Autism and perception of awareness in self and others: Two sides of the same coin or dissociated abilities?

Rogier A. Kievit
Hilde M. Geurts
University of Amsterdam

Abstract Graziano and Kastner propose a theoretical framework suggesting that the same cognitive machinery underlies computation and inferences concerning (the content of) awareness in others as underlies the perception of the contents of our own awareness. We draw from this hypothesis a strong prediction: individuals who have deficiencies in one of these abilities must also be impaired in the other. We discuss evidence supporting this prediction from the literature on autism spectrum disorder, but also discuss tentative evidence for a possible dissociation between these two abilities. We conclude that these lines of evidence form crucial empirical tests of the theory.

Commentary
In their target article, Graziano and Kastner suggest that the same machinery underlies computation and inferences concerning (the content of) awareness in others as underlies the perception of the contents of our own awareness. We take their hypothesis and deduce two empirical predictions: 1) individuals with deficiencies in inferring the content of their own mental states should have deficiencies in perceiving awareness of others and 2) individuals who have known deficiencies in inferring the content of awareness in others are probably also impaired in inferences concerning their own mental states. It therefore makes sense to examine cases where this ability goes awry: People with autism spectrum disorder. Difficulties in predicting the behavior and (emotional) content of others are thought to be a central aspect of the social difficulties seen in people with ASD. If consciousness is indeed a construct of social perceptual machinery, such cases offer a critical test of the theory.

Research on ASD has shown well-documented impairments in inferring mental states of others, in adults and children (Frith, 2004), known in the literature as the Theory-of-Mind hypothesis. If the hypothesis in the target article holds, people with ASD should also have difficulties with self-awareness. Several lines of evidence
suggest that this is indeed the case.

First, severe degrees of alexithymia (difficulties in experiencing one’s own emotions) have been found to affect 50% of populations of individuals with ASD, compared to 10% in the general population (Hill et al., 2004). Second, Ben Shalom et al. (2006) showed that children with ASD displayed normal physiological responses when experiencing emotions, but differed from controls in the conscious report of these emotions, suggesting a deficit in the conscious awareness of their emotions. Finally, Silani et al. (2008) used fMRI to show that self-reported poor awareness of own and others’ feelings was associated with decreased activity in the insula. They concluded: “We hypothesize that the same neural architecture underlies the conscious representation of emotion in the self and in others. We suggest that the insula subserves this function” (p.106). These findings are in line with the hypothesis that deficiencies in inferring the mental state of others co-occurs with difficulties in self-related perception.

The implications of these findings go beyond support for the hypothesis of the target article: If accuracy of self-perception is impaired in individuals with, for instance, ASD, this means clinicians should be careful in basing clinical decisions on the content of patients’ self-report, a conclusion supported by recent findings (Mazefsky et al., 2011).

However, that these two abilities are correlated does not, in itself, prove that they are subserved by the same machinery. Evidence for a dissociation would go directly against the claims in the target article, and require either an alternate explanation or a revision of the core hypothesis.

For instance, Silani et al. (2008, p.37) caution against overgeneralizing their findings: “particular difficulties in emotional awareness in individuals with HFA/AS are not related to their impairments in self-reflection/mentalizing”. Furthermore, Magnée et al. (2007, p. 1122) showed that people with ASD had ‘enhanced sensitivity to facial cues at the level of reflex-like emotional responses’. Finally, Bird et al. (2008, p.1515) show that the correlation between ASD and deficiencies in affect sharing is modulated by alexithymia: “Importantly, there was no difference in the degree of empathy between autistic and control groups after accounting for alexithymia.”

To summarize, the hypothesis in the target article predicts co-occurring deficiencies in perception of self and others. Literature on ASD tentatively supports
this prediction. However, evidence is equivocal, and the precise nature of deficiencies should be further studied, as it provides a critical test of the theory of social perceptual machinery.

References


