Acquiring Figurative Meanings

Conference program

Thursday, October 5, 2017

08:45-09:00 Registration and coffee

09:00-10:00 *Keynote*  
Deirdre Wilson: Explaining figurative utterances: A relevance theory perspective

10:00-11:00 Ingrid Falkum & Franziska Köder: Metonymy and irony acquisition: Evidence from eye-tracking and picture selection

11:00-11:15 Coffee

11:15-11:45 Márta Szücs & Anna Babarczy: Metapragmatic awareness training improves irony comprehension in young children but at a cost

11:45-12:15 Maity Siqueira: On the development of a comprehensive figurative language test

12:15-13:15 Lunch break

13:15-14:15 *Keynote*  
Gabriella Rundblad: Thoughts on atypical figurative language comprehension

14:15-14:45 Ditte Boeg Thomsen: Irony understanding in young schoolchildren with autism or typical development

14:45-15:15 Francesca Panzeri, Beatrice Giustolisi & Laura Zampini: Irony comprehension in individuals with Down Syndrome

15:15-15:30 Coffee

15:30-16:30 Poster session with lightning talks

16:30-17:30 *Keynote*  
Penny Pexman: Eyegaze and reaching reveal children’s grasp of ironic intent

19:00 Conference dinner
Friday, October 6, 2017

09:00-10:00  Keynote
Eve Clark: Perspective-taking, pretend-play, and figurative usage in young children

10:00-10:30  Line Sjøtun Helganger: ‘The ironical tone of voice’ from an intonological perspective

10:30-10:45  Coffee


11:15-11:45  Ruth Kessler & Claudia Friedrich: Lexical Processing of Idioms in Children and Adults

11:45-12:15  Sara D. Beck & Andrea Weber: Reading idioms literally and figuratively: The effects of literality and context on L2 idiom processing

12:15-13:30  Lunch break

13:30-14:30  Keynote
Nausicaa Pouscoulous: Developing pragmatic competence: super toddlers vs. sluggish verbal kids?

14:30-15:00  Mingling Xia: The ideas we sometimes buy: processing conventional metaphorical expressions by Chinese learners of English

15:00-15:30  Catrine Bang Nilsen: L2 figurative language processing: can individual differences in working memory capacity explain variation in Norwegian learner’s interpretation of metaphors in French as a foreign language?

15:30-16:00  Coffee

16:30-17:00  Simona Di Paola, Filippo Domaneschi & Nausicaa Pouscoulous: Metaphorical Developing Minds: The role of multiple Factors in the Development of Metaphor Comprehension

16:00-17:00  Keynote
Herbert Colston: What do Children Know and When do They Know it?: Figurative Thought and Language in Acquisition/Development
Poster presentations

- Vera Hukker, Esther de Raad, Iris Scholten, Eva Smidt, Mara van der Ploeg, Femke van Dijk & Petra Hendriks: The recognition of irony and white lies in children with and without Autism Spectrum Disorder
- Fatma Ismail: A developmental cognitive-pragmatic approach to children's comprehension of nonliteral meaning
- Drasko Kascelan, Napoleon Katsos & Jenny Gibson: Metaphor Processing and Comprehension in Monolingual and Bilingual Children with High and Low Levels of Autistic Traits
- Maria Loktionova: Inferential language in Russian children with autism spectrum disorder: Mental state verbs and their degrees of certainty
- Zsuzsanna Schnell: Levels of mentalization and pragmatic equivalents: Bird’s eye view on preschoolers’ Metaphor Humor and Irony processing
Practical information

Conference location
Georg Morgensternes hus
Blindernveien 31, entrance from Moltke Moes vei
Room: 652 (6th floor)

Conference dinner
Time: Thursday, October 5 at 19:00
Place:
Trattoria Popolare
Trondheimsveien 2
Price: 300 NOK (excluding drinks)

Contact information
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Keynote presentations

Deirdre Wilson
UCL Linguistics and CSMN, Oslo

Explaining figurative utterances: A relevance theory perspective

The last twenty or thirty years have seen a move away from code-based theories of communication to inferential theories on which the speaker’s aim is not to encode her message in an utterance but to provide clues to her intended meaning. Figurative utterances (e.g. metaphor, irony, metonymy) present a challenge to inferential accounts of communication. Throughout their history, figurative utterances have been standardly treated as departures from a norm of literal, plain speaking and handled in terms of code-like ‘transfer of meaning’ rules (e.g. ‘In irony, the literal meaning is replaced by its opposite’, ‘In metaphor, the literal meaning is replaced by a related simile or comparison’, ‘In metonymy, the literal meaning is replaced by the name of an associated attribute or adjunct’). This approach makes figurative utterances seem arbitrary and irrational, and sheds no light on why just these figures appear to arise naturally and spontaneously in culture after culture. The challenge for inferential theories of communication is to explain how figurative utterances might arise naturally and spontaneously, requiring no special mechanisms not used in the interpretation of ordinary ‘literal’ utterances. In this talk, I will briefly outline the inferential approaches to metaphor, irony and metonymy proposed in relevance theory (e.g. Wilson & Sperber 2012, Sperber & Wilson 2008), focusing on possible interactions with the literature on acquisition.

References
Thoughts on atypical figurative language comprehension

In this talk, I will be outlining recent results on figurative language comprehension in Autism and Williams Syndrome, relating them to previous results. I will be discussing core issues such as choice of figurative language, theoretical predictions, stimuli design, factors and background measures. My aim is to highlight how far we have come in this field, while also arguing that we need to take a critical step back.
One of the challenges children face in learning to navigate the social world is created by the fact that people often speak indirectly, for example, with verbal irony. There is now a good deal of research on when typically developing children begin to appreciate ironic intent. These results suggest that children’s appreciation of ironic language develops over a fairly long developmental window, and is related to their cognitive development and social experiences. These insights have come from research that is focused on the product of interpretation: the understanding that children convey through verbal descriptions, ratings, or yes/no decisions. In a series of studies, we have developed methodology that allows us to explore the process of children’s irony interpretation. Using a variant of the visual world paradigm, we have tracked children’s eye gaze and reaching behavior as they judge speaker intent for ironic language that unfolds in real time. This has allowed us to test which theories best describe children’s irony processing, and to track when children bring different types of information to bear in the interpretive process. Our processing data are consistent with predictions derived from a parallel constraint-satisfaction account of figurative language comprehension.
Perspective-taking, Pretend-play, and Figurative Usage in Young Children

At what point do children move from literal uses of language to figurative ones, making use of metonymy and metaphor, for example? In this talk, I explore the contributions of perspective-taking and pretend-play to the emergence of figurative language in children. Speakers mark conceptual perspective with lexical choices to indicate level of categorization, for example (Siberian tiger vs. tiger vs. animal), membership in orthogonal domains (bear vs. mailman, in a Richard Scarry book), and re-categorization (waste-basket vs. hat). In pretend-play, speakers assign roles and make use of props (e.g., I’m the daddy and this is my baby [holding teddybear]; Fill up my cup [holding out a block]; This is my sword [waving paper roll]). In short, pretend play typically involves re-categorization – viewing participants and objects in new roles. This in turn requires that children extend their uses of conventional terms beyond their literal meanings. Perspective-taking emerges in the second year, along with early pretend-play: I will argue here that these provide a foundation for figurative uses of language in children.
Recent developmental research on social cognition indicates that pragmatics play a grounding role in the development of children's communicative skills even before they utter their first words. Much evidence in language acquisition also suggests that young children could not learn to speak without impressive pragmatic abilities. In stark contrast with this picture, linguistic pragmatic inferences (e.g., reference assignment, implicatures, metaphors, presuppositions and irony) appear to develop later than other linguistic abilities.

Pragmatic inferences, such as those involved in understanding implicit and non-literal meaning, require the ability to recognise communicative intentions, as well as to take into account common ground (or mutual knowledge). Empirical findings suggest that prelinguistic children already master these skills. Words and syntax, it seems, are all there is left to learn for children to become perfect little ‘Gricean’ comprehenders. What, then, makes linguistic pragmatic phenomena so difficult to grasp for preschoolers?

This talk tries to reconcile the development of pre-linguistic and linguistic pragmatic abilities by presenting data on two phenomena: scalar implicatures and metaphor. I will discuss evidence showing these phenomena might be understood much earlier than prior results suggest, and that several factors – independently of children’s pragmatic abilities per se – may explain children’s apparent struggle with pragmatic inferences.
Attempts to understand how children acquire/develop figurative language of a variety of types has been an ongoing effort for decades. Approaches have differed from Psychology and Linguistics, as well as some other ally disciplines. Psychology has typically turned to the variety of other kinds of skills and abilities that develop in parallel to figurative language, as a means to discern how figurative cognition works. Linguistics has generally oriented toward detailed theoretical and mechanistic explanations which have worried over whether the best approach is holistic versus piecemeal—the latter involving different explanations for different figures. Mixtures of both approaches have also been proposed.

The outcome of these efforts is a vast, complex set of literatures with much internal variability in terms of figures treated, mechanisms or cognitive processes involved, deficits or disorders measured and motivation for exploration. The set of cognitive or linguistic processes proposed to underlie figurative language have also not changed drastically in this span of research.

The present talk will delineate two alternative approaches that might enable some renewed headway to be gained in the endeavor to understand figurative language acquisition/development—one based on embodied simulations and the other on pragmatic effects. It is hoped that either, or a mixture of these approaches, will lead to new insights, hypotheses, tests and interpretations of the workings of figurative language in children.
Metapragmatic awareness training improves irony comprehension in young children but at a cost

The comprehension of ironic-sarcastic intent appears relatively late and its appearance coincides with the appearance of evidence for metapragmatic awareness (MPA, Bernicot et al. 2007). Szücs & Babarczy (2017) show that there is a cause-and-effect relationship between the development of MPA and irony comprehension in preschool children, i.e., explicit MPA training improves irony comprehension. The question the current study undertakes to answer is whether this improvement comes at a cost.

The error analyses of irony interpretation tasks suggest that the most common error children make is the misinterpretation of irony as an act of deception (e.g., Sullivan et al. 2003), i.e., children understand that ironic utterances are literally false but are uncertain either about the role of speaker intentions or about the speaker’s intentions themselves. What MPA training can do is make children aware that intentions play a role. It cannot, however, teach children to correctly deduce those intentions. If children’s difficulty with irony is a matter of recognising the role of intentions, training should result in an adult-like irony concept. If the problem lies only in correctly deducing those intentions, training is likely not to have an effect. Finally, if both metapragmatic awareness and sophisticated metarepresentational ability are needed, training is expected to improve irony performance at the cost of deception recognition.

Forty-two typically developing preschool children were tested in a story comprehension task. Each story included a true (literal), a false (deceit) and an ironic statement. The children’s task was to choose the correct interpretation of these statements from three options. Sixteen of the children performed above chance in irony interpretation and were excluded from further analyses. The remaining 26 children were divided into two groups: 16 children participated in the MPA training programme and 10 children acted as controls. MPA training comprised three sessions, during which the investigator introduced new stories and explained the interpretation of ironic utterances. After the training period, both groups were tested again using the original story comprehension test.

Results: accuracy for the literal statements did not change in either group; irony interpretation significantly improved in the training group but not in the control group; and deceit recognition performance significantly declined in the training
group but remained unchanged in the control group. One explanation for this pattern is that as a result of training, irony became a salient notion and therefore the children interpreted both ironic and deceitful statements (i.e., anything that was not obviously true) as ironic. This explanation is not supported by the data, however: Firstly, an error analysis reveals that the decline in deceit recognition was in part due to errors where the deceit was interpreted as true. Secondly, there was no negative correlation between irony performance and deceit recognition performance. We therefore propose that the realization that speaker intentions play a role in the comprehension of non-literal language is an important first step – that can be taught – in pragmatic development but figuring those intentions out is a different matter.

Maity Siqueira  
Universidade Federal do Rio Grande do Sul (UFRGS)

On the development of a comprehensive figurative language test

In this presentation, I will present a comprehensive figurative language test that contains metonymy, metaphor, idiom, proverb, and irony tasks and includes verbal and nonverbal stimuli. To the best of our knowledge, this is the first test that comprises all those phenomena in Portuguese.

Our long-term goal is to investigate the order and the way in which different figurative language phenomena are understood over the lifespan. To that end, our first step has been to try to develop a reliable instrument to access the comprehension of each phenomenon separately.

Under the Cognitive Linguistics approach, we hypothesize that metonymy, metaphor, idiom, and proverb, although intertwined, are different phenomena and therefore can be investigated separately in terms of language acquisition. Considering previous results from studies that investigated one of the tropes in isolation (Creusere, 1999; Gibbs, 1991; Levorato, Roch, Nesi, 2007; Siqueira, Gibbs, 2004), or comparisons between metaphor and one or two other tropes (e.g. Van Herwegen, Dimitriou, Rundblad, 2011), we also hypothesize that the comprehension of different tropes are mastered at different ages. In order to test those two hypotheses, we developed the Figurative Language Comprehension Instrument (COMFIGURA), an instrument that we believe will be capable to test different groups’ performance at metaphor-related phenomena and irony.

We have faced many challenges while developing the instrument. The first big challenge faced was to isolate metonymies, idioms, and proverbs from metaphor in the test items. The second challenge was to create an instrument suited to be presented to participants belonging to different age ranges and clinical conditions. The third methodological challenge was to standardize the five different tasks in
terms of sentence size, syntactic structure, semantic complexity, familiarity, presence of context, and questions type.

With the COMFIGURA we aim to help to fill a gap both in figurative language and in developmental studies.


Ditte Boeg Thomsen
The ESRC International Centre for Language and Communicative Development, Lancaster University

**Ironic understanding in young schoolchildren with autism or typical development**

In both typical development and autism, close relationships between language and social cognition have been found, and many studies suggest that a specific syntactic construction, the complement-clause construction, supports children’s social reasoning by providing them with a representational format (Lohmann & Tomasello 2003, Tager-Flusberg & Joseph 2005). These studies employ false-belief tasks that are useful for measuring social understanding in kindergarteners, but on which older children perform at ceiling. To assess whether the tight relationship between language and social cognition holds at higher ages, more advanced social-reasoning tasks are needed, and Peterson et al. (2012) have suggested irony tasks as a tool for capturing variation in young schoolchildren’s social cognition.

The present study examined understanding of false-belief, lies and irony in 6-to-9-year-olds with autism (N = 66) or typical development (N = 43) to investigate relationships between mental-state reasoning at these three progressively advanced stages on the one hand and a range of linguistic and cognitive variables, including complement syntax, on the other. As expected, typically developing children performed better than children with autism, and results substantiated the predicted order of complexity for the sociocognitive tasks. On the false-belief test, both groups performed at ceiling. The lies test proved suitable for measuring variation for children with autism, while the typically developing children were at ceiling. Finally, the irony test discriminated well between the typically developing children, but the children with autism performed at floor and tended to interpret
the ironic statements as instances of either lies or false belief. The majority of children with autism thus recognized the presence of mental states, but not the complex ironic intentions. Within-group variation was large, with a few children exhibiting sophisticated mastery of irony, others giving random or stereotyped answers.

The contribution of language and general cognition to explaining variation in irony understanding was evaluated with mixed-effects models. Contrary to the results for false belief and lies, no effect of embedding syntax was found for irony, suggesting a different pattern of development. Linguistic level (measured with the vocabulary test PPVT) emerged as a significant predictor for all children, whereas differences in short-term memory only explained variation for children with autism. In this group, correlations were also found between irony understanding and a parent questionnaire assessing children’s social communication and cognition in everyday life (Social Responsiveness Scales), indicating external validity of the test.

References

Francesca Panzeri, Beatrice Giustolisi & Laura Zampini
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Irony comprehension in individuals with Down Syndrome

Introduction. Comprehending irony is a complex task that requires the detection of speaker’s meaning (that is typically the opposite of sentence meaning) and the recognition of speaker’s mocking attitude. Several scholars linked irony understanding to Theory of Mind (ToM) abilities, in typical (Sullivan et al. 1995) and atypical populations (Happé 1993 for adolescents with autism): 2nd order ToM abilities are claimed to be necessary in particular to distinguish jokes from lies. Nevertheless, linguistic abilities predict ToM development (Astoning & Jenkins 1999). Moreover, irony criticisms (literally positive remarks used to comment on a negative situation, the more common form of irony) seem to be recognized earlier and better than ironic compliments, and this fact is unexpected if (only) ToM abilities lie at the heart of irony comprehension. We thus decided to further explore the factors that better predict irony comprehension, aiming at disentangling the contribution of ToM, linguistic and social abilities. We are testing children and adolescents with Down Syndrome (DS), since they are
reported to have severely compromised linguistic skills but also a relative strength in social functioning, and affect sharing emotions (Fidler et al. 2009).

Participants. Up to now, we tested 13 Italian children and adolescents with DS (7 F; Age: M=13;6; Range: 10;9 – 15;3) and 13 typically developing (TD) controls (7 F; Age: M=4;10; Range: 3;2 – 6;6), matched for both mental age (p=.59) and linguistic age (p=.71).

Materials. We assessed mental age (Raven Coloured Progressive Matrices), linguistic age (BVL, Marini et al. 2015); ToM level (6 tasks adapted from Wellman & Liu 2004, Gopnik & Astington 1988, Baron-Cohen, Leslie & Frith 1985, Sullivan et al. 1994). Irony comprehension was evaluated with a new task, that consists of 10 brief stories, concluding with a remark, literal (4) or ironic (6 – 3 ironic criticisms and 3 ironic compliments). Participants were asked three questions about i) detection of speaker’s meaning, ii) context (control), and iii) recognition of speaker’s attitude.

Results. Accuracy in the irony comprehension task was analyzed using mixed logit models. Accuracy was higher for literal stories than for ironic stories ($\beta=1.9371$, SE=0.47, $z=4.131$, p<.0001), and did not differ between DS and TD participants ($\beta=-0.1731$, SE=0.42, $z=-0.419$, p=.68). For both groups, ironic criticisms were easier than ironic compliments, but for individuals with DS the difference was more striking (ACCURACY criticisms/compliments – DS: 82% / 44%, p<.0001; TD: 64% / 48%, p<.05). In both groups, linguistic abilities correlated significantly with irony (DS: $r=.58$, p=.039; TD: $r=.88$, p<.001), whereas ToM level did not.

Discussion. Even if our sample of participants with DS is small, our results seem to indicate that ToM abilities do not constitute per se a good predictor of irony comprehension, while linguistic abilities play a major role. The fact that ironic criticisms are much easier than ironic compliments in participants with DS, who are much older than their TD matched controls, suggests the importance of conversational experiences as well.

Line Sjøtun Helganger
University College of Southeast Norway

‘The ironical tone of voice’ from an intonological perspective?

This paper argues that an intonological point of view is relevant in describing and explaining ironical intonation. From a general point of view, it seems obvious that ‘the ironical tone of voice’ exists, and it is usually mentioned in linguistic studies investigating irony interpretation. Although the ironical tone of voice is not believed to be mandatory in ironical communication, it seems to be a cue
signaling the speaker’s ironical intention. In pragmatic literature, several prosodic and extralinguistic features are used to describe ironical intonation. In the echoic account of irony, it has been described as characterized by a flat or deadpan intonation, slower tempo, lower pitch level and greater intensity. The pretence account also present an ironical tone of voice, a tone described as an exaggerating tone of voice. Although these descriptions are relevant (i.e. they can affect the inference of an ironical intention), they are varied and can be argued to be imprecise seen from an intonological perspective.

Intonology is the study of the form and function of intonation. In Norwegian, the intonation system is considered as an autonomous part of the grammar, similar to other parts of the grammar (e.g. phonology, syntax, etc.). The so-called ‘Trondheim model’ is a model developed for analyzing the intonation of (Norwegian) utterances, and for studying the interaction between intonation, syntax and context. According to the model, the function of Norwegian intonation is to structure information. The information structure forms by an interaction between the grammar of intonation and of syntax. The focus structure of the utterance gives us information units that based on a set of principles can be interpreted as theme, rheme and given information. The Trondheim model states that the intonation’s most important role is to structure utterances in a way that makes it possible for the receiver to understand the utterance the way the speaker intended. Through the intonation pattern, ambiguous sentences can be disambiguated, and the intonation is presumed to function as a creator of context. By using the Trondheim model for analyzing ironical intonation, we can both describe the intonation patterns used in ironical utterances and analyze the information structure given by these intonation patterns. This approach gives an opportunity to come closer to answering the question of what the function of the ironical tone of voice can be in ironical communication. The analyses of the ironical tone of voice will be based on the assumption that such a tone in fact exists in a grammatical sense, an assumption made probable through an earlier investigation of the ironical tone of voice in Norwegian.

Justine Paris
Université de Lorraine, France

Assessing the development of children’s figurative language production: the case of a longitudinal study and a semi-guided protocol

Contrary to one might think, non-literalness is pervasive in everyday language and not necessarily ornamental (e.g. to invest time in something, to be in love, the leg of a table, etc.). Metaphor permeates our way of thinking (Gibbs, 1995, Gibbs and Tendahl, 2006; Lakoff and Johnson, 1980) and serves a wide variety of discursive functions (Cameron, 2003; Charteris-Black, 2004; Müller, 2008; Steen, 2008, 2011, 2013).
Research in first language acquisition has shown that children tend to play with word meanings as early as they start to speak – through overextensions (Gibbs, 1994; Duvignaux, 2002), pretend actions (Billow, 1981; Paprotté, 1985; Fourment, Emmenecker and Pantz, 1987), and renamings (Winner, 1979; Winner et al., 1979; Winner, McCarthy and Gardner, 1980). Gardner et al. (1975) observed a U-shape development whereby children start using creative metaphor during their preschool years, then take a more literal and conventional perspective on language during their school years, and finally go back to figurativity during their adolescence. Other studies show that 10 year-olds commonly produce idioms (Cacciari and Levorato, 1989; Taylor 2012) and are able to make their own use of encountered metaphors (Cameron 1997). Others hypothesize that the use of figurative language might be settled and stable by the age of seven (Naylor and Van Herwegen, 2012). Despite the numerous studies existing on the development of figurative language in L1 acquisition (non-exhaustively mentioned here), it is still difficult to describe the way figurative language production develops across ages. Little is also known about the type of figurative items that children tend to produce across ages.

As an attempt to bridge this gap, I first conducted a preliminary longitudinal study of the use of non-literal language in the discourse of a young English child aged 1 to 4. The video recordings came from the Forrester Corpus, available on the CHILDES database (MacWhinney, 2000), where young Ella can be observed interacting with her parents and sister at meal times.

Then, I conducted an experimental study and examined semi-guided interactions between native English-speaking children aged 7, 11 and 15. In pairs, the participants had to pick eight questions written on pieces of paper and answer them orally in the attempt to mirror naturally occurring interactions. To encourage the production of figurative language, the questions inquired about emotional states (e.g. what was the best present you’ve ever received? How did you react? How did it make you feel?).

The results of the preliminary study revealed that figurative language can be observed as early as the age of two in young Ella’s speech. However, it is difficult to determine whether the child demonstrates figurative performance per se, as she is extensively trying to categorize her surrounding environment – people, objects, concepts and lexicon. In addition, the words that she uses in a figurative sense are often verbatim repetitions of figurative words and expressions extracted from her input (e.g. big girl, there you go, little noise, I’m having cocopops).

In line with Gardner et al. (1975), the results in the experimental study conducted with older children showed that the production of figurative items increased with age. The figurative items produced by the participants were mostly conventional (i.e. listed in dictionaries), expressed via indirect metaphors (Steen et al. 2010: 32), and used to serve a lexical function (that of communicating a specific existing meaning). Very few of them were erroneous (e.g. to be wind-sick, being sharing), even as early as the age of seven.
Keywords: non-literal language production, first language acquisition, semi-guided oral interactions.


Lexical Processing of Idioms in Children and Adults

The present study investigates online processing of idiomatic phrases during first language acquisition. Because idioms are relatively fixed multi-word expressions, several authors (e.g. Ackermann, 1982; Qualls, Treaster, Blood & Hammer, 2003) proposed that idioms are learned as big chunks. Following this approach, a literal interpretation of idiom constituents would not be necessary. Thus, we aim to investigate whether children access idioms word-by-word or as a phrasal unit during online processing.

We test this assumption in an event-related potential (ERP) study with 9 to 10 year old children and adults. We relied on an N400 paradigm that has formerly shown that adults process written idioms holistically (Rommers, Dijkstra & Bastiaansen, 2013).

In a correct condition, participants listened to idioms such as ‘Isabel had butterflies in the stomach’. In manipulated conditions, the idiom’s last word (‘stomach’) was replaced by a semantically related item (‘arm’) or by an unrelated item (‘water’). Participants were asked to judge whether or not the sentence was an idiom. We predicted that if participants access literal word meanings, the processing of related words benefits from the expectations of the correct words.

For children and adults, N400 effects on the final word were evident. For both groups, we obtained reduced N400 amplitudes for the correct condition compared to the other conditions. In children, early N400 amplitudes for the related condition and for the unrelated condition did not differ. This finding replicates the ERP results obtained by Rommers and colleagues (2013) and indicates that children do not predict literal meanings of final idiom constituents. Therewith, this finding is support for the assumption that children acquire idioms as big chunks.

However, there is also evidence for late strategies during which children try to decompose an idiom. In a later time window, an ERP difference between the related condition and the unrelated condition was observable in children. Furthermore, differences between both conditions were also apparent in response uncertainty: Children made more errors in the related condition than in the unrelated condition. Furthermore, there were indices of privileged processing of the unrelated condition in adults, pointing to parallel holistic and literal processing of spoken idioms, which might emerge from the decomposition attempts in children.

As idiom use is ubiquitous in native (L1) communication, one of the major challenges for non-native (L2) proficiency is mastering the comprehension and use of idioms in their L2. One of the issues concerning idiom comprehension in native and non-native speakers is the variability of access to figurative and literal meanings during processing (Cieślicka 2006; Titone, Connine 1994). While hybrid theories of idiom processing for native speakers assume that the literal meaning plays a role until an idiom can be recognized (Cacciari, Tabossi 1988), it has been argued that non-native processing and comprehension both rely more heavily on literal meanings due to saliency (Cieślicka 2006; Cooper 1999). Although it has been shown that both advanced native speakers and non-native speakers have online access to figurative meaning (Beck, Weber 2016), this access can be impacted by a number of factors, for example: preceding context and the literality of the idioms.

While research on the use of context in idiomatic processing confirms that context eases access to figurative meaning (Cieślicka et al. 2014), Holsinger and Kaiser (2013) found that this is not necessarily the case for literal meaning. In a self-paced reading study, they found that the cost of recovery in expectation violations is greater when a literal interpretation is expected than when a figurative interpretation is expected. Thus, while figurative language is dependent on context, literal language is readily available. This claim is generally in line with research on non-native speakers suggesting the priority of literal meaning. However, idioms can vary greatly in their levels of literality: While the idiom break the ice has a clear literal and figurative meaning, lose one’s cool does not. This literality has been shown to affect processing of idioms for L1 speakers (Titone, Libben 2014) but not for L2 speakers (Cieślicka 2006).

In an English self-paced reading study, we investigated the extent that congruent preceding context eases the processing of literal and figurative readings of idioms varying in literality in native and non-native speakers. Following two norming studies, controlling for the strength of context and the plausibility of the sentences...
involved, we conducted a phrase-by-phrase reading study on 47 L1 English speakers and 48 L2 English speakers (German L1) using highly literal and non-literal idioms embedded in sentences. Preceding contexts either supported the literal or figurative interpretations of the idioms and were followed by disambiguating phrases that were either congruent or incongruent with the context provided (e.g. The new school boy/The cold Eskimo [...] just wanted to | break the ice | with his peers/on the lake | ...). While native speakers were generally faster than non-native speakers, both groups displayed similar patterns in their reading times. Following a literal preceding context, there was a significant advantage for a congruent ending, while figurative contexts did not show this pattern. Additionally, sensitivity to contextual affects are apparent at different points in the sentence for each group. Despite these differences, we propose that advanced L2 speakers’ processing follows a pattern comparable to L1 idiom processing.

References
This study aims to explore how Chinese learners of English at different levels of proficiency process the conventional metaphorical expressions in their second language. In the current study, “metaphorical expressions” refer to the lexical items that are used to deliver conventional meanings that depart from their literal, core meanings, such as sentence (b) in the following example:

(1)  
   a. He attacked a passenger with a stick. (literal)  
   b. He attacked my theory. (metaphorical)

In previous studies on the processing of L2 figurative languages, e.g. idioms, metaphors and phrasal verbs, the possibility of “literal first” processing (e.g. Gibbs and Nayak 1989; Glucksberg 2001) is often discussed. It is suggested that due to the lack of metaphorical competence, L2 learners may arrive at the literal meaning of a figurative chunk before they achieve the intended figurative meaning (Kecskés 2000; Littlemore and Low 2006). By examining the processing of English idioms among Polish learners of English, Cieślicka (2006) suggests that L2 learners perform differently from the native speakers in the processing of figurative expressions, and they are not able to access the figurative meanings directly. Matlock and Heredia (2002), however, discover that learners of English show a reading pattern of idiomatic phrasal verbs similar to native speakers of English, and spend significantly less time understanding idiomatic phrasal verbs than literal verb phrases. The current study aims to tackle the conflict of processing from the perspective of conventional metaphorical expressions.

Three types of English metaphorical expressions were collected, constructed and surveyed in the study: (1) expressions shared by Chinese and English (MB expressions); (2) expressions only available in Chinese (MS expressions); and (3) expressions only available in English (MT expressions). 63 Chinese learners of English at three proficiency levels with different linguistic backgrounds and 21 British English native speakers participated in a self-paced sentence reading task, in which they read sentences containing the three types of metaphorical expressions in a word-by-word fashion and answered a comprehension question after each sentence. The reading time of each word and the reaction time of each question were recorded.

The results show that (1) more proficient learners are able to process the MB items in a way similar to the native speakers, while less proficient learners seem to hesitate after the display of the MB expressions, even if those expressions are shared between their L1 and L2; (2) all the learners are able to show a native-like reading pattern when they read the MS items, but they can still activate the meanings of those expressions, even if the meanings are not available in English;
and (3) even highly proficient learners still show minor hesitation after reading the MT expressions. It seems that, while native speakers can bypass the literal meaning when accessing the conventional metaphorical meaning, proficient L2 learners can bypass some literal meanings, especially when the metaphorical meaning is shared between their L1 and the L2.


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L2 figurative language processing: can individual differences in working memory capacity explain variation in Norwegian learner’s interpretation of metaphors in French as a foreign language?

The aim of this communication is to present preliminary results from an ongoing research protocol on individual differences in foreign language metaphor interpretation and cognitive processes. Psycholinguistic data from Norwegian immersion learners of French combined with measures of working memory may offer insight into the relationship between working memory capacity (WMC) and L2 metaphor processing.

Figurative language processing is regarded as one of the most crucial aspects of L2 proficiency but also as one of the most challenging. Danesi (1992) claims that while individual differences in metaphor production can explain some of the variation in L2 proficiency, it remains a neglected aspect. Kesckes (2006) stresses that the difficulties L2 figurative language processing represents to learners could be explained by the Graded Salience Hypothesis initially proposed by Giora (1997) and recently applied to bilingual participants by teams such as Mashal et al. (2015). For L2 learners, the metaphorical meanings of conventional figurative utterances might be less salient in the mental lexicon than its literal meanings due
to a lack of familiarity or exposure, thereby leading to slower response times for L2 learners. The need to inhibit the contextually inappropriate salient meanings potentially increases the cognitive load, essentially making L2 figurative language processing a cognitive phenomenon.

The role of cognitive processes in L2 acquisition has been extensively studied in the last decades and a recent meta-analysis (Linck et al. 2013) shows a robust effect between working memory capacity and L2 outcomes. This suggests that high WMC learners have an advantage compared to low WMC learners, and the aim of this communication is to examine the unexplored relationship between WMC and L2 metaphor processing. In L1 metaphor processing, Olkoniemi et al. (2016) recently emphasized the crucial role played by working memory capacity. Novel metaphor processing in one’s first language is largely influenced by WMC as it requires the processing of multiple meanings and the inhibition of irrelevant yet salient meanings.

We aim to present findings from a psycholinguistic research protocol using a self-paced reading paradigm with conventional (populism is taking root in Germany), fixed idiomatic (Turkey and Russia have to bury the hatchet) and novel (Donald Trump is a pumpkin) metaphors embedded in newspaper discourse utterances combined with a multi-choice task (literal meaning vs. figurative meaning vs. nonsense). The participants are 20 Norwegian immersion learners of French L2 at various levels of proficiency and 20 French native speakers. Preliminary results show that L2 learners have overall slower reading times than native speakers and less correct answers. Mid- to high proficiency learners have significantly shorter reading times than low proficiency learners and have higher rates of figurative meaning interpretations. There is also an effect of metaphor type and average reading times of conventional metaphors are shorter than for novel metaphors, especially for L2 learners. There is also an effect of metaphor type on figurative meaning interpretations selected and on and average response times. Finally, there appears to be a relationship between average response times for metaphoric utterances and WMC, especially for fixed metaphors. This would suggest that working memory is an important factor in maintaining multiple interpretations simultaneously. More research is needed to examine whether working memory capacity allows L2 learners to rapidly repress the salient literal meaning as selection of figurative meaning interpretation seems to depend on proficiency levels.

**Key words:** L2 metaphor processing; Individual differences; Working memory capacity; Saliency

**Bibliography**


Contrary to what is traditionally thought [3], recent findings suggest that pre- 
schoolers can understand metaphor in child-friendly paradigms [1]. However, 
metaphor comprehension involves multiple skills with different developmental 
paths and it is unclear which of them scaffold its development. This study aims at 
investigating the contribution of two such abilities: Alternative Naming (accepting 
two labels for the same referent) and Analogy Perception (detecting similarities 
across objects) [2]. It assesses their development within a single paradigm 
including a metaphor task in order to identify possible enhancing/impeding factors 
in metaphor development.

Forty 3- and 4-year-olds saw three tasks: Metaphor Comprehension, Alternative 
Naming and Analogy Perception, within a unified picture-matching paradigm. 
Children were asked to move several pictures arranged on a grid following the 
experimenter’s instructions. Vocabulary was assessed too.

Metaphor Task (trials: 8): The experimenter referred to the target picture 
metaphorically or literally (e.g. ‘Give me the glass with the antennae/with the 
straws’ for a picture depicting a glass with two straws). Children could choose one 
of three pictures: (i) Target (e.g. a glass with 2 straws); (ii) Control I, literally 
showing both target and vehicle (e.g. a glass and a girl wearing an antennae-
headband); (iii) Control II, literally showing the metaphor target only (e.g. a glass 
without straws).

Alternative Naming Task (trials: 8): The target pictures were referred to with a 
previously used term (ST condition) or a new term (NT condition; e.g. ‘Give me 
the Lollipop/Candy’).
Analogy Task (trials: 4): Children were asked to complete a sequence of two pictures sharing a relational feature on which an analogy could be based (e.g. flying for the animals that fly analogy). They could choose one of three pictures: (i) Target, showing the relevant feature applied to the relevant object (e.g. a flying bee); (ii) Control I, showing the relevant property but on the irrelevant object (e.g. a helicopter); (iii) Control II, showing an irrelevant property but on the relevant object (e.g. a sleeping bee).

Accuracy was coded for all tasks. Reaction times were collected for metaphor understanding and alternative naming. In the metaphor task, all children exhibited more difficulties interpreting metaphorical than literal expressions (p<0.0001), their accuracy improved with age (p<0.05) and only 4-year-olds performed above chance. All children performed above chance in the Alternative Naming task, with residual difficulties in 3-year-olds (NT vs. ST: p<0.001) significantly lowered by four (NT vs. ST: p=n.s.). Both groups performed at chance in the Analogy Task. A Generalized Linear Mixed Model statistics revealed that Alternative Naming and Analogy significantly predict pre-schoolers’ metaphorical understanding: children with better alternative naming and analogical abilities (p<0.0001 for both) performed better in the metaphor task.

Our findings suggest that Alternative Naming and Analogy both influence the development of metaphoric competence. By age 4, but not at 3, children's difficulties with alternative naming are solved and seem not to increase the cognitive demands imposed by metaphor. Conversely, analogy perception may hinder metaphor comprehension at both ages.

References
Poster presentations

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The recognition of irony and white lies in children with and without Autism Spectrum Disorder

Figurative language is used for various goals, such as to be polite, to be humorous, or to protect someone else. Irony and white lies are two related types of figurative language because they both express falsehoods. They differ from each other in their underlying intention: whereas irony is intended to create a disbelief in the listener, white lies are intended to create a belief in the listener. Irony and white lies require the pragmatic skill of appreciation of context in order to be correctly understood. Individuals with Autism Spectrum Disorder (ASD) have difficulties with this pragmatic skill (Norbury, 2004). Therefore, studies have investigated whether it is more difficult for children with ASD to comprehend these types of figurative language compared to children without ASD. However, only few studies have looked at the first step in comprehending irony and white lies, which is recognizing the falsehood involved in irony and white lies. Also, as far as we know no research has compared the recognition of these two types of figurative language. In our study, testing children with Autism Spectrum Disorder (ASD) and typically developing children on stories containing irony and stories containing a white lie, we found that children with ASD (N=18, age range 6;9-12;9, mean age 10;2) and typically developing children (N=24, age range 6;3-12;5, mean age 9;11) are equally able to recognize irony and white lies. Within groups we found that children with ASD are less accurate in recognizing irony than in recognizing white lies, and typically developing children need more time to recognize irony than to recognize white lies. Our results suggest that children with and without ASD in this age range do not differ in their ability to recognize irony and white lies. The results also suggest that irony is more difficult to process than white lies, which is reflected in lower accuracy rates for children with ASD on irony recognition compared to white lie recognition, and larger reaction times for typically developing children on irony recognition compared to white lie recognition. Further research into the relation between irony and white lie recognition abilities on the one hand and pragmatic abilities and mentalizing abilities on the other hand is needed, as our study shows that even in merely recognizing the falsehood, differences exist between irony and white lies. Possibly these differences are related to second-order Theory of Mind, which is required to understand the intentions behind irony and white lies (Happé, 1994), but is not required to recognize white lies (Cheung, Siu, & Chen, 2015). Thus, irony and white lies may rely on different levels of Theory of Mind.
A developmental cognitive-pragmatic approach to children's comprehension of nonliteral meaning

The aim of the study is to investigate the development of nonliteral meaning comprehension in children, from a cognitive perspective. The study addresses two lines of investigation: investigating children’s comprehension of four nonliteral meaning types (indirect replies, indirect requests, idioms, sarcastic replies) in three age groups (6, 8, and 10 years); and investigating the relationship between children’s comprehension of nonliteral meaning and their corresponding metalinguistic awareness of the pragmatic phenomena in question, per age group and nonliteral meaning type. The four nonliteral language types were examined using a cross-sectional experimental design. Forty typically developing American children, whose first language is English, were tested on four experimental conditions. Data were collected from a story comprehension task, in which each child answered elicitation questions about her comprehension of the speaker’s nonliteral meaning and intention, conveyed by the target nonliteral utterances (i.e., story endings); and her metalinguistic explanation of the use of the nonliteral meaning type. The results indicated that the two factors, which were age and type of nonliteral meaning type, affected children’s comprehension of nonliteral meaning, and therefore affected the order of acquisition of the nonliteral meaning types and the development of the corresponding metalinguistic awareness. The 10-year olds outperformed the 6-year olds and the 8-year olds in the four experimental conditions. The study also indicated that children’s cognitive-pragmatic ability of nonliteral meaning comprehension and associated metalinguistic awareness were acquired in different orders. The findings strongly suggested that there is developmental lag between children's ability to attribute pragmatic intentions to speakers and children's metalinguistic awareness of the use of the four nonliteral meaning types. The experimental data demonstrated that there is a clear-cut constancy in the acquisition order of the four nonliteral variations (indirect replies, indirect requests, idioms and sarcastic replies) across the three age groups (6, 8 and 10), which was evident in the consistency of the relative difficulty of understanding each of these variations in all age groups. Furthermore, the data provided experimental evidence for relevance theory account of utterance comprehension. Overall, the findings fit particularly well

References

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A developmental cognitive-pragmatic approach to children's comprehension of nonliteral meaning
Metaphor Processing and Comprehension in Monolingual and Bilingual Children with High and Low Levels of Autistic Traits

Research has shown that familiar metaphors are more easily understood than the unfamiliar ones (Giora, 1997; 1999). Since bilinguals have less exposure to each of their languages than the corresponding monolinguals, their metaphor processing and comprehension patterns might differ. Furthermore, lower performance on metaphor processing and comprehension has been found in population with autism spectrum disorders (Herman et al., 2013; Chouinard & Cummine, 2016). As every individual manifests autistic traits to a certain degree, difficulties with metaphor processing/comprehension should be more evident in people with a higher level of these traits. Therefore, the current study measured the level of autistic traits in a general sample of monolingual and bilingual children to examine whether metaphor processing/comprehension difficulty is partly due to autistic traits per se.

Participants: A general sample of 40 bilingual (20 with low and 20 with high levels of autistic traits) and 40 monolingual children (20 with low and 20 with high levels of autistic traits) was tested. The participants were between 5 and 11 years of age, and they spoke English and an additional language.

Materials: Language status (monolingual vs. bilingual) and demographics (age, sex, socioeconomic status) were established through a parental questionnaire. The metaphor processing (judgement) task included a set of nominal metaphors (e.g., Some men are chicken) with a different level of familiarity (low- vs. high-familiarity metaphors). Additionally, the task contained literally true and literally false fillers (Some pets are dogs and Some cars are grapes respectively). The metaphor comprehension task included 12 metaphors from the processing task. The participants were asked to explain what is meant when one says for example Some men are chicken. Autistic traits levels were measured with a subtest of Social Skills Improvement System (SSIS) Rating Scales (Gresham & Elliott, 2008). This parental questionnaire provides autism spectrum disorders score which indicates the level of autistic traits for children in general no matter whether they belong to a clinical population or not. The participants’ verbal and non-verbal skills were measured with Wechsler Abbreviated Scales of Intelligence (Wechsler, 2011).

Predictions: The study predicts that children with a high level of autistic traits will perform less well on the metaphor processing/comprehension task than those with
a low level of autistic traits. Furthermore, once the effect of autistic traits is considered, metaphor processing/comprehension will be examined in relation to bilingualism. If metaphors require familiarity with the form of the phrases and their semantic content, bilinguals should perform worse than monolinguals on the grounds of lower receptive vocabulary. However, if metaphors require only familiarity with the conceptual content of these phrases, there should be no differences between bilinguals and monolinguals.

Results: The poster presents the data of an ongoing research project. The preliminary results are discussed in relation to the current pragmatic theories that try to account for metaphor processing/comprehension in children.

References:

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Inferential language in Russian children with autism spectrum disorder:
Mental state verbs and their degrees of certainty.

Introduction

Various communicative situations and social codes shared by people universally are inferred from words we use daily to express our propositional attitudes. Mental state verbs primarily refer to beliefs, desires and intentions of self and other, and are substantial to Theory of Mind (ToM). Even though some of these verbs are witnessed in the productive speech of 2-year-olds, their meanings are fully acquired only during later developmental stages. Several studies reported that from the age of 4 years most children begin to differentiate between the truth and false value (factivity/non-factivity) of some mental verbs in their active vocabulary (Wellman & Liu, 2004). However, very few experiments (Peterson & Bowler, 2000; Grant et al., 2004) were designed to specifically look at this ability in children with autism spectrum disorder (ASD) using a paradigm other than a classic false belief task. The present study explored whether high-functioning
children with ASD can process complex sentences with different mental state verbs and correctly form inferences about the truth/false/uncertainty value of their sentential complements. We expected to find that children with ASD will be able to make some but not all inferences demonstrating greater difficulty in non-factive condition.

**Methods**
A group of 15 high-functioning children with autism and Asperger’s syndrome with mean age of 11 years (SD =1.8) and compared with a control group of 20 typically developing classmates with mean age of 9;9 years (SD=0.3) on a sentence-picture-matching task. All participants were matched on the basis of their verbal and mental age. The materials included 32 pictures that illustrated 32 mental state verbs. These verbs were further subdivided into 16 factive (know, remember) and 16 non-factive (think, hope) types forming two opposing conditions. The first one presupposed the truth value of an event illustrated in the picture while the second one didn’t. The materials also included 32 sentences organized in 16 pairs centered around the mental state verb. Each sentence was a complex one with a main clause and a complement clause. Every sentential pair shared similar complements. A single stimulus consisted of 3 cards (picture, sentence 1, and sentence 2). The participant’s task was to match a picture with one relevant out of two presented sentences. The difference between the sentences was the mental state verb itself (factive in one sentence versus non-factive in the other). The first dependent variable was accuracy (the amount of correct choices). The second dependent variable was justification (the amount of correct explanations of choices). The answers were coded as “1” for a correct match and “0” for an error.

**Results**
The results demonstrated 8% of difference in means of correct responses between the control and the target groups for accuracy and 19% difference for justification. The statistical analysis of accuracy scores was conducted with Generalized Linear Mixed Model (GLMM), a mixed-effects version of logistic regression models (lme4 in R) for binary data. The results indicated significant difference in performance between the two groups. Children diagnosed with high-functioning autism and Asperger’s syndrome performed significantly worse than the control group on both accuracy (Pr(>|z|) =0.00123; p<.01) and justification (Pr(>|z|) =0.000166; p<.001).

**Discussion**
The current study asserts that Russian children with ASD are able to make some but not all inferences from various mental state verbs correctly differentiating between truth and false value of their complements. This finding vitiates a commonly articulated claim about diminished ToM in this population. Furthermore, the obtained results support previous evidence indicating that children with ASD are able to understand some of the characters’ intentions and desires once they are asked to explain them but not to predict them as it happens in classic false belief framework (Peterson & Bowler, 2000; Grant et al., 2004).
References

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Levels of mentalization and pragmatic equivalents: Bird’s eye view on preschoolers’ Metaphor Humor and Irony processing

The empirical study presented explores social-cognitive skills of preschoolers and their understanding of metaphorical, humorous and ironic utterances. We see mentalization as a continuum, rather than an all-or-nothing ability. Consequently, the study aims to give a trajectory of the different pragmatic dimensions, and correlate the pragmatic levels with the different levels of mentalization (Sperber 2000). We hypothesize that the trajectory of pragmatic dimensions also mirror cognitive effort necessary for smooth and intuitive interpretation of the given
pragmatic phenomena. Fuzzy relationships between humor and irony, and metaphor and irony are also clarified. The former has often been blended, portraying irony as a sub-category, i.e. a form of humor, whereas metaphor and irony have also often been considered to be the same category, representing infringement of the Maxim of Quality (and sometimes that of Quantity). The study aims to explain what cognitive linguistic factors give ground to the different levels of pragmatic and mentalization-based processes (Sperber –Wilson 1995, Sperber 2000), in harmony with Sperber’s (2000) levels of metarepresentation: (1) mindreading (metapsychological), (2) pragmatic (metacommunicative) level, and (3) argumentative (metalogical) (Wilson 2009).

**Method, materials:**
Subjects’ ToM skills are measured with verbal False Belief Tests and a non-verbal version of the Eyes test (Baron-Cohen et al. 2001) adapted for preschoolers (Schnell 2012, 2015). Pragmatic abilities are tested with linguistic tasks on Simile vs Metaphor, Humor (contextual and decontextualized), Irony, Irony-with-surface-cue, and Control tasks on the same sample, with harmonized tasks and methodology.

**Results:**
Of all the pragmatic dimensions, irony seemed to be the easiest for preschoolers to process. This fairly surprising finding may be explained by the distinctive features of the type of irony used in the study (hyperbole, Wilson 2013). Apparently irony is processed with more success than metaphor or humor, probably also due to salient prosody and intonation patterns that serve as surface cues in interpretation. Metaphor, due to its emergent structures, is a harder nut to crack. Even more difficult is the dimension of humor where social- and cultural embeddedness further complicates interpretation issues and makes first-order ToM less effective in itself in comprehension.

The results confirm that pragmatic abilities continue to develop in early school years, and flexible, intuitive discourse skills are a complex of social-cognitive abilities sprinkled with cultural- and social interpersonal experience. This also clarifies that in cognitive terms irony is not simply a form of humor as its processing triggers fairly different cognitive mechanisms than the processing of metaphor and humor, reflecting different patterns in cognitive development. Our findings confirm results in infant research that surface cues help in the recognition of communicative intent, and contribute to the successful resolution of the intended meaning at hand (Csibra 2010).