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Assessing Deictic Relational Responding in Psychosis Using the Implicit Relational Assessment Procedure

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Abstract

The current study sought to investigate perspective-taking in a group of individuals diagnosed with psychosis. The Psychosis Implicit Relational Assessment Procedure (Psychosis-IRAP) contrasted statements and questions referring to 'psychotic' and 'non-psychotic' experiences. The IRAP and a Faux-pas (Theory of Mind) test were presented to two groups of participants: a clinical group with a diagnosis of psychosis and a control group. IRAP effects for each group were in the predicted direction and a ROC analysis showed that the IRAP correctly classified 80% of the individuals with psychosis with a sensitivity level of 84.2% and a specificity level of 27.8%. The IRAP was thus successfully used to correctly classify the population of clinical individuals. However, the study also demonstrated that the two groups were similar with regard to their level of competency on the perspective-taking IRAP. The article also discusses the relationship between the data and recent developments in RFT, in terms of relational flexibility.
Keywords: psychosis, perspective-taking, Relational Frame Theory, Implicit Relational Assessment Procedure.

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Novelty and Significance

What is already known about the topic?

- It has been argued that individuals with psychosis have difficulties with Theory of Mind and perspective-taking skills.
- Relational Frame Theory has provided an alternative functional-analytic approach to perspective-taking as deictic relational responding.
- The Implicit Relational Assessment Procedure can be used a measure of relational responding.

What this paper adds?

- The Implicit Relational Assessment Procedure can be successfully used to measure deictic relational responding.
- Implicit Relational Assessment Procedure scores of those with a diagnosis of psychosis and controls were in the predicted direction.
- The Implicit Relational Assessment Procedure successfully predicted group membership, unlike a traditional Theory of Mind test.
- Results challenge traditional 'deficit' models of perspective-taking in psychosis.

The diagnosis of psychotic disorders is often made on the basis of an impairment in neurocognitive functioning that includes deficits in: processing speed, attention and vigilance; working memory; verbal learning and memory; visual learning and memory,

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reasoning and problem solving; and verbal comprehension (Green *et alia*, 2004). Several domains of social-cognitive dysfunction have also been identified. For example, individuals with psychosis may display deficits in emotion perception, relative to other clinical groups and non-clinical controls (Penn, Sanna, & Roberts, 2008). Indeed, a large body of evidence suggests that both neurocognitive and social-cognitive impairments occur in everyday functioning in psychosis including, community functioning, social skills, and social problem solving (e.g., Couture, Penn, & Roberts, 2006; Fett, Viechtbauer, Penn, van Os, & Krabbendam, 2011; Green, Kern, Braff, & Mintz, 2000). Interestingly, some studies even suggest that social cognition is a stronger predictor of general level of functioning than neurocognitive markers (Pijnenborg, Withaar, Evans, van den Bosch, Timmerman, & Brouwer, 2009; Pinkham & Penn, 2006). These findings highlight the potential importance of targeting social cognition in interventions for psychosis.

Given the central role of Theory of Mind (ToM) or perspective-taking skills in social cognition, it is not surprising that treatment programs for psychosis often incorporate, and even target, these skills (for an overview, see Horan, Kern, Green, & Penn, 2008). Specifically, these programs typically employ cartoons, photos and videos, stories or other practical exercises to train and assess ToM skills (e.g., Kayser, Sarfati, Besche, & Hardy-Baylé, 2006; Sarfati, Passerieux, & Hardy-Baylé, 2000). However, some authors have raised questions about the specific processes that are being targeted in these ToM interventions. For example, Hendriks, Barnes-Holmes, McEnteggart, De Mey, Janssen, and Egger (2016) have argued that the precise psychological or behavioral processes underlying these skills are not specified in cognitive theory and may not therefore be targeted directly with these interventions (see also Fox, 2006).

Relational Frame Theory (RFT, Hayes, Barnes-Holmes, & Roche, 2001) has provided an alternative functional-analytic approach to perspective-taking as deictic relational responding (see McHugh, Barnes-Holmes, & Barnes-Holmes, 2004; Barnes-Holmes, McHugh, & Barnes-Holmes, 2004). In the development of the first published protocol to study these repertoires, Barnes-Holmes (2001) referred specifically to the deictic relations of I-You, Here-There, and Now-Then as central to what is typically known as perspective-taking.

Research from several studies using the Barnes-Holmes protocol has suggested potential weaknesses in deictic relational responding in individuals with a diagnosis of Autism Spectrum Disorder (Rehfeldt, Dillen, Ziomek, & Kowalchuk, 2007), schizophrenia (Villatte, Monestes, McHugh, & Freixa i Baqué, 2010), social anhedonia (Villatte, Monestès, McHugh, Freixa i Baqué, & Loas, 2008), or social anxiety (Janssen, De Mey, Hendriks, Koppers, Kaarsemaker, Witteman, & Egger, 2014). However, the use of the Barnes-Holmes protocol in drawing conclusions about clinical phenomena has been called into question, even by the developers of the protocol itself (see Hussey, Thompson, McEnteggart, Barnes-Holmes, & Barnes-Holmes, 2014; Kavanagh, Barnes-Holmes, Barnes-Holmes, McEnteggart, & Finn, 2018). In attempting to empirically explore relational repertoires in clinical samples, RFT researchers have increasingly employed the Implicit Relational Assessment Procedure (IRAP; Barbero, López, Luciano, & Eisenbeck, 2016; Kavanagh *et alia*, 2018).

There have only been three published studies that employed the IRAP in an area specific to psychosis. Stewart, Rogers, Pilch, Stewart, Barnes-Holmes, and Westermann (2017) investigated paranoia and self-esteem in a non-clinical sample, and results indicated that reduced self-esteem was associated with increased me-negative and others-positive effects on the IRAP, and this was associated with paranoia. Furthermore, McEnteggart, Barnes-Holmes, Egger, and Barnes-Holmes (2016) conducted three experiments investigating

voice hearing in a non-clinical population of voice hearers using the IRAP. Their results demonstrated that the IRAP could successfully predict aspects of voice hearing and psychological well-being. Furthermore, McEnteggart *et alia* (2017) also investigated the feasibility of using the IRAP with individuals diagnosed with psychosis and preliminary data showed promising effects. At the current time, however, there are no studies that have employed the IRAP to explore the role of deictic relations in psychosis. This was the primary objective of the current research.

To examine deictic relational responding in individuals with a diagnosis of psychosis, we adapted the interpersonal (I-YOU) trials from the Barnes-Holmes protocol to situations or beliefs that might be experienced by this group. The details of the Psychosis-IRAP trial-types we employed are quite complex, but the general strategy involved presenting statements which could be deemed 'psychotic' (e.g., "I think people are watching me") versus 'non-psychotic' (e.g., "but you don't"), followed by a question such as "What do you think other people are doing?" Given this trial-type, participants responded with one of two response options (i.e., "Watching me" versus "Ignoring me"). These statement and question trial-types were presented in the IRAP to two groups of participants: a clinical group with a diagnosis of psychosis and a control group. We hypothesized that the two groups would respond differentially to the 'psychotic' versus the 'non-psychotic' stimuli, that is, the *D*-scores produced by the two groups would differ significantly on all four trial-types. We also employed a ToM measure (the Faux-pas test) that is widely used with this clinical population to assess the relative predictive validity of the IRAP with a traditional measure (we also administered the National Adult Reading Test (NART) to ensure no difference in *IQ* across the two groups, however, no differences were observed. The General Health Questionnaire (GHQ) was also administered to the non-clinical group as a screening tool for minor psychiatric diagnoses, and any participant who presented with any diagnosis was excluded). Although the results obtained were broadly consistent with common-sense expectations, specific patterns emerged that connect with recent conceptual issues regarding the IRAP. We will address these issues in the Discussion, rather than in the Introduction, on the grounds of intellectual honesty.

Method

Participants

Twenty-eight participants with a diagnosis of psychosis were recruited for the study, 19 of whom (7 females) reached the performance criteria (see below) on the Psychosis-IRAP. Their age range was 16 to 66 years, with a mean age of 30 years. For confidentiality reasons, no additional participant information is provided for this group. Forty participants were recruited as controls, from an undergraduate participant pool. Of these, none reported any previous contact with mental health services. Thirty-six (22 females) reached the performance criteria on the Psychosis-IRAP. Their age range was 19 to 29 years, with a mean age of 21 years. All procedures in the current study were in accordance with the ethical standards of the institutional research committee, and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants.

Materials

The Psychosis-IRAP. The stimuli employed in the Psychosis-IRAP were based on the I-YOU trials from the Barnes-Holmes protocol, but were modified so that they were psychosis-specific (e.g., "I think other people are dangerous and you think other

people are safe", see Appendix). The content of the Psychosis-IRAP was specifically selected by a group of psychologists who worked directly with the clinical sample who participated in the current study, and aimed to broadly capture some of the key topographical features of the psychological patterns in their psychotic experiences. The Psychosis-IRAP involved presenting a single statement in a Natural Language format instead of separate labels and targets (see Kavanagh *et alia*, 2017). Note, a second statement was used to remind the reader whether they should, on a given block, respond from their own perspective ("If I am me and you are you") or the perspective of another ("If I was you and you were me"). Note also that the response options varied depending on the content of those statements. For illustrative purposes, the reader is invited to examine Figure 1, in which an example of each of the four trial-types is presented. If we focus on Trial-type 1 (top-left of Figure 1), it can be seen that the first statement contains an 'I think psychotically' clause ("I think other people are dangerous") followed by a 'but you do not' clause ("but you think other people are safe"). The second statement then indicates this is a block of trials of simple deictic relations ("If I am me and you are you") and that the participant should respond with what they think ("What do I think other people are?"). Now examine Trial-type 2 (top-right of Figure 1). The first statement here contains an 'I think normally' clause ("I think other people are safe") followed by a 'but you do not' clause ("but you think other people are dangerous"). The second statement remains unchanged from Trial-type 1. Now consider Trial-type 3 (bottom-left of Figure 1). The first statement is the same as Trial-type 1. The second statement again indicates this is a block of trials of simple relations ("If I am me and you are you"), but now requires that the participant should respond with what others think ("What do you think other people are?"). Finally, consider Trial-type 4 (bottom-right of Figure 1). The first statement is the same as Trial-type 2, and the second statement is the same as Trial-type 3. Conceptually, the four trial-types may be summarized as follows: (1) "I think psychotically, but you don't/What do I think"; (2) "I think normally, but you don't/What do I think"; (3) "I think psychotically, but you don't/What do you think"; (4) "I think normally, but you don't/What do you think". It is important to emphasize that the Psychosis-IRAP employed in the current study comprised alternating blocks of trials of simple versus reversed I-YOU relations, typically described in IRAP

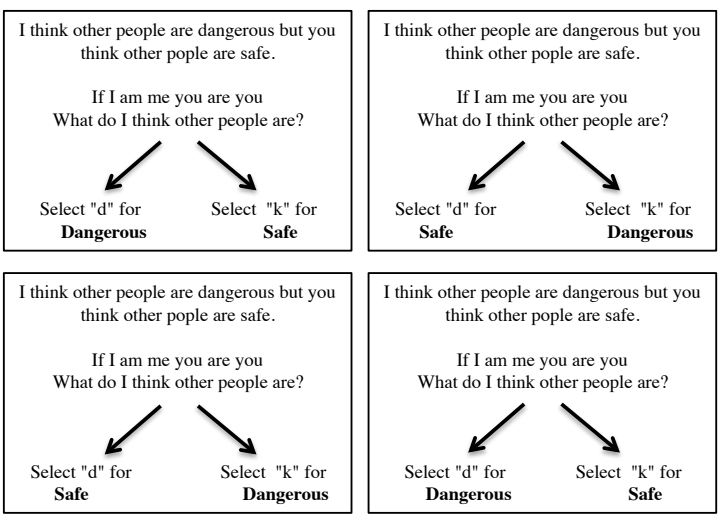

Figure 1. Schematic illustration of the four trial-types on consistent blocks. Arrows and boxes with text did not appear on-screen. Trial-types appear from left to right as: (1) "I think psychotically, but you don't / What do I think"; (2) "I think normally, but you don't / What do I think"; (3) "I think psychotically, but you don't / What do you think; (4) I think normally, but you don't / What do you think".

research as consistent versus inconsistent blocks. Following on from the previous examples of the trial-types during a simple relations block, the correct responses were as follows: Trial-type 1-"Dangerous" (e.g., I think other people are dangerous, but you think other people are safe: if I am me and you are you, what do I think?); Trial-type 2-"Safe"; Trial-type 3-"Safe"; and Trial-type 4-"Dangerous". The opposite pattern of responses was required during a reversed relations block: Trial-type 1-"Safe" (e.g., I think other people are dangerous, but you think other people are safe: if I was you and you were me, what do I think?); Trial-type 2-"Dangerous"; Trial-type 3-"Dangerous"; and Trial-type 4-"Safe".

The Faux-pas test (Baron-Cohen, O'Riordan, Stone, Jones, & Plaisted, 1999). Is a ToM measure of perspective-taking that targets the recognition and understanding of *faux-pas* situations. A *faux-pas* situation occurs when a character in a story unintentionally says something awkward or unfriendly to another. The *Faux-pas* test comprises 20 stories, although only nine were employed currently in order to avoid fatigue in the clinical sample (Spek, Scholte, & Van Berckelaer-Onnes, 2010). All stories are read aloud by an experimenter, but participants are also provided with a printed copy in order to minimize the cognitive load, especially for clinical participants. After each question, participants are asked whether a *faux-pas* occurs in the story and about the underlying motive (Spek *et alia*, 2010). Five of the nine stories contained a *faux-pas* situation, while four control stories did not. The percentage of correct answers was calculated for each participant

Procedure

The study was approved by the relevant institutional review boards. Prior to commencing the session, participants were informed about the broad aims of the study and advised that at any time during the experiment they were free to discontinue participation. Confidentiality and anonymity were assured during the process of obtaining informed consent. The session began once it was clear that each participant understood what was required of them. All participation was conducted on an individual basis in an experimental room at a relevant location. For each participant, the Faux-pas test was administered first, followed by the Psychosis-IRAP.

Prior to the first practice block, participants were verbally instructed on how to complete the procedure. That is, they were advised that each trial would present a phrase on top, with another phrase in the center, and that their task was to respond as appropriate by selecting one of the two response options. Participants were informed that the pattern of responding would switch to an opposite pattern across each block (i.e., between consistent and inconsistent). These instructions also highlighted the criterion for accurate (i.e., >80%) and fast (i.e., <15,000 ms.) responding. It is important to emphasize that a response latency criterion of 15,000 ms differed from a typical IRAP in which a response latency of 2,000ms is commonly employed. However, pilot testing in both groups indicated that the length and complexity of the label and target stimuli dramatically increased the time needed to respond meaningfully. Participants were also instructed to respond to each of the statements *from their own perspective*, as follows: "The program will present statements on the screen which refer to you. Please remember that when you see "I" or "me" on-screen, this refers to you (the participant)".

The procedure consisted of blocks of 40 trials, with each of the four trial-types presented 10 times within each block. Participants selected a response by pressing D (for the left option) or K (for the right). If a participant emitted a correct response, the screen cleared, and the next trial appeared. If a participant responded incorrectly, a red X appeared until a correct response was emitted. The feedback contingencies for the IRAP alternated across blocks from simple to reversed I-YOU relations, as above.

Hence, correct responding involved switching between each pattern from block to block. A simple (or consistent) block was always presented first to participants. There was a minimum of one pair of practice blocks. If participants failed to achieve both accuracy and latency criteria across a pair of practice blocks, they received automated feedback, and practice blocks continued to a maximum of four pairs of blocks. Failing to meet the criteria after four pairs of practice blocks terminated participation and these data were discarded. When the criteria were reached on a pair of practice blocks, participants proceeded automatically to one pair of test blocks. It is important to emphasize that the presentation of only one pair of test blocks differed from a typical IRAP in which three pairs of test blocks are commonly presented. No performance criteria were employed for participants to progress through test blocks, but performance feedback was presented at the end of each block to encourage participants to maintain the criteria. The program automatically recorded response accuracy (based on the first response emitted on each trial) and response latency (time in milliseconds between trial onset and emission of correct response) on each trial. Once participants finished the IRAP, they were debriefed and thanked for their participation.

RESULTS

The primary data used for the Psychosis-IRAP were response latencies, defined as the time in milliseconds elapsing between the onset of a trial and a correct response emitted by a participant. Data of participants displaying >15,000 ms. response latencies and <75% accuracy on the test blocks were excluded from the analyses. For each of the remaining participants, response latencies of both the simple and reversed blocks were transformed into D_{IRAP} scores, using an adaptation of the *D*-algorithm (see Barnes-Holmes, Barnes-Holmes, Stewart, & Boles, 2010). The *D*-algorithm controls for differences in age, *IQ*, experience, and response latencies. For each of the two groups of participants, four D_{IRAP}*-scores* were calculated, one for each trial-type: (1) "I think psychotically, but you don't/What do I think"; (2) "I think normally, but you don't/What do I think"; (3) "I think psychotically, but you don't/What do you think"; (4) "I think normally, but you don't/What do you think". A positive D_{IRAP} score reflects a bias toward the *simple* relations (i.e., "if I am me and you and you"), in this case, a bias toward the perspective "I think psychotically/You think normally", and a negative D_{IRAP} score reflects a bias toward the *reversed* relations (i.e., "if I were you and you were me"), in this case, a bias toward the perspective "I think normally/You think psychotically".

The D_{IRAP} scores for the psychosis and control groups are presented in Figure 2. Overall, for the psychosis group, responding on all four trial-types indicated a bias toward the perspective "I think psychotically/You think normally". However, for the control group, responding on all four trial-types indicated a bias toward the perspective "I think normally/You think psychotically". The relative size of the bias scores were larger for the two 'I think psychotically' trial-types for the psychosis group.

Mixed analyses of variance (ANOVAs) were conducted with group as the between variable and trial-type as the within variable, and there was a main effect for group (df= 1, F= 14.744, p <.001, μ^2= .22) and a main effect for trial-type (df= 3, F= 3.984, p <.01, μ^2= .70), but there was no interaction effect (df= 3, F= 2.258, p= .12, μ^2= .41). Planned comparisons, in the form of four independent *t*-tests indicated significant differences between the groups on all four trial-types: "I think psychotically, but you

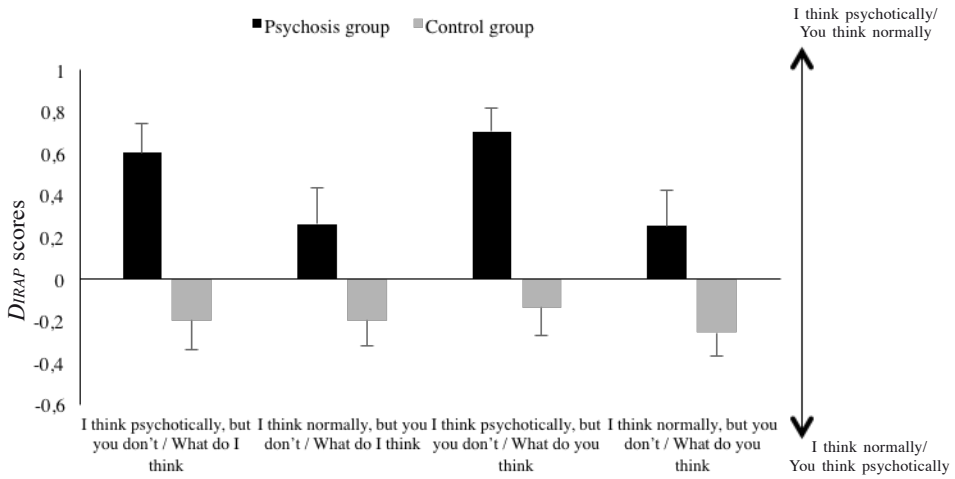

Figure 2. *DIRAP* scores for the four trial-types for the two groups. Trial-types are denoted as: (1) "I think psychotically, but you don't/What do I think"; (2) I think normally, but you don't/What do I think; (3) "I think psychotically, but you don't/What do you think"; (4) "I think normally, but you don't/What do you think". A positive DIRAP-scores reflects a bias toward the perspective "I think psychotically/You think normally", and a negative DIRAP-scores reflects a bias toward the perspective "I think normally/You think psychotically".

don't/What do I think" [$t(53)= 3.671$, $p <.001$)]; "I think normally, but you don't/What do I think" [$t(53)= 2.250$, $p <.05$]; "I think psychotically, but you don't/What do you think" [$t(53)= 4.144$, $p <.0001$]; and "I think normally, but you don't/What do you think" [$t(53)= 2.547$, $p <.05$].

An ANOVA was also conducted with group as the between variable and Faux-pas score as the within variable, but no significant effect for group emerged ($p >.05$).

A correlation matrix was conducted between the *DIRAP* scores and the Faux-pas test, however no significant correlations emerged (all *p*s >.05).

One of the aims of the current research was to determine if the Psychosis-IRAP could be used to differentiate between the psychosis group and the control group. To investigate this, we conducted a Receiver Operator Characteristic (ROC). A ROC is a graph in which the probability of a true positive, or a "hit" (i.e., sensitivity) is plotted against the probability of a false positive or a "false alarm" (i.e., specificity, see Fawcett, 2006). From this, the Area Under the Curve (*AUC*) can be calculated, which essentially is the statistical likelihood that a randomly chosen member of the "positive" group (in this case, the psychosis group) will have a higher score than a randomly chosen member of the "negative" group (in this case, the control group). Therefore, a test with perfect ability to predict group membership would have an *AUC* of 100%, and a test with no ability to detect group membership would have an *AUC* of ~50%.

The ROC analysis for the overall *DIRAP* score [i.e., four *DIRAP* scores averaged: psychosis(D)= .453 (SE= .15); control(D)= -.2 (SE= -.125)] proved to be a good predictor of psychosis, with an *AUC*= 0.78 (SE= .061, $p <.001$). A cut-off of -0.888 for the overall *DIRAP* score yields a sensitivity level of 94.7% and a specificity level of 38.9%. Subsequently, four ROC analyses were performed on each of the four *DIRAP* scores for each trial-type and each of these was significant: (1) "I think psychotically, but you don't/What do I think" (*AUC*= .764, *SE*=.063, $p <.001$); (2) "I think normally, but you don't/What do I think" (*AUC*= .674, *SE*=.078, $p <.05$); (3) "I think psychotically, but you don't/What do you think" (*AUC*= .803, *SE*=.058, $p <.0001$); and (4) "I think normally,

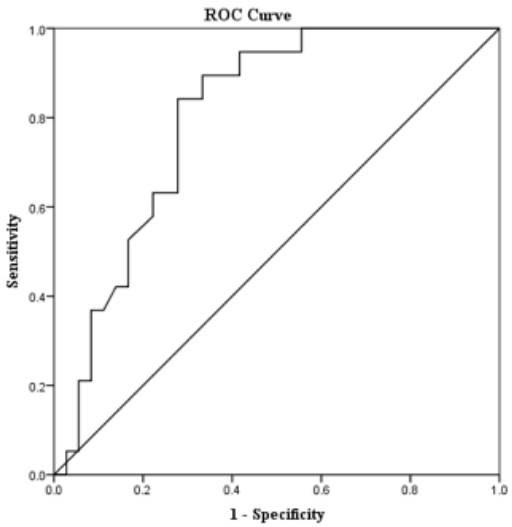

Figure 3. ROC curve for the *DIRAP* score for the "I think psychotically, but you don't/What do you think" trial-type.

but you don't/What do you think" (*AUC*= .698, *SE*=.058, p <.05). Thus, the "I think psychotically, but you don't/What do you think" trial-type produced the greatest *AUC*. The cut-off for this trial-type was 0.205, yielding a sensitivity level of 84.2% and a specificity level of 27.8% (see Figure 3).

A ROC analysis of the Faux-pas test was also conducted, but was not significant (*AUC*= 0.532, *SE*= .102, p >.05).

DISCUSSION

The current study demonstrated that the Psychosis-IRAP that targeted deictic relations could be used to discriminate between a non-clinical sample and a clinical sample of participants with a diagnosis of psychosis. In contrast, a ToM measure (the Faux-pas test), widely used with this population, failed to discriminate between the groups. The current findings, therefore, suggest that the Psychosis-IRAP developed here could be used, admittedly with some caution until these findings are replicated, in future research concerning perspective-taking in individuals with a diagnosis of psychosis.

The findings here showed that all four trial-types differed significantly from each other, as did the overall *D*-score. The ROC analysis also indicated that two trial-types (i.e., "I think psychotically, but you don't") were particularly successful in discriminating between the two groups. Accounting for these effects is aided by referring to recent conceptual developments in RFT, especially regarding work with the IRAP. Specifically, we can refer to the Multi-Dimensional Multi-Level (MDML, see Barnes-Holmes, Finn, McEnteggart, & Barnes-Holmes, 2018) framework in helping to explain the current findings. That is, the relatively large effects for the psychosis group on the "I think psychotically, but you don't" trial-types may reflect what the framework refers to as high levels of relational coherence (i.e., truth value), low levels of derivation (i.e., experience/practice in categorizing self with psychotic-like thinking), and low levels of flexibility (i.e., ability/willingness to consider an opposing view of self). More informally, the clinical group here may have long histories of relating self

to psychotic-like thinking, and these patterns of responding may be high in truth value, highly-practiced, and generally resistant to change. Admittedly, this type of interpretation is speculative, but appealing to the MDML framework may be potentially instructive in terms of determining what variables could be manipulated in future studies, such as levels of derivation and/or coherence, especially when attempting to differentiate between clinical and non-clinical samples.

From the perspective of the MDML framework, the Psychosis-IRAP also used a highly complex set of stimuli, at least relative to most other IRAP studies (hence requiring the very extended response latency window). As such, the current relational responding could be seen as having high levels of relational complexity, that are captured in the higher levels of the MDML framework (e.g., at the level of relating relational networks, Barnes-Holmes *et alia*, 2018). Because a key aim of the current research was to examine perspective-taking as deictic relational responding using psychosis-specific stimuli and presenting this material to a clinical sample, it is almost inevitable that the stimuli, even when presented within an IRAP, will be high in relational complexity. Indeed, there may be no other way to conduct research of this nature with that sample. In any case, this is an issue that future research on deictic relational responding with clinical samples will have to grapple with.

The MDML framework may be of further use when contemplating clinical interventions, with individuals such as those who participated here. Specifically, our findings suggested that the deictic relational repertoires of the clinical group were high in coherence, low in derivation, and low in flexibility regarding the self (at least relative to the control group). From the perspective of clinical intervention, this points to repertoires that are more likely to be resistant to change and which may well have high levels of relational complexity that may present obstacles to change. Consider, for example, a client who coordinates all social interactions with danger, based on ongoing detailed analyses of all of the potentially dangerous aspects of each interaction (e.g., a curtain moving, the look on the person's face, etc.). This relational pattern shows very high levels of relational complexity, which only serve to enhance the avoidance function of interacting with others. In moving toward appetitive behavior towards others, it may be helpful to begin to lower this complexity by emphasizing that the client's perception is the same over and over, irrespective of who they meet or what transpires. This lowering of complexity may help the client to see that the details of interactions matter less than the interactions with others per se. It is conceivable that this shift toward lowering complexity could also serve to lower coherence and flexibility in the original pattern of coordinating all social interactions with danger.

Another potential contribution of the current research is the demonstration that the IRAP as a methodology can be used with a sample of in-patients, even when the stimuli are highly complex in nature. In conducting this and related research, we have certainly come to appreciate that employing the IRAP with a clinical sample does require careful consideration of numerous factors. Specifically, two key factors which were identified in the course of the current work were the need for familiarity between the researcher and each and every participant, as well as recognizing any individuals' sensitivity to perceived threats as induced by the stimuli (see McEnteggart *et alia*, 2017). While these were two difficult lessons we learned currently, we recognize that when we may have failed to appreciate these factors fully, we risked making participation even more aversive for those who agreed to participate. We strongly encourage future researchers to try to determine before, during and after participation, the extent to which variables such as these are actively influencing clinical participants.

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APPENDIX

Stimuli used for the psychosis-based protocol on each of the four trial-types. Response options were bespoke to the focus of the questions (e.g., "safe" and "dangerous"). On consistent blocks, the text "If I am me and you are you" was presented before the target, whereas "If I were you and you were me" was presented on inconsistent blocks.

Trial-type 1
My perspective on me-psychotic/you non-psychotic

I think other people are dangerous but you think other people are safe.
What do I think other people are?

I think other people are dangerous but you don't think other people are dangerous.
What do I think other people are?

I think other people are watching me but you think other people are ignoring you.
What do I think other people are doing?

I think other people are watching me but you don't think other people are watching you.
What do I think other people are doing?

I think other people are negative about my unusual experiences but you think other people are positive about my unusual experiences.
What do I think other people are about my unusual experiences?

I think other people are negative about my unusual experiences but you don't think other people are negative about my unusual experiences.
What do I think other people are about my unusual experiences?

I think my unusual experiences are real but you think my unusual experiences are imagined.
What do I think other people are about my unusual experiences?

I think my unusual experiences are real but you don't think my unusual experiences are real.
What do I think other people are about my unusual experiences?

I think my thoughts are dictated but you think your thoughts are your own.
What do I think about the relationship between other people and my thoughts?

I think my thoughts are dictated but you don't think your thoughts are dictated.
What do I think about the relationship between other people and my thoughts?

Trial-type 2
My perspective on me non-psychotic/you psychotic

I think other people are safe but you think other people are dangerous.
What do I think other people are?

I think other people are safe but you don't think other people are safe.
What do I think other people are?

I think other people are ignoring me but you think other people are watching you.
What do I think other people are doing?

I think other people are ignoring me but you don't think other people are ignoring you.
What do I think other people are doing?

I think other people are positive about my unusual experiences but you think other people are negative about my unusual experiences.
What do I think other people are about my unusual experiences?

I think other people are positive about my unusual experiences but you don't think other people are positive about my unusual experiences.
What do I think other people are about my unusual experiences?

I think my unusual experiences are imagined but you think my unusual experiences are real.
What do I think about my unusual experiences?

I think my unusual experiences are imagined but you don't think my unusual experiences are imagined.
What do I think about my unusual experiences?

I think my thoughts are my own but you think your thoughts are dictated.
What do I think about the relationship between other people and my thoughts?

I think my thoughts are my own but you don't think your thoughts are your own.
What do I think about the relationship between other people and my thoughts?

Trial-type 3
Your perspective on me-psychotic/you non-psychotic

I think other people are dangerous but you think other people are safe.
What do you think other people are?

I think other people are dangerous but you don't think other people are dangerous.
What do you think other people are?

I think other people are watching me but you think other people are ignoring you.
What do you think other people are doing?

I think other people are watching me but you don't think other people are watching you.
What do you think other people are doing?

I think other people are negative about my unusual experiences but you think other people are positive about my unusual experiences.
What do you think other people are about my unusual experiences?

I think other people are negative about my unusual experiences but you don't think other people are negative about my unusual experiences.
What do you think other people are about my unusual experiences?

I think my unusual experiences are real but you think my unusual experiences are imagined.
What do you think about my unusual experiences?

I think my unusual experiences are real but you don't think my unusual experiences are real.
What do you think about my unusual experiences?

I think my thoughts are dictated but you think your thoughts are your own.
What do you think about the relationship between other people and your thoughts?

I think my thoughts are dictated but you don't think your thoughts are dictated.
What do you think about the relationship between other people and your thoughts?

Trial-type 4
Your perspective on me non-psychotic/you psychotic

I think other people are safe but you think other people are dangerous.
What do you think other people are?

I think other people are safe but you don't think other people are safe.
What do you think other people are?

I think other people are ignoring me but you think other people are watching you.
What do you think other people are doing?

I think other people are ignoring me but you don't think other people are ignoring you.
What do you think other people are doing?

I think other people are positive about my unusual experiences but you think other people are negative about my unusual experiences.
What do you think other people are about my unusual experiences?

I think other people are positive about my unusual experiences but you don't think other people are positive about my unusual experiences.
What do you think other people are about my unusual experiences?

I think my unusual experiences are imagined but you think my unusual experiences are real.
What do you think about my unusual experiences?

I think my unusual experiences are imagined but you don't think my unusual experiences are imagined.
What do you think about my unusual experiences?

I think my thoughts are my own but you think your thoughts are dictated.
What do you think about the relationship between other people and your thoughts?

I think my thoughts are my own but you don't think your thoughts are your own.
What do you think about the relationship between other people and your thoughts?