

# **LITMUS Sentence Repetition Workshop**

16th December, 2019

# **BOOK OF ABSTRACTS**







Department of Linguistics and Centre for Multilingualism
Project: MultiMind
University of Konstanz

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#### PRACTICAL INFORMATION

#### **Travelling to Konstanz**

### By plane/train

Closest airports:

Zurich (ZRH), Bodensee-Airport Friedrichshafen (FDH)

#### **Public transport from Zurich Airport**

There are train connections from Zurich Airport to Konstanz every 30 minutes (direct train every hour). Travel time 1:06 hours to 1:15 hours

Plan your individual trip on the web page of the Schweizer Bundesbahnen (Swiss national train service)

#### Taxi

<u>Taxi Dornheim</u> provides an affordable airport transfer service between Zürich Airport (Kloten) and Konstanz.

#### Public transport from Bodensee-Airport Friedrichshafen

By train (IRE) via Radolfzell (1 train change). Alternatively by train to Friedrichshafen "Hafenbahnhof" and then change to the Katamaran (seabus) to Konstanz "Hafen".

Plan your individual trip from Bodensee-Airport Friedrichshafen: www.qixxit.de

#### By car

From Stuttgart (180 km)

Autobahn (motorway) A 81 towards Singen. From exit "Kreuz Hegau" onwards, you will find signs for Konstanz Once in Konstanz, follow the signs for "Universität"

#### From Munich (220 km)

Autobahn (motorway) A 96 towards Lindau. Exit "Sigmarszell", follow the main road "B 31" direction Friedrichshafen - Meersburg From Meersburg, take the vehicle ferry to Konstanz. Once in Konstanz, follow the signs for "Universität"

#### From Zurich (75 km)

Autobahn (motorway) A1 towards St. Gallen, at the intersection Winterthur-Ost take the A7 motorway towards Kreuzlingen/Konstanz. After crossing the border into Germany, first follow the signs for "Mainau". Then follow the signs for "Universität".

#### How to get from Konstanz city centre to university

The workshop will take place on the University of Konstanz Campus, in building K, room K7 (over the Mensa).

You can travel to the University of Konstanz using the city bus numbers 4, 9A, 9B, 9C or 11. Bus schedules are available for download (in German) from the <u>Stadtwerke Konstanz</u>.

If you take the bus two or more times on the same day, a day ticket ("Tageskarte") is cheaper than single tickets.

#### **Accommodation in Konstanz**

Konstanz is a popular holiday destination. Please make sure to book your accommodation as soon as possible. A list of hotels offering a discount for the university can be found here: https://www.uni-konstanz.de/en/event-and-conference-management/event-and-conference-management/accommodation/

# **Conference dinner**

The conference dinner will take place at the Restaurant Konzil at 7.30 pm on 16th December, 2019. The address of the restaurant is Hafenstraße 2, 78462 Konstanz. Take bus 9A or 9B to the central station and walk along the train station towards Konzil and the City Garden. Once you reach a pedestrian underpass use it to get to the other side of the train tracks. The Restaurant Konzil is on the left-hand side.

### Wi-Fi

You can use the eduroam on campus with the login information from your own university. Alternatively, there is a conference Wi-Fi that you can use:

• Wi-Fi (SSID) 'conference'

Username: litmus Password: SYWrVFft

#### **ORAL PRESENTATIONS**

#### Natalia Meir, Bar-Ilan University, Israel

# LITMUS Sentence Repetition as a window to morpho-syntactic abilities in Heritage Languages: the case of Heritage Russian

Previous studies demonstrate that Russian LITMUS Sentence Repetition Task (based on Marinis & Armon-Lotem, 2015) is a sensitive tool for diagnosing DLD in monolingual Russian-speaking and bilingual children who acquire Russian as their Heritage Language (Armon-Lotem & Meir, 2016). Furthermore, a recent study on Russian-Hebrew bilingual children with ASD demonstrate that Sentence Repetition task is a valuable tool which teases apart children with ASD with intact morphos-syntactic skills vs. children with ASD who have with comorbid DLD (Meir & Novogrodsky, 2019). In the current talk, I will first present several coding schemata (e.g., Full Sentence Repetition, Target Structure, Morphological Accuracy [case inflection, aspect marking, subject-verb agreement], Error Patterns). Secondly, I will present novel data (which were collected in collaboration with Ekaterina Tomas (HSE) and Natalia Mintrofanova (University of Tromso) on morpho-syntactic development of bilingual children (Russian-Hebrew (n=30; Age Range 5-6yrs.) and Russian-English (n=10; Age Range: 5-6yrs.) with typical language development as compared to Russian-speaking monolingual peers and younger monolinguals (n=65; Age Range: 3-6yrs.). Different coding schemata provide a measure of different linguistic abilities, thus researchers and clinicians should be aware of the clinical (as well as theoretical) implications of coding schemata choice.

#### Cornelia Hamann & Lina Abed Ibrahim, University of Oldenburg, Germany

#### **Diagnostic accuracy of German LITMUS-SRT**

This study investigates the performance of 22 monolingual and 54 bilingual children (5;6-9;4) in a German LITMUS-SRT [1,2]. The task incorporates syntactic structures which are linguistically complex and have been shown to be difficult for children with specific language impairment (DLD/SLI) across languages. These are in particular structures with embedding, Wh-movement and intervention in dependencies. SRT can be scored as "identical repetition" or as "target structure", the latter aiming for scoring the mastery of a syntactic structure, ignoring lexical errors. For evaluating the accuracy of either measure, we established a strict procedure grouping the participants in "with" or "without" SLI. Using standardized tests adjusting the norms for bilinguals according to dominance where appropriate, we identified 12 monolingual and 8 bilingual children as "with" SLI, i.e. showing impairments in two language domains in each of their languages. Using clustering methods, we show that SRT identifies DLD/SLI in bilingual contexts. Clearly, our SRT targets relevant structures: monolingual children are classified with 100% accuracy. Crucially, SRT distinguishes BiTDs from MoSLIs and BiTDs from BiSLIs, with "target structure" rendering better accuracy (90%). Even higher accuracy is achieved if cases of selective SLI are included and SRT-target-structure is combined with other tests, such as non-word-repetition.

#### Elinor Saiegh-Haddad, Amna Halabi & Sharon Armon-Lotem, Bar-Ilan University, Israel

# The Effect of Memory Skills on Sentence Repetition (SRep) among Palestinian Arabic (PA) Speaking Children with Typical Language Development (TLD) and Children with Developmental Language Disorder (DLD)

Sentence Repetition task (SRep) is a reliable tool for measuring language abilities in children as well as to discriminate between DLD and TLD children (Riches,2012). Many studies have tried to clarify the relationship between SRep and memory skills, often focusing on single aspect of memory. Some studies showed that children with DLD have more limited verbal working memory (WM) than their peers (e.g., Marton and Schwartz, 2003). Others have shown that language impairments in DLD are related to verbal short-term memory (STM) or/and long-term memory (LTM) (e.g Majerus at al. 2009). Yet, Riches (2012) supports this multifaceted view of SRep with a role for syntactic knowledge, working memory and short-term memory. Using a SRep developed for PA and a battery of verbal and non-verbal memory tasks we explore whether SRep is affected by LTM representations, STM or WM skills, comparing nonverbal memory as against verbal memory, in Arabic speaking children with DLD and with TLD. We show that the performance on a SRep task appears to be more correlated to verbal memory functioning in STM in the two groups of children: TLD and DLD.

# Elma Blom<sup>1</sup>, Chantal van Dijk<sup>2</sup> & Jan de Jong<sup>3</sup>

<sup>1</sup>Utrecht University, The Netherlands, <sup>2</sup>Centre for Language Studies, Radboud University, The Netherlands, <sup>3</sup>University of Bergen, Norway

### LITMUS - SRep: Distribution of outcomes across languages

LITMUS-SRep has been developed for different languages with the aim of supporting diagnosis of DLD in bilingual children. For the instrument to succeed in that, scores should show a distribution with sufficient variation across a group of children and in addition show performance improving over time, with older children passing more items than younger ones. If applied in different languages, these patterns should resemble each other, irrespective of the language. We present the results of administrations of the test in children between 5 and 9 years of age, for different first languages: Dutch, German, English, (Syrian)-Arabic. Apart from the Dutch children, who are monolingual, the children are simultaneous (German, English) or sequential bilinguals who have Dutch as their second language (Syrian). We will present the data in two ways: (1) By showing the distribution of results within each group, (2) By showing the progress of scores with age as an independent variable. While all tests used follow the LITMUS SRep format, changes were made occasionally in the scoring procedure to facilitate a fair comparison between languages. We will discuss these adaptations as well.

#### Lina Abed Ibrahim & Cornelia Hamann, University of Oldenburg, Germany

## Scoring the German LITMUS-SRT: When is "target-structure" met?

The German-LITMUS-SRT achieves high accuracy in identifying SLI/DLD in bilinguals if scored as "target-structure", i.e. scoring the mastery of a structure, disregarding lexical errors and errors typical for German bilinguals, such as gender and case [1,2,3]. We discuss whether case-marking can be ignored when scoring "target-structure". Clearly, case-marking can be crucial for constituting a structure, such as accusative-marking in SVO structures or in object-relative-clauses, and thus cannot generally be neglected. Moreover, separating gender and case errors is often difficult due to syncretism in the article system. Comparison with a parallel French-SRT revealed that "identical repetition" gave better accuracy in French than "target-structure", whereas this pattern is reversed for German [1,4]. Since obvious differences in these two SRTs are case-marked DPs, this indicates that case-marking difficulties might mask syntactic competence. Detailed comparisons revealed that case errors indeed skewed the German results. French showed expected intervention effects (more difficulties with Which-object-questions than Who-object-questions) whereas German showed the opposite due to a systematic case error. Additional evidence comes from the repetition of long passives, where even monolingual German children produced systematic case errors, [3]. Ultimately, it should be investigated if structures crucially relying on case-marking could be excluded from German-SRTs for bilingual populations.

# Stanislava Antonijevic-Elliott, School of Health Sciences, National University of Ireland Galway, Ireland

# Scoring Sentence Repetition: Experiences from the Irish task

Irish is an endangered, fast changing, minority language for which there is no description of current language standards. Previous research has established that some morphosyntactic forms that are consistently used by parents are acquired early and are consistently and accurately used by children as young as three years of age. Other forms that are inconsistently used by parents are also inconsistently used by their children (Antonijevic et al. 2019). This variability in use of some morphosyntactic forms contributes to complexity of scoring of sentence repetitions. We present data from 30 typically developing children age 4-8 years who were brought up through Irish. They completed comparable sentence repetition tasks in Irish and English. Two different types of scoring, accuracy of repetition of sentence structure (0-1) and CELF-type scoring (0-3), were compared. Use of CELF-type scoring proved to be more sensitive and, therefore, more appropriate for Irish sentence repetition. This minimised the contribution of incorrect repetitions of inconsistently used forms to the overall score. In addition, a number of allowances are outlined that do not significantly alter the meaning of the sentence and further minimise the effects of regional variations in the use of morphosyntactic forms.

### Liliana Correia<sup>1</sup>, Cristina Flores<sup>1</sup> & Maria Lobo<sup>2</sup>

### <sup>1</sup>Universidade do Minho, Portugal, <sup>2</sup>Universidade Nova de Lisboa, Portugal

# Portuguese version of the Sentence Repetition Task: methodological issues and results from monolingual and bilingual German-Portuguese children

Although some Portuguese language batteries include the elicited imitation of sentences, there is no Sentence Repetition Task aimed at bilingual populations. We present the criteria followed in the construction of the Portuguese version of the SRT, based on the rationale of the LITMUS-SR Tasks (Marinis/Armon-Lotem2015). Sentences have been controlled not only for syllable length, but also for word frequency, based on two corpora: Escolex and P-PAL (Soares\_et al.2010;2013). As in other LITMUS-SR tasks (Meir/Walters/Armon-Lotem2015; Marinis/Armon-Lotem2014), the Portuguese SRT includes 3 blocks of sentences according to their level of difficulty. To evaluate the adequacy of the task, we tested 25 Portuguese-German bilingual children and 27 monolingual Portuguese children, aged 6 to 10. Preliminary analyses reveal that early acquired syntactic structures do not pose a problem for most bilingual children. However, late acquired and more complex structures do. Sentences targeting the subjunctive tense, accusative clitics, long passives, lexically restricted object whquestions, and conditional clauses are particularly challenging for bilingual children.

#### Rikke Vang-Christensen & Mads Poulsen, University of Copenhagen, Denmark

#### Preservation of syntactic structure in Danish – insights from sentence repetition

In this paper, we report results from the use of an experimental sentence repetition task with 103 6th grade students (≈12 year olds) from ordinary Danish classrooms. The task consisted of 30 sentences systematically including a variety of syntactic structures, both simple reversible sentences with canonical SVO or non-canonical OVS word order and complex sentences with subordination, e.g. reversible subject and object relative clauses as well as embedded relative clauses. The participants' responses were scored for both accuracy (verbatim repetition) and preservation of overall syntactic structure. The potential of using both scoring methods will be discussed in the presentation, which will also provide examples of results of qualitative error analyses.

#### Sharon Armon-Lotem, Bar-Ilan University, Israel

## How do we score SRep? Learning from machine learning

SRep is often use for assessment of Developmental Language Disorder. Different manual scoring methods have been used in an attempt to find the best scoring system that yield most specific and sensitive distinction between children with DLD and children with typical language development. Using the Hebrew SRep (alongside the Russian one), the present study explores the use of novel machine learning models for identifying the best scoring measure. The results indicate that the two groups vary in the number and type of errors made and that the combination between the two is more promising than each of the measures separately.

#### Anna Gavarró, Universitat Autònoma de Barcelona, Spain

The SRT for Catalan: some new results

The Sentence Repetition Task of Gavarró (2016) for Catalan showed, albeit on the basis of a few cases, that typically-developing and children with SLI could be teased apart with such a task even just identifying identical repetition. Some new results are now available. First, Pereñiguez (2018) carried out the task with a larger age range (see Figure 1) and concluded that TD children attain adult-like performance at age 9. Second, the task has been used as a measure of grammatical development by Pagliarini et al. (2019) in a study of the interpretation of negative disjunction (exemplified in (1)). Negative disjunction has been investigated extensively and, in this first experiment on Catalan, children performed, as previously in languages like Japanese and Italian, differently from adults, assigning to sentences with negative disjunction an interpretation with negation taking scope over disjunction; however, some of the children tested had already established the adult interpretation, and the only factor that related systematically to performance was grammatical development as measured by the SRT, not age.

### Mariam Komeili<sup>1</sup> & Theodoros Marinis<sup>1,2</sup>

<sup>1</sup>University of Reading, United Kingdom, <sup>2</sup>University of Konstanz, Germany

#### The Development of the Farsi LITMUS-SR-30 Task

The Farsi LITMUS-SR-30 was developed following the procedures laid out by Marinis and Armon-Lotem (2015). The development of this task was a 2 stage process. In the first stage we developed the SR task with 18 sentence structures and a total of 68 sentences. The structures were broken down into three levels of complexity from least to most complex based on our theoretical knowledge of the language. Twenty Farsi-English bilingual children were tested at this stage using both the English and Farsi SR LITMUS tasks. Children were scored using the 'whole scoring method' where they score 1 if the sentence is repeated entirely correct and 0 if there are one or more errors. After rigorous analysis we identified which structures were most telling. This took us to stage two where we eliminated structures which demonstrated floor or ceiling effects and those which did not produce significant findings. This left us with 10 structures and a total of 30 sentences, hence the Farsi LITMUS-30-SR. The reliability and validity of this task is currently being analyzed. The performance on the Farsi LITMUS-30 SR of 37 Farsi-English bilingual children is being compared to their performance on a narrative task.

# Rogayah A. Razak, Zurr Hanis Hamim & Bryan Cho, Universiti Kebangsaan Malaysia, Malaysia

# Constructing bilingual sentence repetition tasks for the multilingual preschool children in Malaysia

Mainstream bilingualism is a common phenomenon in the South East Asia region including Malaysia. Multilingualism pose great challenges particularly to individuals with communication difficulties. This presentation talks about 2 studies which have been carried out in two sub-groupings of bilingual preschool children. The first study was on the sub-group Malay-English among Malay bilingual children and the second study, though still in its early stages, is on the sub-group Mandarin-Malay-English among Chinese children. The findings of the first study on 60 bilingual Malay children demonstrated there was a significant difference between the two languages in terms of accuracy [df=118, t=1.990, p= 0.049]. The Malay language (L1) had statistically higher scores (13.13 + 4.28) compared to their English (L2) scores (11.38 + 6.11). There was also a significant difference on the performance based on both age and language factors [Malay (DF5,54=3.561,p=0.007); English (DF5,54=2.894,p=0.022)]. The positive correlation between the word productions and accuracy performance in this study also highlighted the impact of the deficits in morphological knowledge towards the children's ability to process the syntax of sentences in the SR tasks across both languages. Initial findings on the 2nd study will also be presented.

### Svetlana Karpava<sup>1</sup>, Maria Kambanaros<sup>2</sup> & Kleanthes Grohmann<sup>1</sup>

<sup>1</sup>University of Cyprus, <sup>2</sup>Cyprus University of Technology

# The LITMUS Sentence Repetition task: Linguistic and cognitive abilities of Russian-Cypriot Greek bilingual-bilectal children in Cyprus

Sentence Repetition is a highly effective tool for assessing linguistic and cognitive abilities in monoand bi-/multilingual populations with both typical and atypical language development (Conti-Ramsden et al., 2001; Meir et al., 2016). This study investigates sentence repetition in bilingual Russian–(Cypriot) Greek children and connects results to other measures. Twenty bilingual-bilectal children participated in the study (Russian and Standard Modern Greek-Cypriot Greek). Their age ranges from 6 to 14;6 (mean 10.6; SD 2.1), and they attend primary and secondary schools in Cyprus, where the language of instruction is Greek. The LITMUS Sentence Repetition task (Meir et al., 2015) was used for data collection. The participants were also tested on a large battery of tests: the Diagnostic Verbal IQ Test, adapted to Cypriot Greek from Stavrakaki & Tsimpli's (2000) Standard Modern Greek original (Theodorou, 2013), the Russian Proficiency Test for Multilingual Children (Gagarina et al., 2010), the LITMUS-MAIN (Gagarina et al., 2012, 2015), and several tasks assessing executive functions (digit span test, word span test, fluency test, Raven's matrices). The analysis of the data showed that bilingual children had difficulty with a number of grammatical markers (case, pronouns, prepositions, subjectverb agreement, aspect). They also had more substitution rather than omission errors. There is a significant correlation between sentence repetition scores, language proficiency, and executive functions.

# Cornelia Hamann<sup>1</sup>, Lina Abed Ibrahim<sup>1</sup> & Solveig Chilla<sup>2</sup>

<sup>1</sup>University of Oldenburg, Germany, <sup>2</sup>Europa-Universität Flensburg, Germany

# Comparing performance of bilingual German-Arabic refugee and heritage children on a German and an Arabic-LITMUS sentence repetition task (SRT)

With the arrival of Syrian refugees language assessment faces a new challenge: We ask whether German-LITMUS-SRT [1] and Arabic-LITMUS-SRT [2] can be applied with comparable results to heritage and refugee children, and which factors explain variance. We compare 13 school-age Syrian refugees (7;9-12;3) to 13 (younger) heritage-speakers (6;2-11;8) with Arabic-L1 at T1 and T2, 12 months later. At T1, we establish typical development (level of competence) with standardized L1- and L2-tests. We further compare performance of these two groups on LITMUS Arabic and German sentence repetition tasks (SRT). We longitudinally investigate performance on German-LITMUS-SRT in the refugee group to determine how much exposure is necessary for performance above pathology range. As possible predictors, factors such as age and length of exposure to L2, early L1/L2-exposure, current L1/L2-use/richness, as well as limited L1-schooling are explored using linear-mixed-effects models (chronological age and SES were controlled for). At T1, comparable scores for both groups were found only for Arabic-SRT. Unlike heritage children, the majority of refugee children showed poor performance in German tests, particularly SRT, even after 24 months of systematic exposure. At T2, refugees performed above pathology range, but below age-matched heritage children in SRT. Best predictors for L2-performance are L2-exposure variables.

#### References

[1] Hamann, C., Chilla, S., Ruigendijk, E., and Abed Ibrahim, L. (2013). "A German sentence repetition task: testing bilingual Russian/German children," in Poster Presented at the COST Meeting in Krakow, Kraków.

[2] Zebib, R., Prévost, P., Tuller, L. & Henry, G. (eds.) (in press). Plurilinguisme et Troubles Spécifiques du Langage au Liban. Beyrouth: Presses universitaires de l'Université Saint Joseph.

#### Jacopo Torregrossa<sup>1</sup>, Chris Bongartz<sup>2</sup> & Theodoros Marinis<sup>3,4</sup>

<sup>1</sup>Goethe-Universität Frankfurt am Main, Germany, <sup>2</sup>University of Cologne, Germany, <sup>3</sup>University of Reading, United Kingdom, <sup>4</sup>University of Konstanz, Germany

### Adding discourse to SRTs: Under which conditions does the performance improve?

We will present results concerning bilingual children's performance in a sentence repetition task (SRT) including a discourse dimension: While traditional SRTs consist of sentences that are unrelated to each other, we designed a SRT in which the target sentences are connected in a narrative sequence that the child constructs step by step, as the task unfolds. Our aim is to show whether and under which conditions discourse coherence favors sentence processing. 18 German-Italian heritage children ranging in age from 7;5 to 11;0 (M: 8;7) were tested with four different versions of SRT (2 in German, with and without discourse, and 2 in Italian). We ensured comparability across tasks by matching the target sentences for syntactic complexity (e.g., presence vs. absence of embedding or movement, following the guidelines provided by the COST Action IS0804), number of words and frequency of lexical words. The results of the study show that bilingual children's performance (as measured in terms of target structures that were correctly reproduced) benefits from discourse coherence only in the non-dominant language (Italian). These results have implications for the design of language ability assessment tools for speakers whose language processing is likely to be particularly sensitive to discourse-pragmatic (rather than syntactic) information.

#### **POSTERS**

#### Francesca Costa, University of Milano - Bicocca, Italy

#### Sentence repetition task in heterogeneous bilinguals: a within-study-standardization

Multilingualism spreads nowadays: there are lots of children whose L1 is not Italian (L2). This reality arises new challenges in clinical practice because this population is often wrongly believed to have a language disorder. New diagnostic tools are thus needed. But when it comes to assess just L2 because no tools are available for both of the children's languages, it could be challenging to establish whether the child is TD or not. We administered LITMUS SRep task - Italian version - to two groups of TD 1st graders: 9 Italian monolinguals and 20 bilinguals (mostly Arabic or Chinese) age matched attending the same primary school. The task was scored following the O-1 rules. In order to establish if the 0-1 score could be useful in determining the presence of a language impairment we made a within-study-standardization to see how many bilinguals performed under 1 SD in comparison to monolinguals. Results have shown that 13 bilinguals out of 20 performed below 1 SD when considering monolingual norm. This is not exhaustive and the variable performance in bilinguals could be related by several factors (heterogeneous linguistic background, L1 typology, history of immigration), which must be taken into account.

### Ianthi Tsimpli<sup>1</sup>, Maria Andreou<sup>2</sup> & Eleni Peristeri<sup>3</sup>

<sup>1</sup>University of Cambridge, United Kingdom, <sup>2</sup>University of Cologne, Germany, <sup>3</sup>University of Thessaly, Greece

# Sentence Repetition as a measure of language knowledge in Greek-Albanian TD and DLD bilingual children

Although Sentence Repetition (SR) tasks have long been employed in language acquisition research (Vinther, 2002), the validity of these tasks has been debated. Some suggest that performance in SR may depend less on language knowledge and more on other cognitive abilities, such as working memory (WM) (Riches, 2012). The present study aimed at detecting whether (a) SR is a reliable measure of language ability, (b) whether and how TD bilinguals differ from DLD bilinguals on SR tasks and c) to what extent SR performance in TD and DLD bilinguals can be predicted by language proficiency measures and WM function. Our participants were 30 TD Greek-Albanian bilinguals and 30 DLD Greek-Albanian bilinguals 6-8 years old. All children were administered an expressive vocabulary task normed/standardized for Greek monolingual children, as well as the Rotating Figure and the Digit Backwards tasks to measure visuo-spatial and verbal WM respectively. Finally, all children were tested on a SR task developed within the COST Action IS0804 (Chondrogianni et al. 2013), which included various morpho-syntactic structures.