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Faculty of Arts, Palacký University, Olomouc, Czech Republic

September 4–5, 2015

Edited by Ludmila Veselovská, Jeffrey K. Parrott,
and **Markéta Janebová**



Palacký University
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Introduction

The articles in this volume are based on papers and posters presented at the 5th Central European Conference in Linguistics for Postgraduate Students (CECIL'S 5) at the Department of English and American Studies at Palacký University, Olomouc, in the Czech Republic on 4–5 September 2015.

For five years, the CECIL'S conference has aimed to bring together linguistics graduate students from a wide range of research areas, providing an interdisciplinary forum for students to present and discuss their work in an intellectually stimulating and informal setting. This year, the conference participants from 12 countries presented 24 papers and 11 posters. The essays here represent, we think, the best of the conference contributions. All these papers have been doubly reviewed and revised on the basis of these reviews. We hope that all readers will find several papers here to be of interest to them and their research. We also wish all the authors the best of luck with their future research.

The organizers would like to thank the invited speakers Klaus Abels, Pavel Caha and Jakub Dotlačil for their contributions at the conference. We also greatly appreciate the assistance of Petra Charvátová and Kamila Večeřová in the organization of the conference.

The editors are indebted to all those who have helped make the proceedings possible. First and foremost, we would like to thank all the authors for both their enthusiastic participation in the conference and their cooperation in the editorial process. We would also like to express gratitude to our colleagues and students from the Faculty of Arts of Palacký University, Olomouc, for their efforts related to the organization of the CECIL'S 5 conference and the subsequent publishing activities.

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And finally we would like to express our immense gratitude to all the reviewers who devotedly participated in the process of accepting and reviewing the papers for the conference and later another round of the peer-reviewing process for the proceedings. Special thanks are also due to Pavel Caha from Masaryk University, Brno, for the overall review of the proceedings.

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Metaphor in a Different Way: The Understanding of Metaphor and Irony in Schizophrenia

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Abstract: The study presents a critical approach to a test which intends to examine comprehension of metaphors and irony in schizophrenia. The paper aims to demonstrate a test rectification. We modified the target blocks of the metaphor and irony understanding test. The original test contains similes in the target sentences; however it is used as a metaphor understanding test. We replaced these similes with metaphors. The new target sentences were tested on two subgroups of schizophrenic individuals. Tests were taken by 7–7 patients, who had already had results from the original test. These results were used as control results for the new target sentences. The aim of the research was to show the test correction, thus it could actually measure metaphor comprehension with metaphors instead of similes. The research question was whether there is any difference in the patients' results from modifying the target blocks. It was expected that the different structures in the target sentences, namely the replacement of similes with metaphors, may influence the understanding of metaphors in the tasks.

Keywords: schizophrenia; language; understanding of metaphors and irony'; theory of mind; executive functions

1. Introduction

There are several contradictory results on theory of mind (ToM) abilities and the comprehension of metaphors and irony with schizophrenic people. This paper aims to demonstrate a correction attempt: we modified the target blocks of a metaphor and irony understanding test, which is used in the clinical protocol. The original test contains similes in the target sentences, which were replaced with metaphors (based on Herold et al. 2002a, 2002b, 2004, 2005).

1.1 Schizophrenia and Language

Schizophrenia was named by an Austrian psychologist, Eugen Bleuler, who coined the term from the Greek words *Skhizein* (σχίζειν), 'split' and *Phred*, *phren-* (φρήν, φρεν-), 'mind' in 1911. The sex distribution of schizophrenia is 1:1; the sociocultural rate is 1%, which means that every hundredth person has this disease. Schizophrenia is heterogeneous; it is considered a spectrum disorder, which consists of groups of different diseases (Németh 2003). According to the DSM-IV (2001), the following criteria of

symptoms represent the disease: (1) delusions; (2) hallucinations; (3) incoherent speech; (4) strikingly disintegrated or catatonic behavior; and (5) negative symptoms, i.e. emotional emptiness, alogia, or will-lessness. As Crow (2000) argues, “schizophrenia is the price that homo sapiens pays for language”. Crow listed the following additional symptoms in his paper: loosening of associations; progressively moving away from the topic; incoherence and illogical thinking; circumstantiality (which means giving irrelevant details when speaking); clanging (which is also known as rhyme association);¹ neologisms; specific usage of words; difficulty in abstract thinking or ‘over activity’; and repeating heard phrases (also known as echolalia). Crow also mentioned ‘thought block’, which is a sudden and sustained interruption. It is accepted by many that a significant proportion of lexical, semantic, and pragmatic aspects of the language is linked to the left temporal areas. The right side of these left temporal areas are thicker in the majority of the population. This asymmetry in schizophrenia is often lacking, and the corpus callosum, which connects the two hemispheres, has also been reported to have differences compared to the brains of healthy people (Kéri and Janka 2003).

Covington et al. (2005) reviews the connection between the disease and language at each linguistic level. Differences were detected in prosody, while other findings indicate that the negative symptoms of schizophrenia (as they are called in the psychiatric literature) may appear as a lack of tone and inflection. In other words, the intonation disorders were detected on the supra-segmental levels (Capran et al. 2010). The syntax is intact, even if the semantics and discourse structure is damaged. From the aspect of semantics and discourse organization, it can be concluded that even if this level is broken down (e.g. loosening of associations, clanging, incoherence, etc.), the intellect remains intact. The most striking abnormality occurs on the pragmatic level of language: ‘strange words and strange contexts’ (Lieberman et al. 2006). Negative symptoms of schizophrenia are characterized by a difficulty in finding words, which may include excessive creation of words – a kind of neologism (Covington et al. 2005; Noonan 2014). A linguistics-based assessment of executive functions by Garab (2007) summarized that some examples can be found for these executive function deficits; however all the results of studies cited are from international papers, and thus don’t contain any data from the Hungarian population. In addition, they do not focus on the linguistics side of the topic (Garab 2007). ‘Executive functions’ is an umbrella term for modelling the processes of cognitive systems, which contain three main aspects: updating, inhibition, and shifting (see 1.2 below).

Besides research on executive functions, the examination of theory of mind (ToM) abilities with schizophrenic people seems like a new and untapped research area (Herold 2005). Herold and his team primarily research connections between pragmatic competence and ToM abilities. Their results showed that the theory of mind deficits can be detected independently of the acute phase. ToM deficits were validated on a Gricean maxim, where the Gricean maxim of relevance was violated. They found a correlation between verbal working memory and attentional disadvantages compared to the normal population, thus the theory of mind deficits were sentenced to be classified into the series of the neurocognitive deficits (Herold 2005).

¹ An example of clanging: “He went in entry in trying tying sighing dying ding-dong dangles dashing dancing ding-a-ling!” (Grinnel 2008).

1.2 Pragmatics and Pragmatic Competence

It is necessary to add some brief notions regarding the theoretical framework of the present study. Cognitive relevance theory was used as the main framework to our amendment (Wilson and Sperber 2002), which has the following two key definitions:

Relevance theory is based on a definition of relevance and two principles of relevance: a Cognitive Principle (that human cognition is geared to the maximisation of relevance), and a Communicative Principle (that utterances create expectations of optimal relevance). (Wilson and Sperber 2002, 249)

Connected to cognitive relevance theory, it is necessary to define ‘pragmatic ability’ or ‘pragmatic competence’. Balázs’s (2010) summarizes as follows: the term ‘pragmatic competence’ was first used by Chomsky in 1977, as the “appropriate usage of signs in communication”. The existence of pragmatic competence is supported by several neurolinguistic studies; traditionally it is bound to the right hemisphere, but the exact location of pragmatic competence in the brain is still not known (Ivaskó 2004, cited by Balázs 2010). Ivaskó defines ‘pragmatic ability’ as “a function established jointly by several sub-areas” (Perkins, cited by Ivaskó 2013).² It could be said at least that there are several connections with the central executive system and intentions.

Miyake et al. (2000) specified three main executive functions: shifting, updating, and inhibition.

The shift is flexible movement between complex tasks, operations, and mental resources, which is associated with writing and arithmetic skills. . . . The updating of incoming information requires monitoring and encoding. . . . Inhibition is an ability to intentionally inhibit dominant, automatic, or semi-answers. The inhibitory processes play an important role in reading, comprehension, vocabulary, and mastery of mathematics. (Tánczos 2012)³

By building up a theoretical framework, it is necessary to give some more results and ascertainments about connections between schizophrenia and theory of mind abilities.

The skill of mentalisation means that we are able to estimate people’s mental state, and thereby attribute intent, desire, belief, and emotions to them. ToM skills damage was first detected in autism. In the second half of the nineties intensive studies were conducted on schizophrenia, thus as a result, today we can say that theory of mind deficits are present in schizophrenia. According to the current view, the deficit, compared to autism for example, has a late onset, the development of the critical theory of mind skills take place properly, but deteriorate in later years (Herold 2005).⁴

However, there are numerous contradictory results on ToM abilities and the comprehension of metaphors and irony. Haas et al. (2014) examined the pragmatic connectors (or discourse markers) and phrases on patients living with schizophrenia, and they acquired worse results than the control people. Zeev-Wolf et al. (2014) researched the understanding of novel and conventional metaphors by those living with schizophrenia using response time measurement. They found that schizophrenic people

² Translated by Anita Bagi.

³ Translated by Anita Bagi.

⁴ Translated by Anita Bagi.

have right hemisphere predominance compared to controls when understanding conventional metaphors, while there is better recognition and perception with the comprehension of novel metaphors task compared to conventional metaphors. “Inference of the intended meaning, even in the case of idioms, requires interpretive strategies which are based on mentalisation” (Schnell 2007, 182).

It is necessary to refer to Happé’s pragmatic research on patients with autism (1993; 1995), where she found that first-order theory of mind abilities are assigned to understanding of metaphors, while second-order theory of mind abilities are assigned to comprehension of irony. The definition of first-order ToM ability means that someone is able to judge an actor’s thoughts and beliefs correctly, while the second-order ToM ability is when someone is able to judge thoughts and beliefs of actors in a story or in a situation. Herold and his colleagues used two short stories to measure these abilities, which are based on the primary Sally-Anne tests. Herold et al. (2002b; 2004) did research on patients with schizophrenia and concluded that first-order ToM abilities are assigned to metaphors, while the second-order to irony – similarly with Happé’s results. In contrast, when Mo et al. (2008) repeated Herold et al.’s research, with patients with schizophrenia in the phase of remission in China, they found that second-order ToM-abilities were assigned to metaphor, while irony comprehension could not be associated with theory of mind abilities. The contradictory results of Mo’s and Herold’s research are probably due to differences in language and culture.⁵

2. Materials and Methods

2.1 Subjects

The new target sentences with real metaphors were tested on two subgroups of schizophrenic individuals, which were specified and defined as groups S and Z by psychiatric research. It seems that two subgroups of schizophrenia can be differentiated based mainly on executive functions and cognitive abilities, in addition to MRI-results. The two subgroups were defined based on the results of a semantic fluency task, a visual pattern test, a Wisconsin Card Sorting Test, and a backwards Corsi’s cube test. While group S includes patients with frontal dysfunction affecting both hemispheres, group Z has left frontal dysfunction only (Szendi et al. 2010).⁶

Tests were taken by 7–7 patients from both subgroups, who had already had results from the former test containing the original target sentences; these results were used as control results for the new target sentences. The tests were taken in one session with every patient at the Department of Psychiatry at the University of Szeged, Faculty of Medicine. The results of two patients were left out because of deficiencies.⁷ There was only one female participant in group S (and she was actually the only ambidextrous participant; however she was left out because of ToM results deficiencies). The rest of

⁵ The comprehension of jokes in different cultures and languages are also different, which is caused by variant story structures and different cultural associations; e.g. puns are specifically bound to particular languages.

⁶ The present paper is also connected to this clinical research.

⁷ One patient had not got ToM outcomes and another patient had not got previous metaphor and irony understanding test results.

the subjects were all male and right-handed. The following table summarizes the subjects' age, education in years, and handedness (the former two are averaged).⁸

	group S (6)	group Z (6)
Age	46	39,5
Education	10.5	14.75
Handedness	right	right

Table 1. Subjects' age, education, and handedness

2.2 Test of Comprehension of Metaphors and Irony

The modification of the metaphor and irony comprehension test was intended as an improvement to the original test. The present study shows a critical approach to a test measuring first- and second-order theory of mind (ToM) abilities (based on Herold et al. 2002a; 2002b; 2004). Herold et al.'s test consists of two parts: firstly, it measures theory of mind-skills; secondly, it intends to examine comprehension of metaphors and irony in schizophrenia. In addition, the previous form of the test was measuring the understanding of similes, not metaphors. Compared to the previous results, we assumed that the different structures in the target sentences, namely, the replacement of similes with metaphors (*is/are like* to *is/are*) might influence the understanding of metaphors in the tasks (cf. Happé 1993; 1995). We expected (according to Happé's research on autism) that different sentence structures of metaphors and similes have different effects on understanding the meaning of the target blocks, i.e. it is easier to understand a simile than a metaphor.

The instructions of the test were quite simple: the leader of the experiment had to read out the story slowly and clearly and ask questions in the appropriate places. Below you can read a sample of the modified task (the target block is highlighted in italics and questions are in bold face).

Two brothers, Thomas and Adalbert, are arguing. Adalbert doesn't listen to anything that Thomas says, and Thomas is getting angry. Thomas says, "Adalbert, I'm so glad you listen to my opinion too."

What does Thomas mean by it?

What does Thomas think about Adalbert, that he listens to him or not?

The mother, who listened to the quarrel of the two boys, says, "*Adalbert, you really are a road roller sometimes!*"

What does the mother mean by it?

What does the mother think about Adalbert, that he listens to Thomas or not?

2.3 Further Tasks and Tests

Besides the comprehension of metaphors and irony test, further tests were taken. These additional tests were to measure different cognitive functions and working memory components. The table below contains test measures for cognitive function or the

⁸ Ages of group S: 53, 37, 40, 46, 56, 44. Ages of group Z: 32, 27, 36, 61, 24, 57. Education of group S (in years): 12, 8, 12, 11, 9, 11. Education of group Z (in years): 18, 12, 15, 18, 14, 5, 11.

working memory component; brief explanations about the tests can be found following the table.

Tests	Tested function or working memory component
MMSE + Clock Drawing, fluency tasks (letter, semantic, action naming)	General cognitive condition testing Executive functions
ToM tests	Theory of mind abilities
Metaphor and irony comprehension	Pragmatic competence

Table 2. Tests taken for cognitive functions or working memory components

The Mini Mental State Examination (MMSE, see Folstein et al. 1975, Hungarian adaptation Tariska et al. 1997) is a quick cognitive test to measure and define different kinds of dementias. The test contains orientation questions, memory and repetition tasks, naming tasks, reading and writing parts, as well as figure copying tasks.

Attached to MMSE, the Clock Drawing test (Shulman 1986, Hungarian adaptation Kálmán et al. 1995) is used to measure executive functions. Subjects have to draw a clock, which has to show a specified time on the clock face with numbers and hour hands on it.

Fluency tasks are used to measure executive functions (Hungarian version, see Tánczos 2012). In the letter fluency task subjects are asked to say as many words as they can, that begin with the particular first letter, in 60–60 seconds (following Tánczos' study the letters 's' and 't' were used in the present paper, i.e. 60 seconds for the letter 's', and 60 seconds for the letter 't'). In the semantic fluency task subjects are asked to name as many animals, and then fruits as they can in 60–60 seconds. In the action naming task subjects are asked to say as many actions that people do as they can in 60 seconds. Several limitations were put on each task, e.g. "Please, do not repeat words!", "Please, do not repeat words with different endings!", etc.

To measure first- and second-order ToM abilities two short stories were used based on Herold et al. (2002a; 2002b; 2004). The first short story is very similar to the typical Sally-Anne test, but in an oral form; the second story is about a grandmother, a grandfather, and a grandchild who has a birthday. Details about the comprehension of metaphors and irony test are mentioned above in Section 2.2.

2.4 Hypotheses

Our hypotheses were as follows.

(1) Compared to the previous results, we expected that the different structures in the target sentences, namely the replacement of similes with metaphors (*is/are like to is/are*), might influence the understanding of metaphors in the tasks. This is because the original structures might facilitate the understanding of the target sentences (see Happé 1993, 1995; cited by Szamarsz 2014). As Happé's results show, understanding similes is easier than understanding metaphors. The grammatical structure of similes may help the listener to comprehend the target block's meaning, while the structure of a metaphor could be more difficult. The object of comparisons and *tertium comparationis* were always explicitly present in the original sentences, while in the new metaphors, they were not.

(2) We expected the results of the tests measuring ToM abilities to correlate with the metaphor and irony comprehension test results (Happé 1993, 1995, cited by Szamarasz 2014; Herold et al. 2002a, 2002b, 2004, 2005; Langdon et al. 2002); namely, if patients have higher scores in ToM tests, they would have higher scores in understanding metaphors and irony tests, too.

(3) We expected a difference between the theory of mind results of the two subgroups with a better performance in group Z, as the previous results show from Szendi et al.'s research (Szendi et al. 2010). The two subgroups were defined previously, based on the results of the semantic fluency task, the visual pattern test, the Wisconsin Card Sorting Test, and a backwards Corsi's cube test, where the group Z had better outcomes in every task.

(4) We expected a difference between the pragmatic abilities of group S and group Z, expecting that group Z would perform better (Szendi et al. 2010). We expected that if group Z had higher scores in tests which measure executive functions, they would have higher scores in ToM ability tasks and comprehension of metaphor and irony tasks.

(5) We expected that the results of the action naming fluency task, similar to previous research with letter and semantic fluency tasks, would be better in group Z; however, this has not been recorded previously (Szendi et al. 2010).

3. Results and Discussion

In the table below there is a list of tests taken. The maximum scores of the tests are shown in brackets after the name of the tests in the first column. The results of the two subgroups are averaged in the second and third column (minimum and maximum scores from the patients of these subgroups are parenthesized in each tier).

	Group S (6)	Group Z (6)
MMSE (max. 30 p.)	28.3 (24–30)	28.3 (24–30)
Clock (max. 10 p.)	6.1 (0–10)	5.1 (0–10)
's'	10 (16–4)	9.3 (13–4)
't'	10.1 (14–5)	10.1 (18–6)
Animal	16.3 (22–13)	17 (23–10)
Fruit	11.6 (14–6)	12.1 (18–6)
Action naming	11.5 (17–7)	14.1 (21–10)
ToM-1 (max. 2 p.)	1.3 (2–1)	1.83 (2–1)
ToM-2 (max. 2 p.)	0.66 (2–0)	0.66 (2–0)
Previous simile (max. 4 p.)	1.66 (3–0)	3.5 (4–2)
Previous irony (max. 4 p.)	1.5 (3–0)	2 (4.0)
New metaphor (max. 4 p.)	2.16 (3–1)	3.16 (4–0)
New irony (max. 4 p.)	1.83 (4–0)	2 (4–0)

Table 3. Two subgroups' averaged results of the tests

According to our hypotheses, we expected better outcomes in group Z in every task (Szendi et al. 2010). However, worse performances were obtained from the Clock Drawing test, which is not only used to measure executive functions, but could supply information about the level of dementia. While we cannot provide an explanation for

this, we believe that the connections between dementia and executive functions in schizophrenia could be examined on a larger sample in further studies.

Similarly, we assumed a better performance in group Z in the letter fluency task, but our assumption turned out to be false. The results are quite alike in the two groups, although there are differences in the lowest and highest scores; with the letter 's' group S scores higher, while with the letter 't' group Z scores higher. Aspects of the letters' frequency will be required to explain these results.

Based on previous results (Szendi et al. 2010), group Z was also expected to perform better in the semantic fluency tasks; the results we obtained are in line with our assumption.

The results of the action naming fluency task are completely new. The results of group Z are higher, including the highest and the lowest scores as well. The average score of group Z is 14.1, while the average score of group S is 11.5. Furthermore there are notable differences among the lowest and the highest scores in this task. The lowest score of group S is 7, while the lowest score of group Z is 10; the highest score of group S is 17, while the highest score of group Z is 21.

The results of the first- and second-order ToM tests seem fairly similar at first sight, however, group Z scores higher on average in the first-order task (group S: 1.3; group Z: 1.83), considerably higher than group S. Thus, these results satisfied our hypothesis, but not on every level. In the second-order ToM task, the two subgroups' results were completely the same, on average scores (0.66) as well as the lowest and the highest score (0–2). However the difference between the results of the two subgroups in the first-order theory of mind task were remarkable (1.3–1.83). These results could be a marker which leads our attention to the importance of different orders in ToM tasks.

Our results, compared to the previous ones, are partly in line with our expectations. We expected that the different structures in the target sentences, namely the replacement of the similes with metaphors (*is/are like* to *is/are*), might influence the understanding of metaphors in the tasks (Happé 1993; 1995). Interesting results were obtained as an outcome of our modification: metaphors were better understood by group Z in the previous form. However, after the modification group Z still performed better than group S. Although compared to the previous results of each group with similes, their results are reversed. While in the modified test with metaphors, group S had a better performance, group Z produced worse outcomes. Similar results were obtained from the irony understanding tests: the results of group Z remain exactly the same, while the results of group S have improved from 1.5 to 1.83. After a T-TEST calculation we did not receive any significant data ($p < 0.05$). The group S and Z results compared to each other with similes were < 0.05882 and the new results with metaphors were < 0.22174 ; this is the most significant data we received. On the one hand this outcome means there is not a significant difference between the two groups in understanding metaphors; however group Z has a better output on average. On the other hand, this might be caused by the low number of samples, which needs to be higher in future research. Just as we hypothesized, different results were obtained from the modified tests, but in a largely different way.

4. Conclusion and Additional Questions

- (1) It was expected that the exchange of similes for metaphors would lead to different results compared to previous studies. Surprisingly, the results of group S (which we

expected to be worse) turned out to be better in understanding metaphors than similes, while the results of group Z deteriorated. The irony comprehension values also improved in group S, while the results of group Z remained unchanged.

- (2) In the light of the present results, we cannot declare with certainty that the results of the tests measuring ToM abilities could be related to the metaphor and irony comprehension test results. Testing with more subjects is required.
- (3) We expected a difference between the results of the theory of mind tests of the two subgroups, with better performance achieved by group Z. However, this hypothesis remains valid only for the first-order ToM task.
- (4) We expected a difference between the pragmatic abilities of groups S and Z, and we expected group Z to have a better performance, but this was only partially fulfilled. The results of different tasks that measure executive functions are not completely satisfactory given our hypotheses. However, it is important to mention that there is no clear explanation which cognitive systems could be connected.
- (5) It was expected that the results of the semantic fluency task, similar to previous research, would be better in group Z. The hypothesis proved to be true. In addition, group Z outperformed group S in the action naming fluency task, which has not been previously recorded.

After our discussion and conclusions, questions remain and are raised for subsequent studies. Firstly, there is the impact of medications, which raises questions about the results of each test. Secondly, the effects of the acute or chronic phases cannot be ignored since this may help better understand the subjects' results. There could be vastly different outcomes from the different general status of the patients. Thirdly, and connected to the previous ascertainments, although tests were taken in a phase of remission, the effects of time and a potential later psychosis need to be taken into consideration. In other words, the results always come from actual conditions, thus researchers need to repeat tests from time to time to obtain valid results. Finally, the test recording conditions need to be mentioned. The effects of the linguistic 'landscape' or working with human voices may also affect the results. Therefore, different methods and protocols during the test-shooting period may need to be tested. Connected to the results of former studies, additional targeted experiments of irony comprehension, such as comprehension of jokes, could be required.

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