

Predictivity of non-word repetition on grammatical development: a longitudinal study on agreement dependencies in Italian typical, bilingual and DLD children.

Aim: Similarities between typical bilingual development and Developmental Language Disorder (DLD) pose a unique challenge in differentiating the two. In this study, a short-term multipoint longitudinal assessment method was used to compare grammatical development in time among three groups: monolingual typically developing children (m-TD), bilingual TD children (b-TD), and children with DLD. We aim at looking at the development of two agreement configurations (S-V and Clitic-Past Participle) and at its correlations with i. language exposure metrics, in case of bilinguals and ii. Standardized psychometric measures of cognitive and linguistic development.

Methodology: The longitudinal study consisted of three phases (Fig.1). At **T0**, an adapted version of the Ubilec Questionnaire UBiLEC (Unsworth et al., 2012) was used to collect information about language exposure (age of first exposure (AOE), traditional length of exposure (TLE), and Cumulative Length of Exposure (CLE) of the child. At **T1**, standardized measures of cognitive (Raven) and language development (Gram-Comprehension, Non-Word repetition, Marini et al 2014. BVL4-12) were collected, as well as accuracy on a forced-choice task of sentence selection on Subject-Verb (SV) and Clitic-Past Participle (Cl-PastPrt) agreement (Moscati & Rizzi 2014, Fig.2), in which children must choose the correct alternative of minimal pair. At **T2**, about 3 months later, children were tested again in the forced-choice task, varying the pictures and counterbalancing singular and plural correct agreement.

Participants: A cohort of 76 primary school children participated in the study. They were divided into 3 groups: m-TD (N=23, M.age= 64months; b-TD (N=31, M.age= 64months), DLD (N=22; M.age=63 months – Further divided into Phonological (Pho-DLD) and Grammatical (G-DLD).

Key findings: **a.** In all groups, the study revealed an effect of Condition at T1 and T2, with a higher proportion of correct choices in the SV over the Cl-PastPart condition ($p<.001$), see Figure 3. **b.** A longitudinal growth on accuracy is observed in the Pho-DLD but not in the G-DLD group ($p<.005$), Figure 4. **c.** Non-word repetition at T1 correlated ($r=0.38$) with longitudinal growth expressed by D (T2-T1), Figure 5.

Discussion: In bilinguals, we did not find correlations between language exposure metrics and longitudinal development over a short 3-months period. We instead found that Non-Word repetition at T1 correlates with longitudinal development in all groups, and even more strongly for bilinguals. This is in line and extends in a longitudinal dimension the results in Guasti et al. (2021). The longitudinal trend also differentiates between Pho-DLD and G-DLD, showing the importance of a multipoint assessment as a potential diagnostic tool. Our results also confirm that agreement relations in Italian follow a developmental scale, that could be captured through a ranking in terms of grammatical locality, as expressed by the Fragile Computation of Agreement Hypothesis (Moscati & Rizzi 2014).

Selected References. **Guasti, M. T., White, M. J., Bianco, G., Arosio, F., Camilleri, B., & Hasson, N. (2021).** Two clinical markers for DLD in monolingual Italian speakers: what can they tell us about second language learners with DLD?. *Clinical Linguistics & Phonetics*, 35(9), 829-846. - **Marini, A., Marotta, L., Bulgheroni, S., and Fabbro, F. (2015).** Batteria per la Valutazione del Linguaggio in Bambini dai 4 ai 12 anni (BVL_4-12). Firenze: Giunti O.S. - **Moscati & Rizzi (2014)** *Agreement configurations in language development: a movement-based complexity metric.* *Lingua* vol. 140, pp. 67-82.

FIGURE 1. Phases of the longitudinal study.

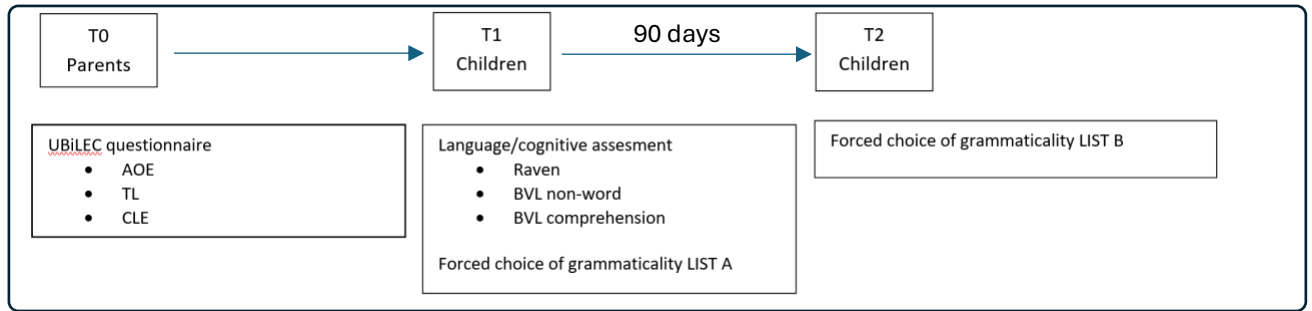


FIGURE 2. Trial structure in the Forced-Choice of Grammatical Form (FCGF) task

Conditions

(1) Subject-Verb
 Le regine_[p] la *ha_[s]/hanno_[p] comprata
 The queens it *has / have bought
 “the queens have bought it”

(2) Clitic-PastPart
 Le regine la_[s] hanno comprata_[s]/*e_[p]
 The queens it *has/have bought
 “the queens have bought it”

FIGURE 3. Mean proportion of correct choices for group in the two conditions at T1 and T2.

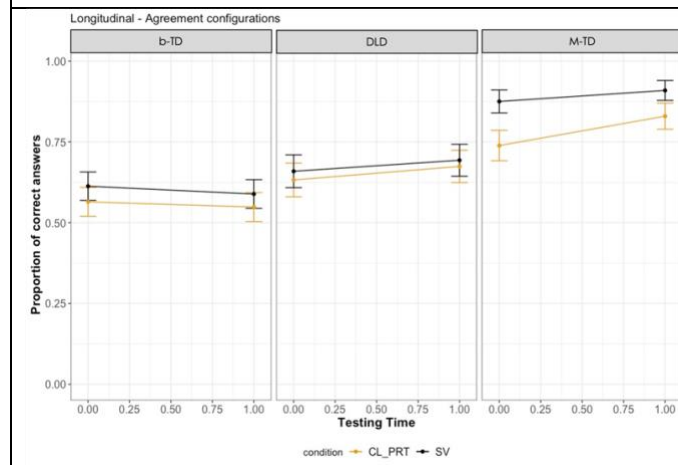


FIGURE 4. Mean proportion of correct choices in Pho-DLD and G-Pho-DLD at T1 and T2.

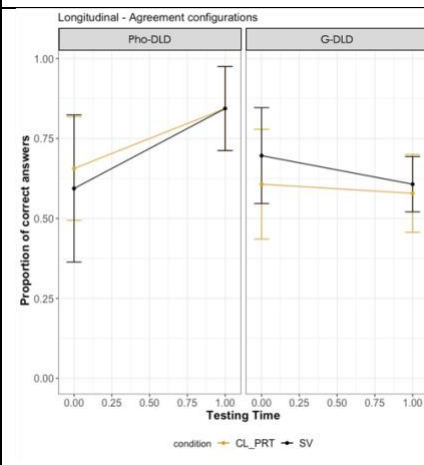


FIGURE 5. Variations ($\Delta = T2-T1$) over 3-months period in the FCGF task in function of NW repetition score obtained at T0.

