

Use of the Index of Productive Syntax (IPSyn) for Older Children

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ABSTRACT

This study explored the use of the IPSyn for language matching for five- to seven-year-old children with SLI. Data was drawn from an archival database of conversation-based language samples. The IPSyn was completed by hand; scores were compared to scores of children matched by MLU. Implications for research practice are discussed.

INTRODUCTION

The study of language acquisition and language disorders necessitates a method of matching participants. Typically children are matched (a) by age to compare performance of peers with and without language impairment, and/or (b) by some language measure, which usually results in a comparison of children with language impairment and younger children with typical language. Mean length of utterance (MLU) has long been used to language match preschool-age participants (e.g., Leonard, 1998). However, there are questions in terms of what language measures should be used to match children older than five years of age.

The usefulness of MLU has been questioned for children with longer utterances (e.g., above 3.0, Bloom & Lahey, 1978; or above 4.0 to 5.0, Bernstein & Tiegman-Farber, 1997). One criticism is that MLU does not necessarily reflect syntactic complexity. For example, the utterances “me eat more cookies” and “I like to eat cake” both contain 5 morphemes, contributing equally to MLU. Conversely, Rice et al. (2010) reported that MLU is a reliable and valid metric for children with SLI up to at least age nine. EVT scores (e.g., Owens & Leonard, 2006) and language age quotients (e.g., Gillam & Johnston, 1992) also have been used to match school-age children with language impairment. Thus, there is no agreement on how to best match older children based on language measures.

The current study was motivated by a reviewer suggestion for a grant application that proposed using MLU to match participants for a study on complex syntax in children with SLI. We had proposed to use MLU to achieve matching between typical language learners and five- to seven-year-old children with SLI. The reviewers suggested an alternate strategy of matching by Index of Productive Syntax (IPSyn; Scarborough, 1990) scores.

The IPSyn was developed as a research tool to measure morphological and syntactic development. Some researchers have explored use of the IPSyn with older children. Hewitt et al. (2004) reported that kindergarten children with SLI scored lower on the IPSyn Total Score and Sentence Structure Subscale than children with typical language ($d = .72$) but that the other IPSyn subscales lacked sensitivity. Oetting et al. (2010) reported that the IPSyn was not sensitive to age or clinical group differences for four- to six-year-old children who speak African American English. Further exploration of the utility of the IPSyn with older children is needed.

PURPOSE

The purpose of this study was to examine the use of IPSyn scores to language-match children. When children are matched by MLU, how do IPSyn scores compare?

METHOD

Participants

The data analyzed for this study were drawn from an archival database of language samples collected to study the production of complex syntax in children with SLI (Schuele, 2002). There were 19 children with SLI (five to seven years of age) and 19 children matched for mean length of utterance. The children with SLI met typical inclusionary and exclusionary criteria based on performance on the Structured Photographic Expressive Language Test-3rd Edition (SPELT-III), the Columbia Mental Maturity Scales (CMMS), and parent report. All children with SLI were enrolled in an intervention program. The typical language learners were preschoolers (three to five years of age) who performed within the average range on the SPELT-III or SPELT-P.

Procedure

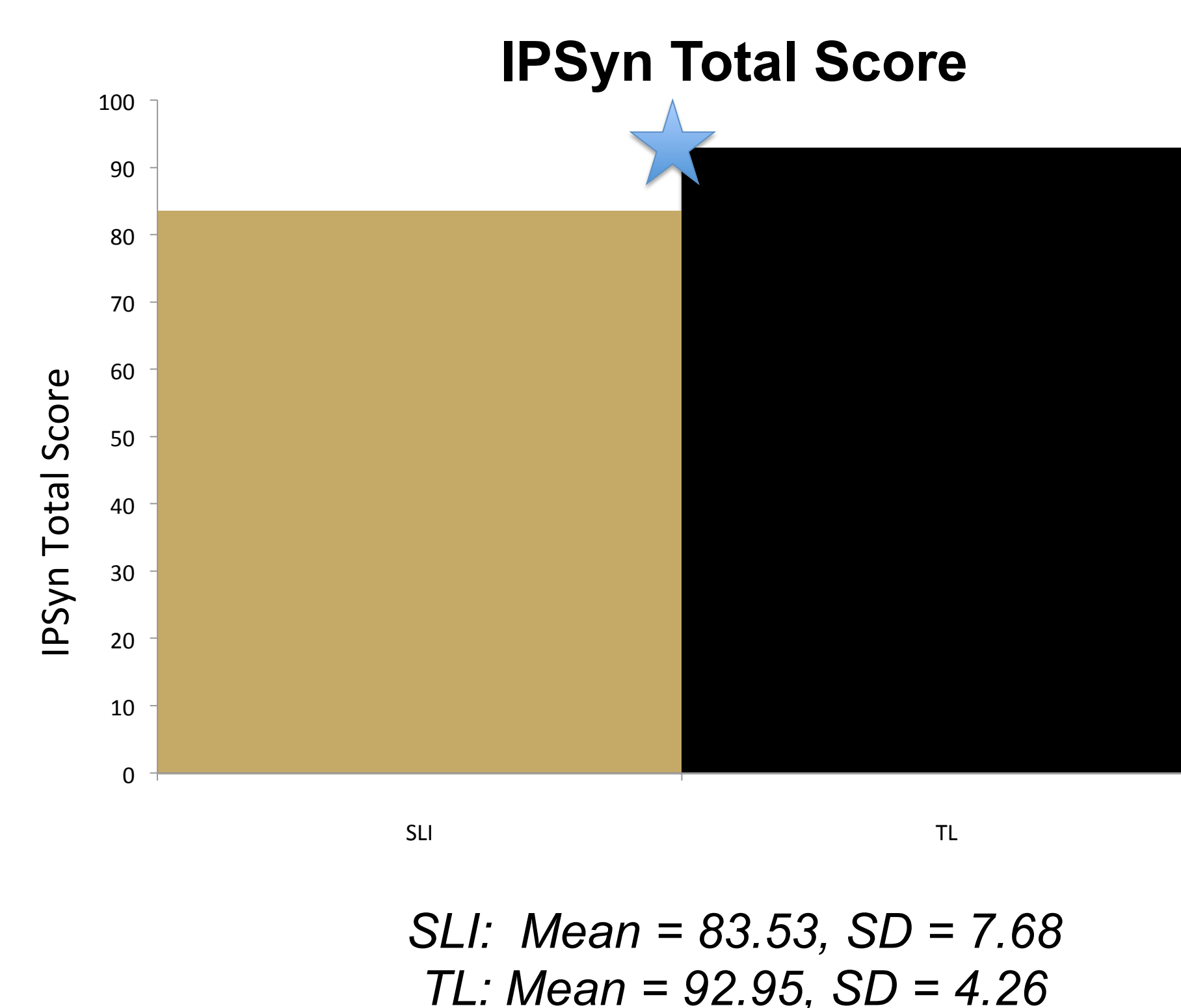
A conversation-based language sample, adapted from Hadley (1998), was elicited from each child in an examiner-child interaction. Children talked about school and home activities, favorite movies and television shows, and explained things such as how to play a favorite game.

Samples were orthographically transcribed and scored by hand using the IPSyn coding manual (Scarborough, 1990). Interscorer reliability was 98%. MLU was calculated from 100 utterances using t-units.

RESULTS

When children are MLU-matched, is IPSyn Total score mean similar?

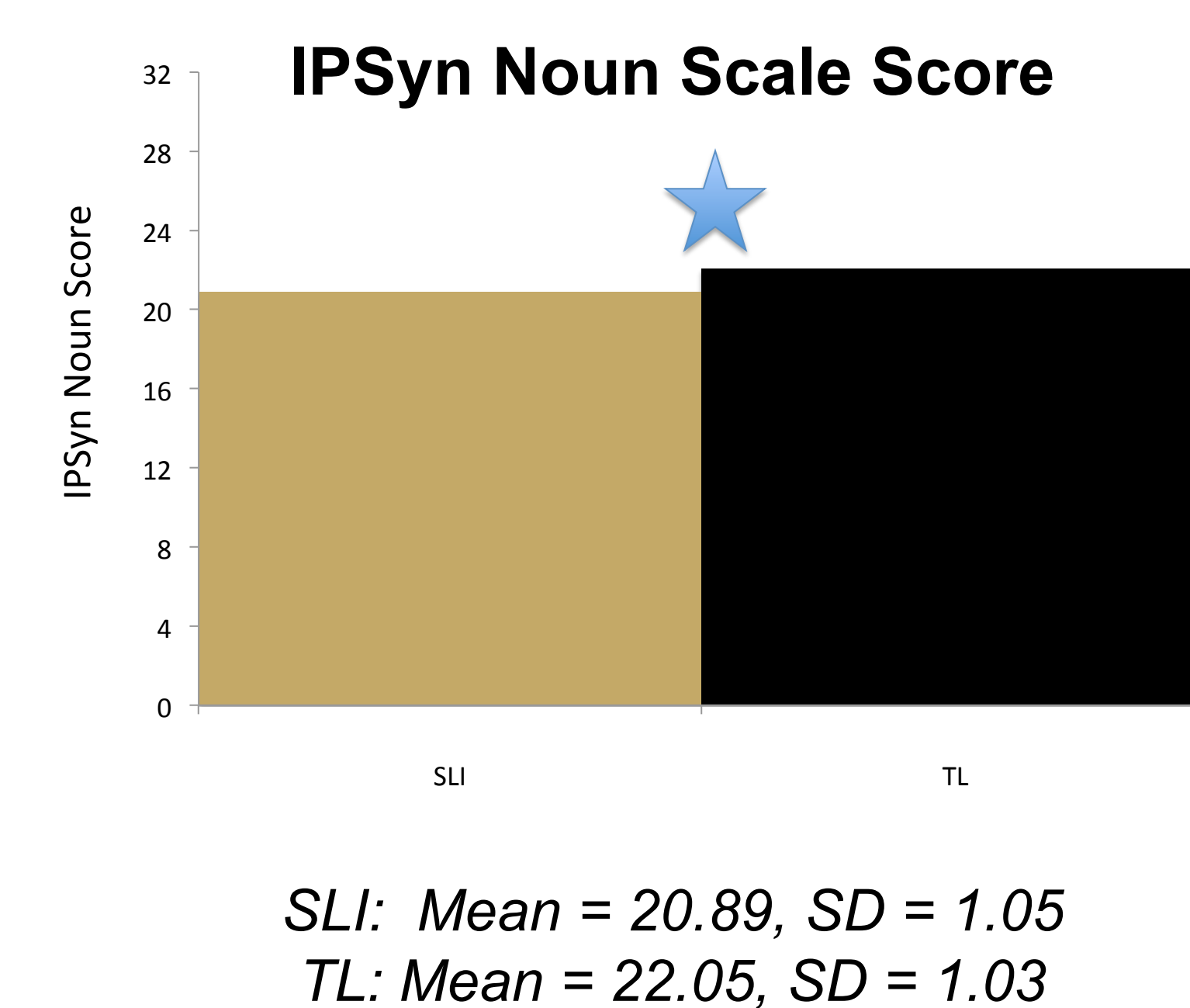
No. Children with SLI and MLU-matched children with typical language differed on IPSyn Total scores ($t(36) = 4.68$; $p = .00$; $d = 1.52$).



RESULTS

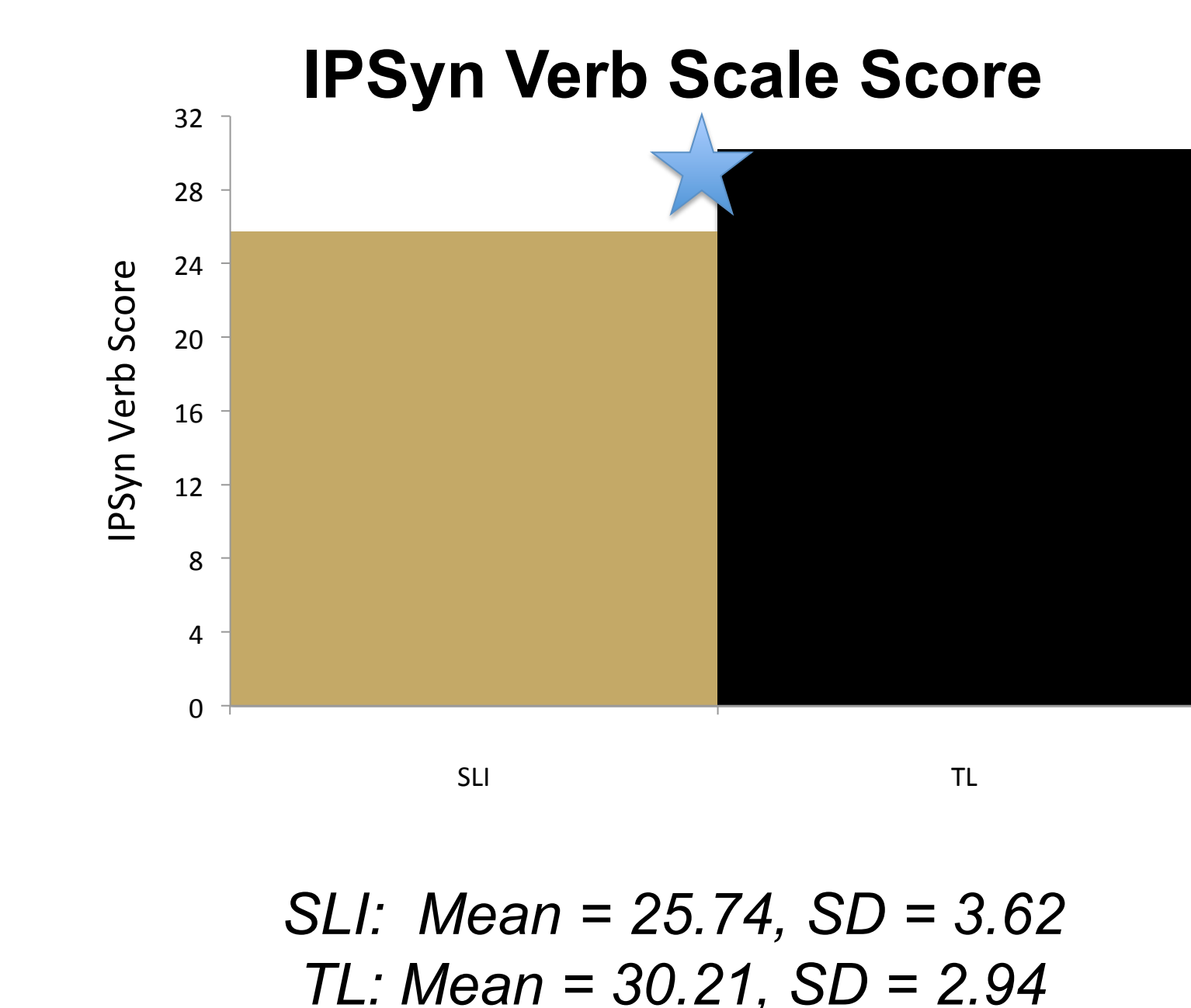
When children are MLU-matched, are IPSyn Noun Scale scores similar?

No. Children with SLI and MLU-matched children with typical language differed on IPSyn Noun Scale scores ($t(36) = 3.44$; $p = .00$; $d = 1.12$).



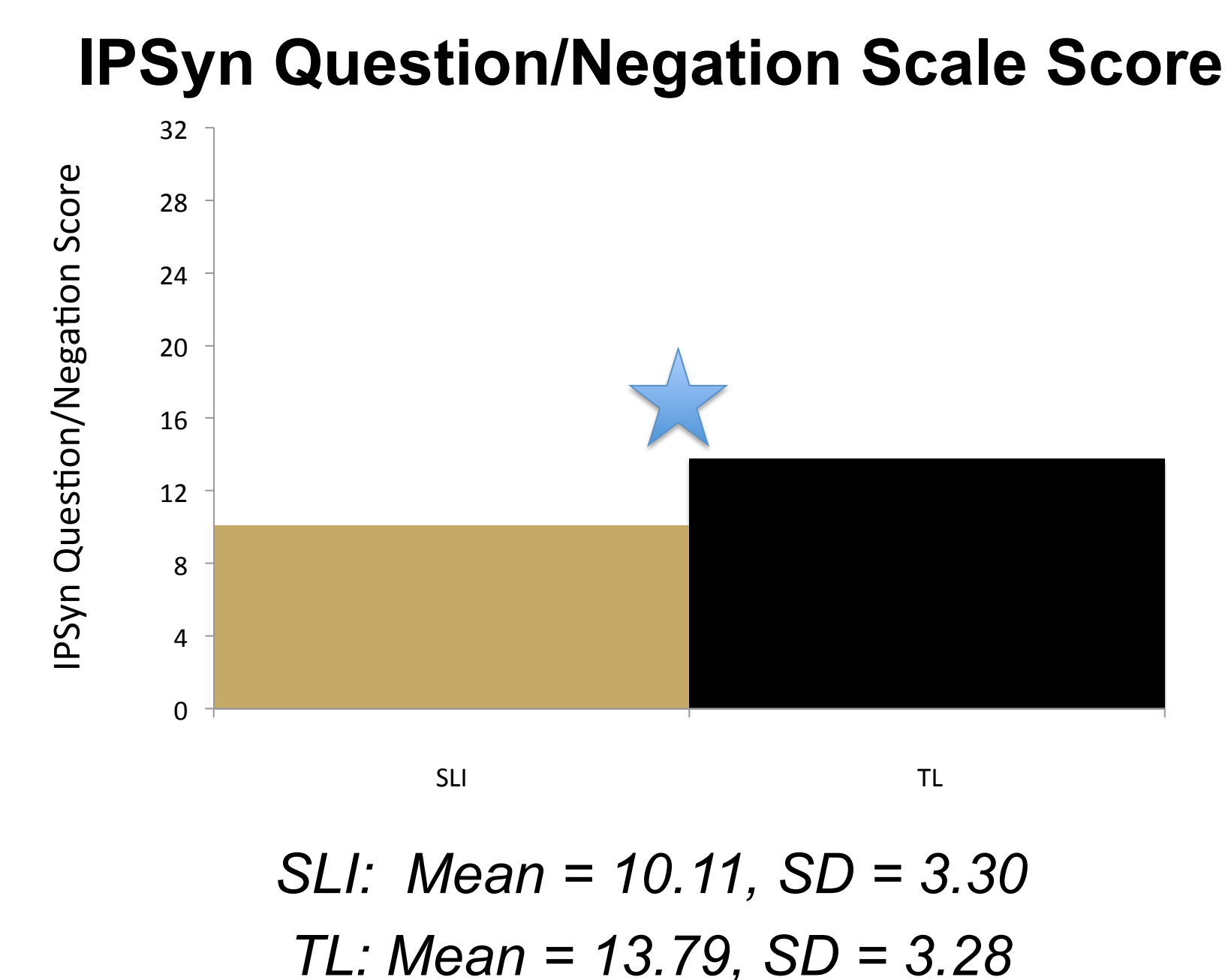
When children are MLU-matched, are IPSyn Verb Scale scores similar?

No. Children with SLI and MLU-matched children with typical language differed on IPSyn Verb Scale scores ($t(36) = 4.185$; $p = .00$; $d = 1.36$).



When children are MLU-matched, are IPSyn Question/Negation Scale scores similar?

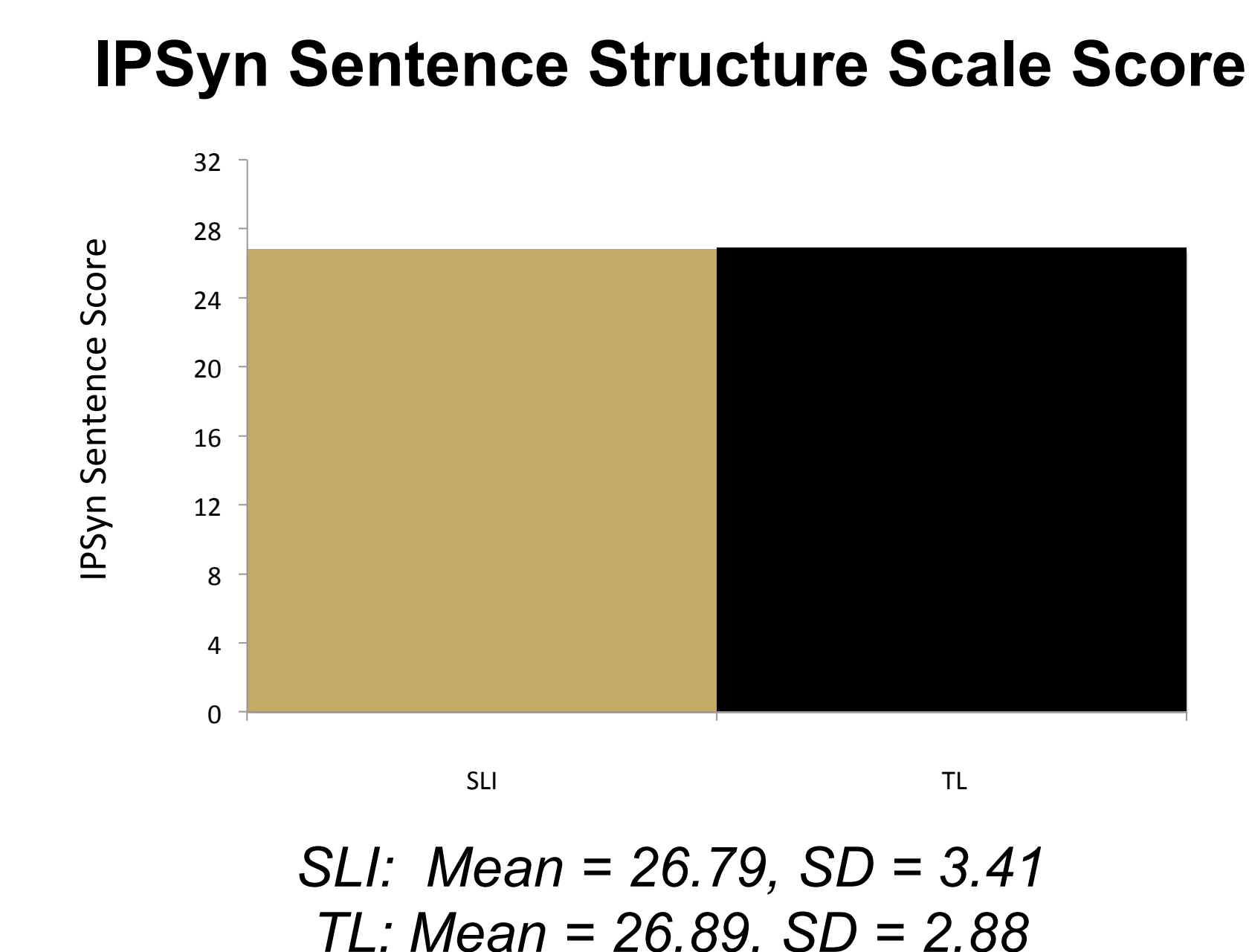
No. Children with SLI and MLU-matched children with typical language differed on IPSyn Question/Negation Scale scores ($t(36) = 3.46$; $p = .00$; $d = 1.12$).



RESULTS

When children are MLU-matched, are IPSyn Sentence Structure Scale mean scores similar?

Yes. Children with SLI and MLU-matched children with typical language did not differ on IPSyn Sentence Structure Scale scores ($t(36) = 0.10$; $p = .92$).



DISCUSSION

When children with SLI and children with typical language were matched by MLU, Total IPSyn, IPSyn Noun Scale, IPSyn Verb Scale, and IPSyn Question/Negation Scale scores differed. As hypothesized, IPSyn Sentence Structure Scale scores did not differ. Therefore, the IPSyn Sentence Structure Scale offers a potential method of matching school-age participants on a language measure.

For the purpose of meta-analyses and measuring growth, our field needs to use research-validated methodology. One area of concern is how children across studies are matched on language measures. Currently, there is little research to guide the selection of appropriate methods of matching participants. Future research should continue to study valid matching procedures.

ACKNOWLEDGEMENTS

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References available upon request: language@vanderbilt.edu

Poster available at: www.mc.vanderbilt.edu/language

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