

Pragmatic Comprehension in Schizophrenia: Metaphor and Irony

Introduction

Schizophrenia is a major psychotic disorder, which can be categorized by disorders in form and content of thought (thought disorder), mood, sense of self and relationship to the external world, and behaviour. A schizophrenic patient may have many difficulties relating to the world around them and can be very isolated due to the behaviour caused by their illness.

Schizophrenic patients are often said to have impaired pragmatic or context dependent language understanding (Bagner et al 2003, Bazin et al 2000, Linscott 2004) and so within this predictably have difficulty with figurative language comprehension:

Specifically the aims of this research are to discover whether people with schizophrenia have a problem understanding ironic and metaphoric messages, and if so how irony and metaphor understood and for what reasons.

Many schizophrenic patients are reported to have impaired theory-of-mind (ToM) and/or formal thought disorder and as these terms will be referred to throughout the research it is important to briefly clarify their meanings. The ability to make appropriate inferences about other people's thoughts when the objective facts do not allow these thoughts to be directly understood is referred to as theory-of-mind (ToM) (Langdon and Coltheart 2004). 'Formal thought disorder refers to a set of interrelated language phenomena... that are construed as indicating that the form of underlying information processing is disorganized' (Linscott 2004: 2)

Method

By using the available research it was important to show how metaphors are understood and how and why they might be misinterpreted. By accessing research at both a micro level (specific research into metaphor and irony in schizophrenia) and a more macro level (research in metaphor comprehension generally and general pragmatic comprehension in schizophrenia), it was felt that a better overview might be presented, while maintaining specificity and relevance.

Detailed under *Findings* in this research are featured the findings of previous research, which have been amalgamated and reflected upon in the process of answering the current research question. The question will be addressed in a two-tiered fashion, relevant to the macro and micro sources used; 1) schizophrenic patients' general difficulties with pragmatic language and potential theories and explanations as to why these difficulties occur and 2) the specific difficulties that schizophrenic patients have with metaphor and irony, supported by theories and evidence from previous research.

Findings

Pragmatic language ability is the ability to communicate and comprehend intention in a rule-governed fashion and this is impaired in schizophrenia (Linscott, 2004). Linscott (2004) suggests that there could be two explanations for pragmatic language impairment (PLI) in schizophrenia; 1) PLI is equivalent to formal thought disorder, 2) PLI may be secondary to generalised cognitive decline in schizophrenia. That PLI is equivalent to formal thought disorder is suggested by PLI and thought disorder both featuring some similar aspects of language behaviour. The theory of PLI being secondary to generalised cognitive decline is

supported by evidence that pragmatic language ability is not localised in the cortex, that PLI occurs in other neuropsychiatric groups and that in Alzheimer's patients, cognitive impairment accounts for much of the variance in PLI (Linscott, 2004). In his study Linscott tries to ascertain which of these two explanations is correct, by assessing psychiatric patients' PLI (based on Grice's pragmatic analysis), their level of thought disorder and also their generalised cognitive decline. Linscott's findings (2004) were that schizophrenia was associated with significant PLI that appeared to be unrelated to thought disorder and generalised cognitive decline strongly predicted the degree of PLI. So from this investigation it was found that PLI is secondary to generalised cognitive decline. As the understanding of metaphor and irony falls within a person's pragmatic language ability it would appear from this study that the difficulty that schizophrenic patients have with understanding them is related to their generalised cognitive decline and not thought disorder.

In a study in to context dependent information processing (Bazin et al 2000) thirty schizophrenic patients and thirty control participants were given incomplete sentences which contained an ambiguous word and were asked to complete them with the first word that came to mind. When being tested the participants were given a priming context sentence to prime them for the less obvious (or frequent) meaning of an ambiguous word. If they did not use the less obvious meaning then they had failed to use contextual information: the schizophrenic patients were predicted to use the more frequent meaning (Bazin et al 2000). This study is then related to Linscott's (2004) as it is investigating the cognitive decline of schizophrenic patients and as Bazin et al (2000) also tested thought disorder to evaluate whether that was a factor in the schizophrenic patient's misinterpretation, it becomes particularly relevant. Bazin et al (2000) cite Cohen and Servan-Schreiber as positing that many of the cognitive deficits in schizophrenia can be accounted for that schizophrenic patients have a degraded ability to construct and maintain internal representation of context, thus relating to metaphor and irony within this investigation. The study found that schizophrenic patients fail in tasks involving interactive context processing (Bazin et al 2000). Interactive context is context that affects the meaning or interpretation, as in this experiment where ambiguous words were involved.² Within the subgroup in the experiment it was found that it was only those patients with thought disorder that were affected by this deficit in interactive context processing (Bazin et al 2000). This then disagrees somewhat with the findings of Linscott (2004) and implies that thought disorder does have an effect on the schizophrenic patient's pragmatic language ability.

In a study on language comprehension in general in schizophrenia Bagner et al (2003) examined the deficits found and the relationship to working memory (WM) disturbances and specific clinical symptoms. WM is the ability to maintain and manipulate information over a short period of time. They reference research into normal language comprehension, which suggests that WM function may be a key element in explaining language comprehension ability and also a growing body of research that reports schizophrenic patients have WM deficits. They cite other research that found correlates between deficits in WM and language comprehension, with patients with schizophrenia performing worse than the controls and in the same research it was found that language comprehension was worse for schizophrenic patients, across the board, even in tests that were not designed to require much use of WM. So interpreting Bagner et al's research (2003) in the context of this research, not only do patients with schizophrenia struggle with understanding pragmatic language, and therefore metaphor and irony, but also general language comprehension. Bagner et al (2003) found that, consistent with previous research, patients with schizophrenia demonstrated impaired language comprehension in all scenarios. Also that WM capacity was strongly correlated with language comprehension performance for patients with schizophrenia and controls, but more so for the schizophrenic patients.

The broader spectrum of language comprehension within schizophrenia seems to indicate that schizophrenic patients have a general impairment in understanding the intended meaning

behind utterances. There seems to be no real agreement—however on the reasons for this, from the three pieces of research already discussed we have conflicting theories and results of the schizophrenic patient's deficits in pragmatic language comprehension. This is only part of the picture; as the main focus of this investigation is metaphor and irony it is now important to focus on that.

If a metaphoric statement is taken literally it will mostly be wrong (Rapp et al 2004) and this is what schizophrenic patients tend to do. Theoretically this is also true for ironical statements. In understanding a metaphor the interlocutor infers the meaning through association and comparison of similarities that are not explicitly stated (Rapp et al 2004). Rapp et al (2004) also suggest that to understand the figurative meaning of a metaphor requires mental linkage of different semantic categories that are not normally related to one another. This mental linkage that is required in metaphor increases the amount of semantic comprehension needed. This theory of metaphor decoding relates to the semantic degradation found in schizophrenic patients referred to by Langdon and Coltheart (2004) as a potential reason for their difficulty in understanding metaphor (see below for further discussion). So metaphors require semantic decoding to reveal their non-literal (and correct) meaning but ironic statements are interpreted in a different way.

Theories of irony interpretation suggest that the listener makes sense of an ironical utterance by inferring that the speaker is mentally mocking what they are literally saying (Langdon and Coltheart 2004). So in the case of irony, the listener has to rely on contextual evidence and perhaps meta-linguistic behaviour to decode the meaning of the ironic statement. The problems encountered in schizophrenia with the comprehension of ironical utterances is suggested to be related to poor ToM (Langdon and Coltheart 2004) and relates to Grice's pragmatic analysis (in Linscott 2004) that the speaker will believe that the listener will infer the implication of the utterance, which is adversely affected by poor ToM and lack of sensitivity to facial expression in schizophrenic patients.

As metaphor and irony appear to be decoded in different fashions, it may seem odd that they both present problems of comprehension to the schizophrenic patient. What it is important to remember is that to understand both metaphorical and ironical expression requires pragmatic and comprehension skills,--which as discussed earlier, patients with schizophrenia lack compared with healthy controls. What will be discussed next are the specific studies relating to metaphor and irony in schizophrenic patients and what these studies have revealed.

Metaphorical speech is typical of proverbs and the ability to interpret them depends on the schizophrenic patient's ability to infer mental states (Brune and Bodenstein 2004). Previously proverbs were used as a diagnostic tool for schizophrenia, but it was criticised and then abandoned due to its poor reliability, though it has been recognized for over a hundred years that patients with schizophrenia tend to interpret proverbs literally (Brune and Bodenstein 2004). The cognitive deficit underlying schizophrenic patients' impaired ability to interpret proverbs is still inadequately understood, as it is unclear whether it is linked to a more general cognitive impairment, or to a more specific problem in information processing, or whether the ability to think abstractly is indispensable for proverb comprehension at all (Brune and Bodenstein 2004). Previous research is cited by Brune and Bodenstein (2004) as having revealed syntactical and semantic speech abnormalities in schizophrenia, along with deficits in patients' pragmatic use of language. So what is clear is that there are definite difficulties for schizophrenic patients with language, but that there is no surety/as to why these difficulties occur. Brune and Bodenstein state that a speaker and interlocutor must be able to go beyond the literal meaning of a phrase, which is precisely what schizophrenics' so called 'concretistic' way of thinking is lacking. Poor ToM has been associated with impaired metaphor and irony comprehension in schizophrenia and from this Brune and Bodenstein (2004) predicted

that ToM task performance would be specifically linked to a person's ability to interpret proverbs and that impaired ToM would predict deficits in proverb comprehension better than general intelligence. So Briine and Bodenstein clearly subscribe to the theory of ToM affecting comprehension, more than general cognitive decline. In their investigation they tested participants' general intelligence and their ToM as well as their ability to interpret proverbs, and conducted the experiment with schizophrenic patients and controls. They found that ToM performance was the single most significant predictor of correct proverb interpretation, though general intelligence did also have an effect. Their study and others indicate that schizophrenic patients' violation of conversational rules and poor understanding of figurative speech is associated with impaired ToM. They draw a comparison between proverbs as 'social contracts' and suggest that schizophrenic patients have difficulty in general with 'social contracts' and that their impaired ToM has an effect on their behaviour as well as their interpretation of proverbs.

Langdon and Coltheart (2004) specify two impairments of pragmatic language comprehension that patients with schizophrenia demonstrate; insensitivity to irony and poor recognition of metaphor. Their investigation was into whether non-clinical high-schizotypal adults showed similar impairments. They focused on the pragmatic comprehension of metaphorical speech, where literal decoding of words would be implausible and ironical speech, where literal decoding is contradictory. The relevance of investigating non-clinical highschizotypal adults is that non-clinical schizotypy and clinical schizophrenia can be seen on a continuum. Also using participants with schizotypal personality traits allows non-clinical adults to be assessed, which avoids the potential difficulties in work with clinical patients, e.g. medication⁴, institutionalisation and social isolation (Langdon and Coltheart 2004). As discussed above, Langdon and Coltheart suggest that metaphor and irony are interpreted in different ways and this was reflected in their results: the high-schizotypal adults showed relative difficulty in interpreting irony, but were not impaired in any way in the process of identifying appropriate uses of metaphorical speech. They explain this by saying that while schizophrenic patients show semantic degradation, high-schizotypal adults show semantic disinhibition; in that they have more loose, indirect and uncommon semantic associations, which may enhance the ability to recognise novel metaphorical expressions.

Conclusions

_So it seems that there is no agreement on why metaphor and irony are often misunderstood by schizophrenic patients, but all the research that has been, discussed clearly points to the fact that they are often wrongly interpreted. S9) people with schizophrenia do certainly have a problem understanding intended ironic and metaphoric messages, they tend to interpret them literally. The question of why metaphor and irony is understood in this way has a less concrete answer to date. It appears there are many factors that come in to the equation, among them ToM, formal thought disorder, semantic degradation and working memory. Within this research it has not been possible to arrive at any definitive conclusions and more experimentation and a more extensive review of the current literature would be needed to come to this agival.

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