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REINTERPRETATION PROCESSES AND HUMOUR UNDERSTANDING IN ENGLISH-SPEAKING YOUNG ADULTS WITH DYSLEXIA

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Abstract – The aim of this study is to assess whether and how lexical and syntactic ambiguity are resolved in jokes by readers with and without dyslexia. This research focuses specifically on an important phenomenon of language comprehension, i.e., the ability to access word meaning quickly and effortlessly in sentences which, in this specific work, are made more challenging by the presence of "lexical and syntactic ambiguity". The present study addresses the ambiguity in punchlines from a semantic perspective with the aim of showing how different types of ambiguity are perceived by readers and how they reanalyse jokes by considering their ambiguous forms. This work focuses on homonymy in jokes where the humorous effect is triggered by words whose disambiguation does not involve a change of word class (i.e., "bat" has two meanings that belong to the same word class, both are nouns) and words whose disambiguation instead requires a change in word class (i.e., "seal" has two meanings that belong to two different word classes, noun and verb).

Keywords: dyslexia; language comprehension; ambiguity; figurative language; humour.

1. Introduction

In our daily communication, we may encounter a large number of comic situations, many of which derive from verbal humour. One of the ways to achieve a humorous effect is the use of ambiguity. The ambiguity of language is a pervasive phenomenon common to most existing languages and the need to disambiguate word meanings accurately and rapidly is vital for communication. In fact, approximately 80% of common words in English have multiple dictionary definitions (Rodd *et al*. 2002). While many of us are able to accurately disambiguate most words without effort, research has revealed large individual differences in this skill: those who perform poorly on general comprehension tests have been shown to be both slower and less accurate at retrieving word meaning (Rodd *et al*. 2002, 2013, 2016). In fact, language comprehension requires a series of skills that help us map words into meaning while accessing and integrating lexical representation in a coherent representation of sentence meaning (Blott *et al*. 2021). This activity is incremental as we start accessing word meaning wor-by-word while reading. This can be useful for rapid comprehension, but it can lead to

misinterpretation in the case of ambiguous sentences as in the example below.

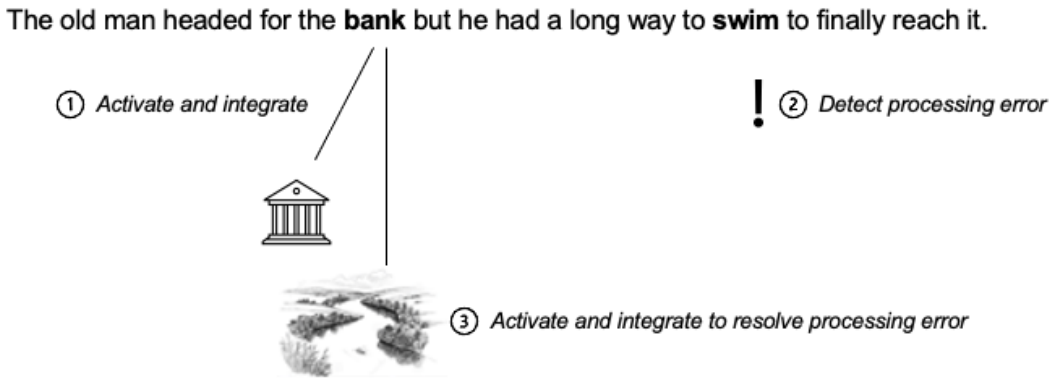

Figure 1
Adapted from Blott *et al.* (2021) - Reinterpretation process in a semantically ambiguous sentence. While reading the sentence, readers will first be led to interpret the ambiguous word "*bank*" with its dominant meaning (financial institution), and they will detect their processing violation to sentence coherence only when encountering the disambiguating word "*swim*". The activation and subsequent integration of the secondary meaning of the word"*bank*" (river side) is then needed to successfully comprehend the given sentence.

The example reported in Figure 1 (adapted from Blott *et al*. 2021) represents a common phenomenon in language use. The ambiguity lies in the multiple meanings of the homonym word "*bank*". In fact, *bank* may refer both to the financial institution and to the river side. The process of disambiguating the word *bank* to its subordinate meaning occurs only towards the end of the sentence thanks to the word "*swim*". In the past 50 years, research has debated whether all meanings of ambiguous words are activated at the same time or whether only one meaning is activated over the competing others (Schvaneveldt *et al*. 1976; Simpson, Krueger 1991; Tabossi 1988). The general agreement is that, despite the temporal activation of all meanings, the processing system quickly prefers one single meaning over the others, and it settles on that (Seidenberg *et al*. 1982; Twilley, Dixon 2000). This preference is usually led by two factors. On the one hand, it depends on the frequency of the multiple meanings of the ambiguous words (Twilley, Dixon 2000) and on the other it depends on the latest encountered occurrence of the ambiguous word (Rodd *et al*. 2013, 2016). In the case of the sentence in *Figure 1*, no previous disambiguating context is given and, for that reason, the reader's processing system has to rely on the most frequent and dominant meaning of the word *bank*. This leads to misinterpretation until the disambiguating word *swim* is processed. Properly detecting the meaning coherence violation triggers reinterpretation processes that recognise the ambiguity of *bank* as the trigger for those interpretation difficulties, and readers can finally access its subordinate meaning (i.e., 'river side') while integrating it into the proper

context.

This process of accessing the dominant meaning, detecting the conflict, inhibiting the accessed meaning and accessing the subordinate meaning can require quite some effort. Therefore, disambiguation processes have always been associated with processing costs. It is no surprise that sentences that need reinterpretation are processed more slowly that those that do not show any conflicting interpretation (Duffy *et al*. 1988; Rayner *et al*. 1994; Sereno *et al*. 1992). Evidence from eye-tracking and self-pace reading has also shown that readers spend more time on regions containing the disambiguating words (Blott *et al*. 2021; Simi *et al.* 2022). Moreover, they show a larger number of regressions to previous regions supposedly indicating difficulties in integrating the disambiguating information within the previous context (Frazier, Rayner 1987). Even though most of the evidence relies on syntactically ambiguous sentences (e.g., garden-path sentences such as "The old man the boat"), previous investigations (MacDonald *et al*. 1994) discussed how this type of ambiguity is influenced by the ambiguity of lexical representations. The way we access, build upon, and maintain complex lexical representations may result in different comprehension outcomes according to the readers' individual differences (Daneman, Carpenter 1983; Twilley, Dixon 2000), and the way individual differences affect reading comprehension is of great practical importance. Perfetti and Stafura (2014) argue that readers with higher processing costs on lexical access tasks show limited resources for misinterpretation repairment. Moreover, Perfetti (2007) puts forward the Lexical Quality Hypothesis, according to which reading comprehension skills depend on the quality of the words' lexical representations. For effective reading comprehension, the words' mental representations should be influenced by their correct lexical representation, which need to be rapidly recalled and which do not require much cognitive effort. Orthographical, phonological and meaning elements are considered high in quality when all three of these lexical representations are specified and bound together so that retrieving one type of information will immediately activate other types of information associated with the word (Richter *et al.* 2013). However, readers with impaired lexical representations may risk retrieving incorrect lexical information in comprehension processes. In this case, readers will have to rely on larger working memory resources for word-level processes, and this will mean that the limited capacity may not be sufficient for the higher-level comprehension processes such as knowledge-based inferences (Richter *et al.* 2013). Therefore, comprehension is significantly connected to lexical knowledge (Adlof *et al.* 2006; Braze 2007; Prat, Just 2011).

Differences in word forms and meanings have been found in adult readers (Mainz *et al.* 2017). In fact, it was shown that the more extensively

readers have experienced written text, the more efficiently they process word-sentence integration (MacDonald *et al.* 1994). This may influence the activation of strategies to resolve processing difficulties and misinterpretations. In previous research on on-line sentence processing, it was suggested that larger lexical knowledge is linked to eased word recognition and lexical processing at the sentence level (Ashby *et al.* 2005; Payne *et al.* 2012; Taylor, Perfetti 2016). The author of this work believes in the importance of shedding light on the role of lexical expertise in comprehension and reinterpretation in adults with dyslexia, who, as recent investigations have shown, present difficulties in their lexical access abilities (cf. Cappelli *et al.* 2022 for an overview).

For the reasons discussed above, this study has focused its research on the performance of people with dyslexia, who have been shown to have differences in their text comprehension abilities (Cappelli this volume; Cappelli, Noccetti this volume), in their working memory capacity (Ullman 2004; Ullman, Pierpont 2005), in their lexical retrieval skills (Alloway *et al.* 2010, 2014) and, more recently, in their pragmatic abilities (Cardillo *et al.* 2018; Cappelli *et al*. 2018, 2022; Griffiths 2007; Lam, Ho 2014; Simi 2018). This latter field of study is still rather new, and difficulties have been identified in children with dyslexia in metaphor understanding (Cardillo *et al*. 2018; Kasirer, Mashal 2017), in scalar implicature processing (Hu *et al*. 2019) and in their broader communicative abilities (Ferrara *et al.* 2020; Lam, Ho 2014). Despite these studies having as their focus children with dyslexia, a few recent investigations point towards the persistence of these difficulties in adulthood, even at university level (Cappelli *et al.* 2018, 2022; Griffiths 2007; Simi 2021; Smith-Spark *et al*. 2016). However, to the best of the author's knowledge, no attention has been given to a specific aspect of pragmatics, namely, humour processing. Therefore, in this study, semantically ambiguous sentences were embedded in humorous contexts to investigate the reinterpretation processes and pragmatic abilities in individuals with dyslexia. As discussed in this section, this type of ambiguity leads readers to misinterpret the sentence at first, and only later is the first interpretation adjusted to successfully comprehend the sentence. We used a web-based tool (Gorilla, Anwyl-Irvine *et al.* 2020) to present the first part of a joke followed by three possible endings for the reader to choose from. The ambiguous element was inserted only in the humorous ending (CH). To successfully comprehend the joke, participants were required to disambiguate the ambiguous word. Comprehension was assessed using a Judgement task in which readers had to decide if the joke was funny or not. We also collected the responses related to the other two possible endings: wrong but related (WR) and wrong and unrelated (WU).

In addition, we wanted to investigate the differences between two types

of ambiguities in jokes: lexical and syntactic ambiguity. Both lexical and syntactic ambiguity involve two or more words with identical phonological and graphic representation but with different meanings. Word class change takes place at the lexical level; however, the word has different syntactic roles and has multiple meanings that trigger different interpretations. According to the syntactic ambiguity resolution model (MacDonald *et al.* 1994), both lexical and syntactic knowledge in sentence comprehension is governed by common lexical processing mechanisms and syntactic ambiguities, just as lexical ones, depend on ambiguities at the lexical level (Chiaro 1992). We are speculating that having to disambiguate a word maintaining the same word class would be an easier process than having to retrieve meanings that belong to different word classes because both lexical retrieval and syntactic skills are necessary.

With this idea in mind, half of the jokes relied on lexical ambiguity with word class maintenance across meanings and the other half relied on lexical-syntactical ambiguity with word class shift across meanings. Moreover, we also included a Vocabulary knowledge test and a Digit Span test to investigate whether the reader's lexical knowledge affected on-line reading behaviour. Our hypothesis was that the group with dyslexia would show larger processing costs than their typically developing peers. We expected dyslexic readers to fail to reinterpret the jokes and, therefore, to be less accurate than the control group in the task. In the word class shift condition, we expect this difference to be even more evident as the reinterpretation requires recalling a meaning that belongs to a different word class, which is an additional step. Finally, we also hypothesised that we would find individual differences in reinterpretation processes, since we assumed that the readers' lexical knowledge would play a role in their processing costs. As put forward by previous research (Ashby *et al.* 2005) readers with a larger lexical knowledge show a facilitation in tasks that require lexical access. Therefore, our hypothesis was that dyslexics would not be as successful as their peers in lexical access tasks and that would correlate with their more limited lexical knowledge (Camia *et al.* 2022; Cappelli *et al.* 2022).

2. Methods

2.1. Participants

The participants were 36 young adults with developmental dyslexia (mean age=21;5; SD= 1;9) and 41 typically-developed young adults (mean age= 20;9; SD= 1;8). All participants were university students recruited at Lancaster University through the Sona Systems (https://www.sona-

systems.com/). For the dyslexic group, the including criteria were twofold; being an English native speaker and having dyslexia. The control group had only one including criterion that of being English native speakers. Exclusion criteria were non-corrected visual or auditory deficits or significant cognitive impairments. All participants signed a consent form and this study was approved by the ethical committee at Lancaster University. All participants with dyslexia had been previously diagnosed by educational or clinical psychologists on the basis of reading and spelling performance.

2.2. Materials and design

To investigate the participants ability to disambiguate ambiguous lexical items in a humorous context, the critical sentence was inserted at the end of jokes. The first part of the joke did not contain any ambiguity; it was just providing the context. The critical sentence, instead, contained an ambiguous word with two meanings (i.e., a dominant and a subordinate meaning, e.g., "bank"). The disambiguation process would consist in attributing the subordinate meaning to the ambiguous word in order to obtain a humorous effect. The lack of disambiguation would not trigger "a laugh" but would instead create a coherent but absurd situation. The critical sentence was expected to create processing difficulties that would then lead to reinterpretation. We will refer to this sentence as coherent humorous (CH) punchline (see Example in Table 1). To investigate comprehension and reading behaviours, two other possible endings were created: a wrong but related ending (WR), and a wrong unrelated ending (WU). Participants had to choose which of the three alternatives was the correct and humorous punchline. In all (CH) punchlines, there were 5-7 words that separated the first part of the joke from the ambiguous word in order to allow participants to carry out and complete the meaning selection process. The jokes were divided into two conditions: same word class (SWC) and different word class (DWC). In the first, the CH punchline contained ambiguous words whose meanings belonged to the same word class (adjective vs. adjective). In the latter, the CH punchline contained ambiguous words whose meanings belonged to different word classes (noun vs. adjective).

Condition	Joke stem	Coherent Humorous Punchline (CH)	Wrong Related Ending (WR)	Wrong Unrelated Ending (WU)
Same word class (SWC)	Mark looked at his wife while she was putting a dress in the *fridge* and said: "What the heck are you doing?" And she replied:	I'd like to have something **cool** to put on this evening	Sorry, honey, I was distracted	I am going to take your car today
Different word class (DWC)	The child ran home screaming, "Dad! Dad! Dad! Look what I've got!!" as he was opening his hands towards his father. His father replied "Oh boy! How did you catch a *squirrel*?" The child said:	I climbed a tree and acted like a **nut**!	I used my net!	I want a piece of that pie!

Table 1
Example stimuli. Coherent Humorous Punchlines (CH) contained an ambiguous word that needed to be disambiguated towards its subordinate meaning. The two conditions could either present words whose meanings belonged to the same word class (adj. vs adj) or to different word classes (noun vs adj). Two incorrect endings were also provided.

In the examples above, the punchline in the SWC condition lies in the ambiguous word "cool" which can refer to the temperature reached by putting the dress in the fridge (adjective) or it can refer to the wife's desire to wear something fashionable (adjective). The humorous effect is achieved because of the unexpected ambiguity of the target word. The punchline in the DWC condition reaches a humorous effect because a "nut" can refer to the nuts squirrel love to hoard (noun) or a crazy person (adjective). Again, unexpected ambiguity makes the joke on point and the readers can have a laugh only if they are able to retrieve the two meanings of the target word and choose the funniest one in the specific context.

Our investigation compared the interpretation of participants with and without dyslexia when they were presented with ambiguous elements in the two conditions (same word class vs different word class) and needed to reinterpret them in order to recognise the humour. The ambiguous words came from previous studies on ambiguity (Vitello *et al.* 2014) where participants were asked to rate the words dominant and subordinate meanings. A total of 30 jokes were created per condition and they were pseudorandomly assigned to participants. The measured dependent variables were reaction times and accuracy.

2.3. Procedure

The experiment was built and administered through Gorilla (Anwyl-Irvine et al., 2020). At the beginning of each trial, a fixation cross (500ms) was shown at the centre of the screen. Afterwards the first part of the joke was displayed and, after reading this, three possible endings were presented to the participants who were instructed to use the mouse to select the correct humorous punchline. Three types of endings were used: a coherent humorous

punchline (CH), a wrong but related ending (WR), and a wrong unrelated ending (WU). Both the joke stem and its endings were read and recorded by a mother tongue speaker, and they were played when the text appeared on the screen. This was done in order to control and compensate for any phonological difficulty participants with dyslexia might have encountered. After each trial participants responded to the Humour Judgement task giving a score from 1 (not funny at all) to 7 (very funny) on a standard Likert scale. The whole experiment lasted between 15 and 20 minutes. Dyslexic participants were in general slower than their typically developed peers in completing the task.

After the experiment, participants' lexical and working memory skills were further assessed through the WAIS-R Vocabulary and the Digit Span Tests. The vocabulary test focuses on the subjects' receptive functions and verbal linguistic skills and general cognitive abilities. Participants were asked to provide a definition for each given word. The test is designed to assess vocabulary size and reading comprehension abilities. The Digit Span Test consists in repeating digits read by the examiner. The subjects tested cannot see or read the sequence, so they need to remember the digits. The test is subdivided into 3 subtests: direct digit span test, backwards digit span test, reordering digit span test. This test assesses basic cognitive skills, in particular the immediate recalling of orally presented information. This test has been shown to correlate with working memory capacity. This part of the session took 10 minutes.

2.4. Data Analysis

Analyses were conducted using RStudio (RStudio Team 2015). Reaction times and accuracy percentage were analysed. Performance in the Vocabulary and the Digit Span tests were recorded as z scores calculated by subtracting the mean from the total score and dividing the result by its standard deviation

With this measures study, we aimed at investigating: a) the difference between dyslexics and typically developing participants in processing ambiguity, b) effect of ambiguity on humour processing and comprehension outcomes, c) the differences in processing ambiguous words whose meanings belong to the same word class and those whose meanings belong to different word classes, d) the role of individual differences in lexical knowledge and working memory in dealing with misinterpretations in the two different conditions.

3. Results

3.1. Comprehension Results

Accuracy rates were significantly lower in the dyslexic group than in the control group in both conditions. In fact, we found a statistically-significant difference in average accuracy rate by both group ($F(1)= 243.68$, $p < 0.0001$) and by condition ($F(1)= 27.36$, $p<0.0001$). On average, participants with dyslexia were 23% less accurate than controls in the same word class condition and 37% of times less accurate than controls in the different word class condition (see Figure 2, A). In Figure 2, B, the participants' selections of the jokes' endings are represented.

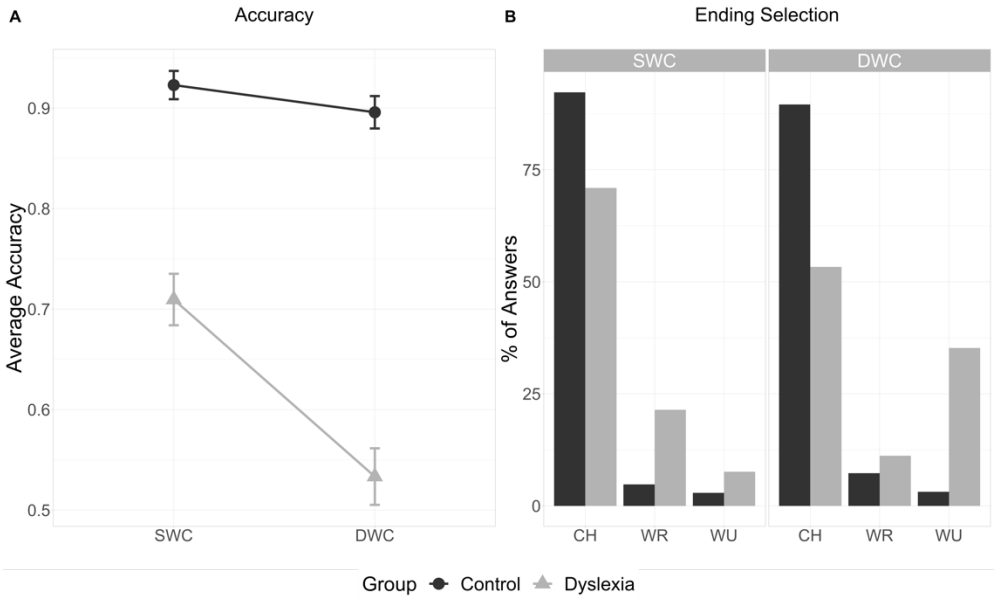

Figure 2

A. Performance of adults with dyslexia and controls in the task in the two conditions. Raw scores were transformed to proportions (relative to 1, the maximum obtainable score) before plotting. SWC indicates the condition in which the disambiguation occurred thanks to a shift in the same part of speech (noun vs noun), DWC indicates the condition in which the disambiguation and the humorous effect was reached shifting from one part of speech to another (noun vs adjective). Error bars denote standard errors.

B. Participants' selection among the three possible endings. CH indicates the correct humorous ending, WR indicates the wrong but related ending, WU indicates a wrong and completely unrelated ending.

The pattern is quite interesting. When not selecting the correct answer, controls usually select the wrong related answer in both conditions. Dyslexics, instead, act the same as controls in the SWC condition, but, conversely, they chose significantly more frequently the wrong unrelated answer in the different word class condition. This indicates in the DWC

condition, that dyslexic participants do not recover the subordinate meaning of the ambiguous words, and, in addition, they probably also experience a processing resources overload and are thus unable to access both meanings of the words. Ultimately, dyslexic readers seem unable to form a coherent comprehension of the jokes (see Table 2 for descriptive statistics).

3.2. Reaction Times

Even when the dyslexics chose the correct ending, there was a significant difference in reaction times for condition ($F(1)= 62.862$, $p < 0.0001$) and for group ($F(1)= 13.540$, $p < 0.0001$). However, in the same word class condition, the two groups of participants showed a smaller difference (~1 second) than in the different word class condition (~4.5 seconds), see Table 3 for the descriptive statistics.

Group	**Condition**	**Reaction Times (ms)**	
		Mean	**SD**
Control Group	Same Word Class	3305	1223
	Different Word Class	3712	1399
Dyslexic Group	Same Word Class	3451	1325
	Different Word class	4176	1591

Table 2
Descriptive statistics for reaction times (ms).

The reaction times results (see Figure 3) show a significant processing difficulty for the dyslexic group in the different word class condition. This seems to point to the fact that the cognitive resources required to process such a condition are depleted in the dyslexic group. Given the previously discussed accuracy results, we can confidently assume that comprehension was not achieved.

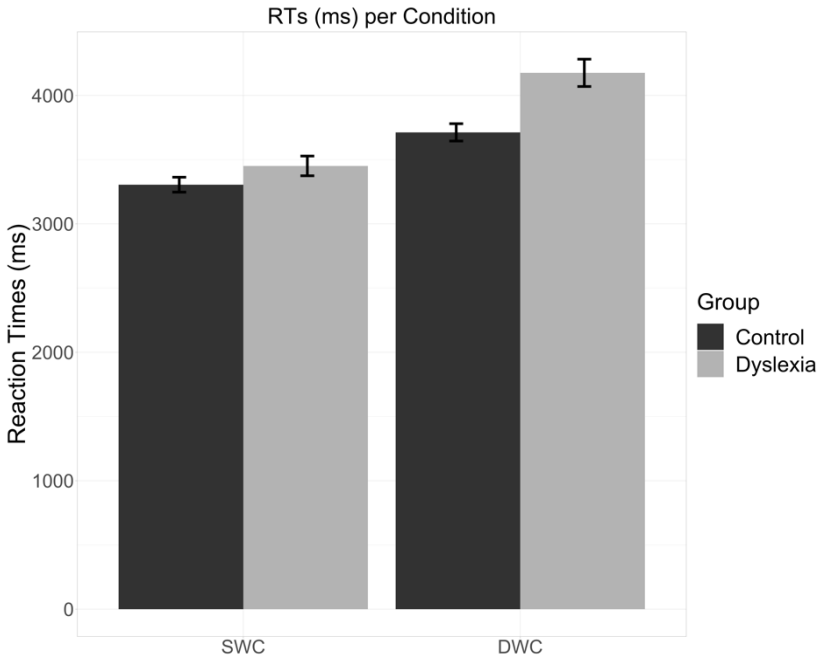

Figure 3
Reaction Times (RTs) of adults with dyslexia and controls in performing the task in the two conditions. Error bars denote standard error.

3.3. Individual Differences and Pragmatic Processing

On the WAIS-R Vocabulary test, out of a maximum score of 57, the dyslexic group performance (M_{Vocab}= 30, SD_{Vocab}= 8.8) was relatively worse than the performance of the control group (M_{Vocab}= 48, SD_{Vocab}= 10). Similarly, the dyslexics performance (M_{Digits}= 26, SD_{Digits}= 6.3) on the WAIS-R Digit Span Test, out of a maximum score of 48, was also worse than that of the control group (M_{Digits}= 40, SD_{Digits}= 9.1).

We analysed our dependent variables (i.e., reaction times and accuracy) in relation to the participants scores in the Vocabulary and the Digit Span tests. To draw meaningful conclusions, there should be large variance in Condition effects across individuals. As evident in Figure 4, there is high variability in both reaction times and accuracy measures per condition. We will now discuss the role of lexical knowledge and working memory capacity in the processing of the two ambiguous conditions.

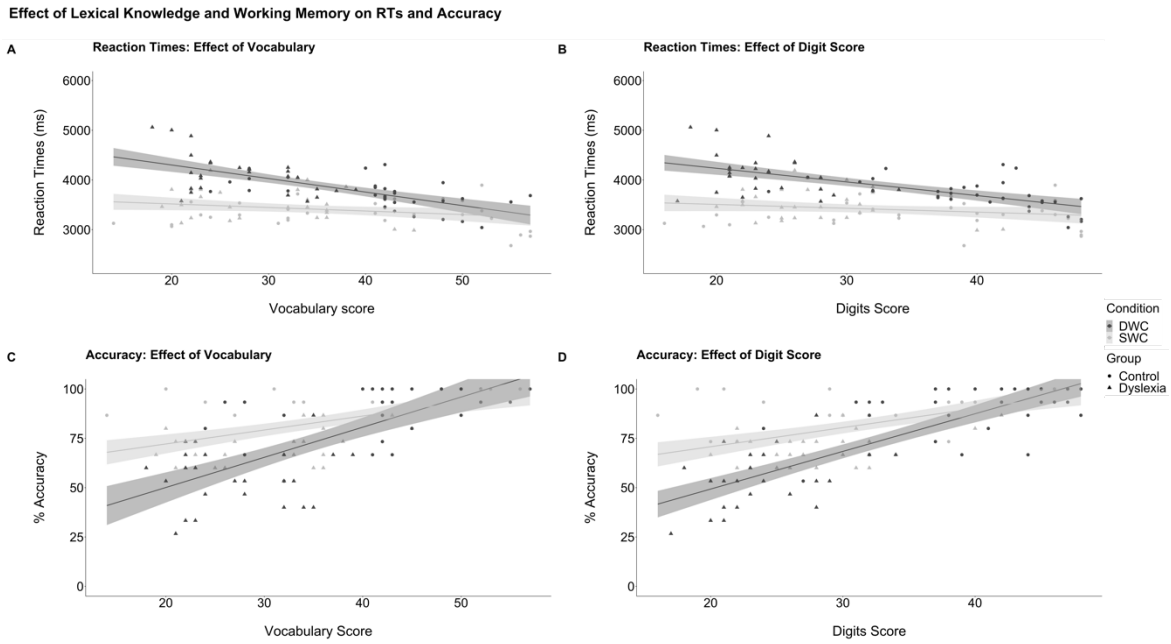

Figure 4
Relationship between lexical knowledge, working memory and task performance. Scatterplots for reaction times and accuracy show a comparison between the SWC condition and the DWC condition. Geompoints show the performance of the two different groups of participants.

3.3.1. Comprehension accuracy

Effects of Vocabulary and Digits Score and their interaction with group and ambiguity condition on accuracy performance were significant (see Figure 4, C and D). The comprehension results showed that they were influenced both by the readers' lexical knowledge and by their working memory capacity.

3.3.2. Reaction Times

Higher vocabulary knowledge is also associated with faster reaction times plus we found an interaction of ambiguity and vocabulary knowledge (Figure 4A). Moreover, we found an interaction of DWC condition and reaction time and working memory capacity (Figure 4B) but no interaction between SWC reactions times and working memory capacity. This result hints at the fact that the cost demands of shifting between word classes in terms of reactions times did depend on the reader's working memory capacity.

4. General Discussion

This study aimed at investigating reinterpretation processes and pragmatic abilities in individuals with dyslexia. To do so we used semantically

ambiguous sentences in humoristic contexts. We also wanted to investigate the differences between two types of ambiguities in jokes: lexical and syntactic ambiguity. In fact, half of the jokes relied on lexical ambiguity with word class maintenance across meanings and half of the jokes relied on lexical-syntactical ambiguity with word class shift across meanings. We hypothesised that the group with dyslexia would show larger processing costs than their typically developing peers in processing ambiguity in jokes. In particular, we expected a difference between the two conditions (same word class vs. different word class) because we hypothesised that having to recall meanings belonging to different word classes would require a larger working memory and lexical knowledge abilities. For this reason, we also investigated how individual differences influence interpretation processes. Specifically, our hypothesis was that dyslexics would have an impaired lexical access because of their limited lexical knowledge (Camia *et al.* 2022; Cappelli *et al.* 2022).

In line with our hypothesis, dyslexics performed more poorly than controls in processing jokes in both conditions, both in terms of reaction times and accuracy. Dyslexics were 23% less accurate than controls in the same word class condition and 37% less accurate than controls in the different word class condition. Moreover, when choosing an alternative other than the correct one, dyslexics chose the related non-humorous ending more often in the same word class condition, but they chose the unrelated ending more frequently than controls in the different word class condition. This points toward a larger processing difficulty in this latter condition and ultimately towards a poor comprehension of jokes.

Concerning reaction times, even when choosing the correct ending, dyslexics were significantly slower than controls in both conditions, but, again the different word class condition seemed to be more challenging than the same class condition. This fact, combined with lower accuracy, seems to indicate that dyslexic participants were often unable to resolve the ambiguities in the different word class condition. The fact that in general dyslexics seem to have difficulties in processing ambiguity might be attributed to the notion that they are not as familiar as the controls with the multiple meanings of the ambiguous words. In both conditions, even when jokes were considered funny (hence we can assume a correct interpretation of the joke), dyslexic participants took significantly longer to process them.

Moreover, we investigated the influence of the individuals' vocabulary knowledge and working memory capacity on the interpretation processes and comprehension accuracy. The analysis of correlation showed that vocabulary knowledge, and hence lexical expertise influenced the processing times in both groups of participants in both conditions. Interestingly, a remarkably strong effect of working memory was found in the processing of jokes

belonging to the different word class condition. This is in line with the Reading Systems Framework (Perfetti, Stafura 2014) which suggests that readers with weaker lexical knowledge must resort to further processing resources to carry out lexical access tasks. In our study, the use of semantically ambiguous words (with ambiguities belonging to the same word classes or to different word classes) require the pragmatic ability to detect coherence violation and, to resolve such violation, readers must access and integrate a secondary and alternative meaning. Our data show how dyslexic readers (who showed reduced lexical knowledge with respect to their non-dyslexic peers) were impaired in such disambiguation processes compared to control readers who had larger lexical knowledge. Moreover, we can argue that changing word class requires even a further processing step. In this specific condition, in fact, the subordinate meaning has to be accessed through a different word class and that, according to our hypothesis, would require larger processing resources. Our data seem to confirm our hypothesis that less efficient working memory exerts an effect on the accuracy and reaction times performance of our participants.

5. Conclusions

Overall, our results provide evidence of reinterpretation difficulties in jokes containing lexical ambiguity, especially when the joke relied on accessing meanings that belonged to different word classes. This was an interesting result, showing that dyslexics probably underwent a cognitive overload and while processing the ambiguity lost track of the overall meaning. Moreover, our results pointing towards a prominent role of lexical knowledge and working memory capacity for an accurate and rapid lexical access are new and promising. Despite this data being still quite preliminary, we believe that this line of study is worth further investigation to extend our results and to overcome this study's limitations. One of the limitations is the relatively small sample of our target group. Although sufficient to show differences with their typically developed peers, a larger sample would strengthen our preliminary results and that would enable a generalisation across the focus group. Another limitation concerns the clinical diagnosis of our participants. We could not control for any comorbidities the participants might have had. A more homogeneous and controlled group could confirm or show different results. Another limitation regards the small number of stimuli (30 per condition) that we were able to construct. Further studies should employ a more systematic approach, in which ambiguity is presented in different conditions and tasks (i.e., one could use the words in isolation and track the participants responses when presented with the words' dominant or subordinate meaning). Even with these limitations, to the best of our

knowledge, the present study is the first to successfully show that adult readers with dyslexia have difficulties in dealing with humour processing when lexical disambiguation is required. These results contribute to shedding light on lexical and pragmatic difficulties in adults with dyslexia and advance our understanding of the possible interventions and compensatory measures that can be implemented at the university level to effectively reduce the impact of such issues.

Bionote: Nicoletta Simi is a Postdoctoral Research Fellow at the Department of Psychology of the University of Tuebingen, Germany. She holds a PhD in English linguistics from the Department of Philology, Literature and Linguistics at the University of Pisa. During her PhD studies, her interests involved the development of a comprehensive understanding of key phenomena that are at stake in reading comprehension processes. Her PhD research project was centred on the study of these processes in typically-developing young adults and in young adults with dyslexia speaking English as L1 and L2. She gives further attention to the underlying general processes such as cognitive processing speed, working memory and motivational / anxiety aspects of language use. Currently, she investigates how conflicts of linguistic nature are detected, monitored and adapted in L1 speakers of English and German. She deals with lexical ambiguity, negation and world knowledge violations.

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