present study was the potential for stereotype threat to disrupt social skill (and consequently interpersonal functioning), the confederates who engaged in conversations with the participants were well suited to make these judgments. Although the results indicate that confederates' experiences differed systematically as a function of condition, future research should identify whether independent observers are also sensitive to differences in social behaviour across these two conditions. Judgments by those in the interaction should be mirrored by those observing the interaction, and previous research using a similar methodology demonstrates confederate ratings to be highly correlated with observer ratings (Rudman & Borgida, 1995). Nevertheless, this remains an issue that should be addressed in future research. Further, although no effect of confederate emerged on the skill ratings (supporting the efficacy of the training procedure used to ensure consistency of confederate ratings) the fact that raters were not trained to agreement at $\kappa \geq .70$ represents a limitation of the present study. Future research should ensure that this level of agreement emerges in evaluations prior to the beginning of the experimental sessions.

It should also be noted that it is possible that self-stigma was activated among people with schizophrenia in their interactions with both confederates. Although the present data indicate that stereotype threat effects were strongest in the condition where the participants believed the confederate knew they had schizophrenia, participants may also have experienced some stereotype threat in the control condition as well.

Recall that participants in both conditions were told that the confederate was a participant in another study at the University who 'does not have schizophrenia'. Participants were given this information to ensure they would not erroneously assume that the confederate also has schizophrenia, given that participants were recruited to this study on the basis of their diagnosis. Thus, the relatively subtle influence of stereotype threat identified in the present study may represent an under-estimate of the strength of the actual effect, given that stereotype threat may have been primed to some extent by simply telling participants that the confederates do not have schizophrenia. Such a possibility is consistent with previous research demonstrating that stereotype threat effects can arise through subtle activation of category membership (Steele & Aronson, 1995). To test this possibility, it would be of interest in future research to have a third condition in which mental health status is not raised in any context.

Finally, the present data have clinical implications with regard to the current debate on disclosure of mental health status. It has been argued that disclosure removes the stress associated with concealment, which in turn may lead to improved interpersonal relationships (Corrigan & O'Shaughnessy, 2007). Others advocate that disclosure may facilitate an increased public awareness of the realities of mental illness and thereby help dismantle prejudicial attitudes (e.g. Corrigan, 2003). In contrast, evidence also suggests that disclosure may not be advisable as it may result in discrimination (Corrigan & Watson, 2002; Page, 1995; Penn, Kohlmaier, & Corrigan, 2000; Wahl, 1999).

The present results highlight another potential reason why individuals with psychiatric problems take a real risk when they reveal their mental health status. It is important to note, however, that participants in the present study did not voluntarily disclose their mental health status in the threat conversation. Although such a scenario, whereby mental health status is revealed by another individual, is probably experienced on a regular basis, the nature of the disclosure may be an important determinant of whether and how stereotype threat impacts social behaviour. Indeed, Pachankis (2007) provides a heuristic framework for understanding the stressors and psychological challenges faced by those with a concealable stigma. In this model, a stigma-relevant situation elicits patterns of cognitive, affective, and behavioural responses that vary systematically as a function of situational features, such as the salience of the stigma and the consequences of discovery. Of particular relevance to the present study, Pachankis (2007) notes that the consequences of self-disclosure are liable to vary depending on the nature of the relationship, with the potential benefits greater in long- as opposed to short-term relationships. This is predicated on considerable evidence indicating that self-disclosure is important for the development and maintenance of close interpersonal relationships. Consequently, whilst the present data suggest disclosure may not be advisable when interacting with people for the first time, future research is needed to delineate the specific conditions in which disclosure of mental health status may be beneficial and those in which it could be disadvantageous.

In summary, the present results indicate that the experience of stereotype threat exacerbates social skill difficulties in schizophrenia. The current data, therefore, suggest that one of the defining qualities of this disorder – social skill impairment – is not caused solely by the disorder *per se*, but rather, also derives from feelings of being stereotyped. Consequently, although it seems likely that the level of social skill impairment in both CP conditions was of clinical significance (given the characteristics of the sample), the current data indicate that stereotype threat has the potential to exacerbate these difficulties. In this manner, the current findings link to a broad literature on stereotype

threat showing that people need only be concerned that others are stereotyping them for the stereotype to bring about its own reality.

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