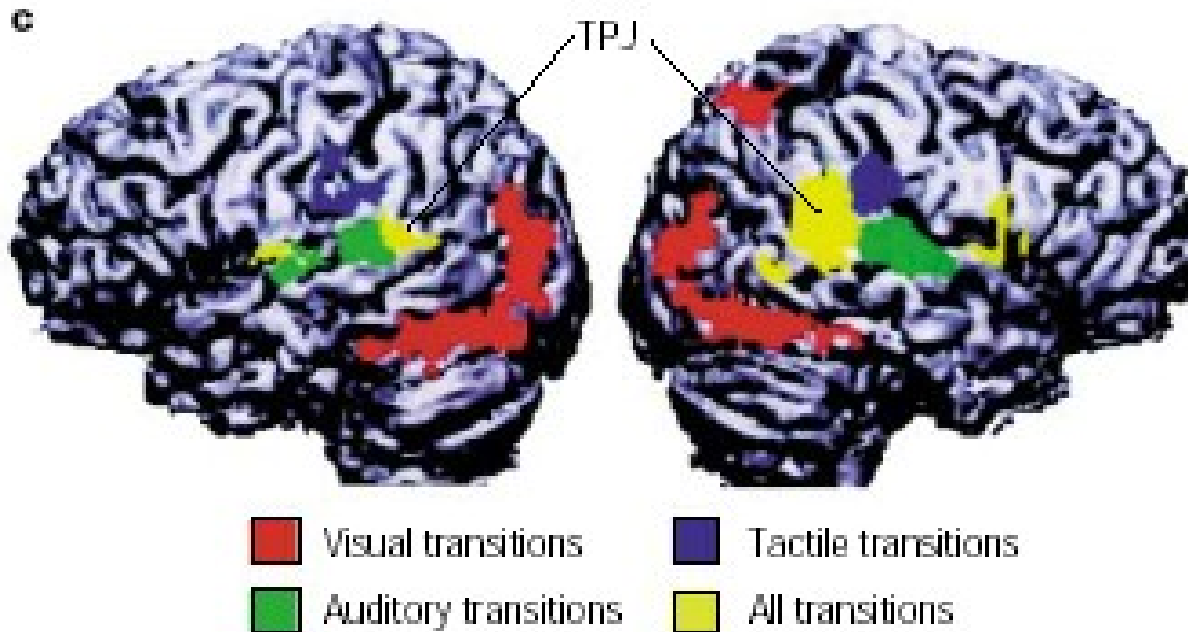


NeuroPsicologia dello  
Sviluppo e  
Riabilitazione

Padova, 4 Novembre 2020

Lezione n 10

# Aree Corticali Uni e Multi-sensoriali Modulate dall'Orientamento dell'Attenzione



# Visual attentional focusing in 8-month-old infants predicts their future language skills



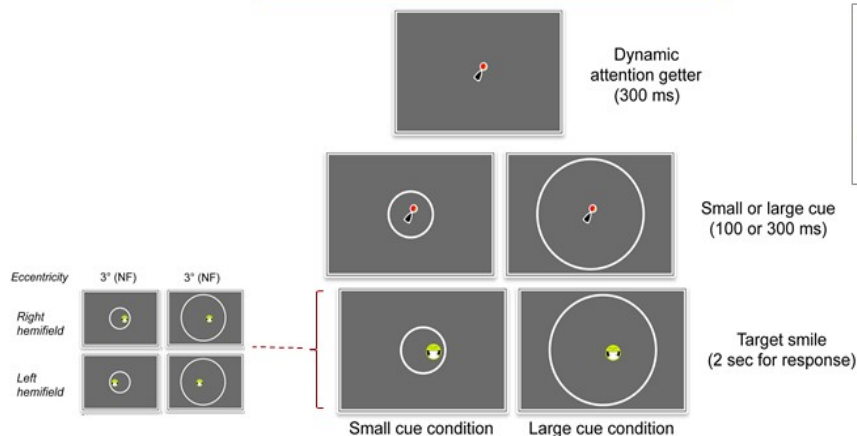
Simone Gori<sup>1,2</sup>, Luca Ronconi<sup>2,3</sup>, Sandro Franceschini<sup>2,3</sup>, Sara Bertoni<sup>3</sup>, Laura Franchin<sup>4</sup>, Eloisa Valenza<sup>5</sup>, & Andrea Facchetti<sup>2,3</sup>

1. Department of Human and Social Sciences, University of Bergamo, Bergamo, Italy;  
 2. Child Psychopathology Unit, Scientific Institute IRCSS "E. Medea", Bosisio Parini, Italy;  
 3. Developmental and Cognitive Neuroscience Lab, Department of General Psychology, University of Padova, Italy;

4. Department of Psychology and Cognitive Science, University of Trento, Italy;  
 5. Infant Cognitive Lab, Department of Developmental and Socialization Psychology, University of Padova, Italy.

## METHODS

### Attentional Focusing Abilities (8 months)

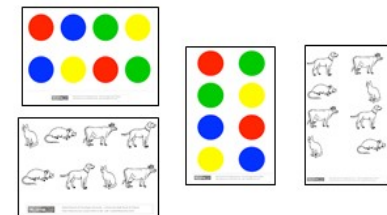


### Perspective longitudinal study

- 35 participants (20 M) were initially recruited
- First evaluation: 8 months of age
- Second evaluation: 31 (range 24-36) months of age

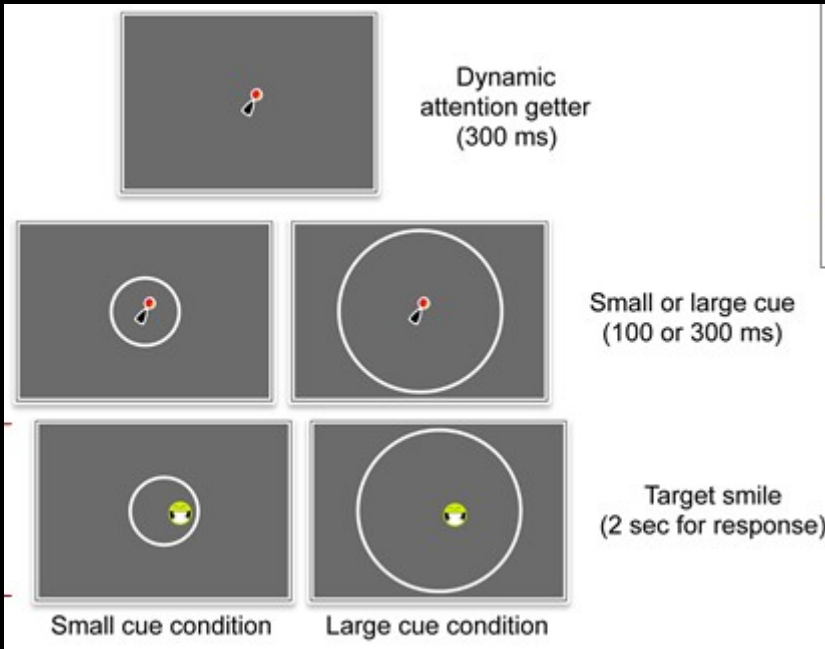
### Future Language Skills (31 months)

Rapid Automated Naming (RAN)  
*Animals and colors*



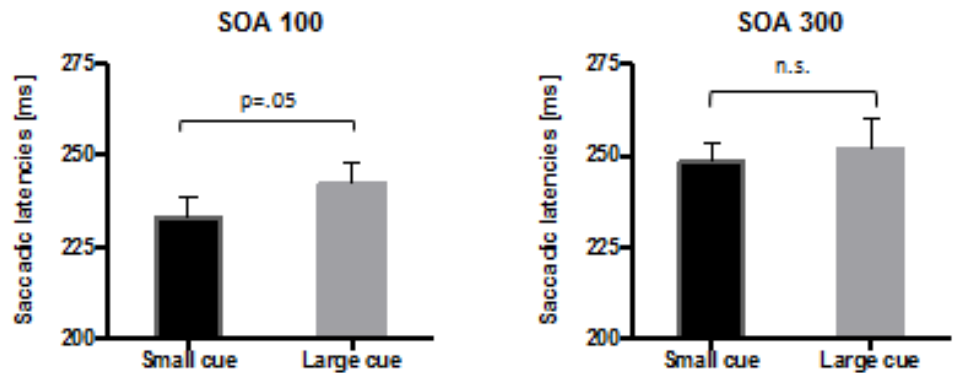
MacArthur-Bates Communicative Inventories (CDIs)  
*Italian short version*





## Attentional Focusing Abilities (8 months)

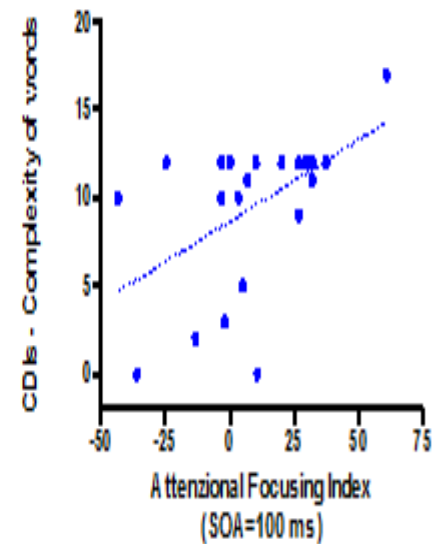
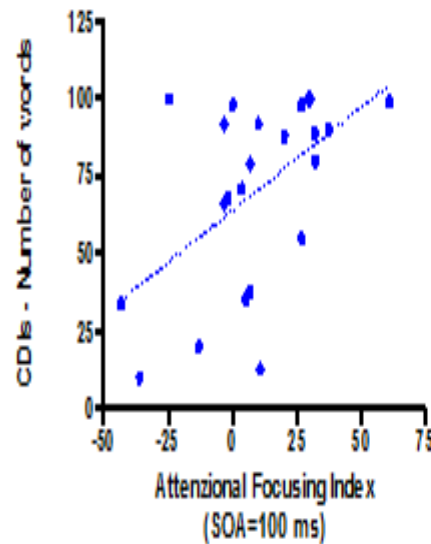
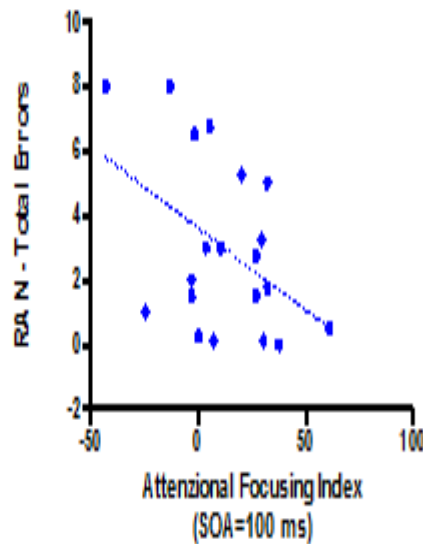
### RESULTS



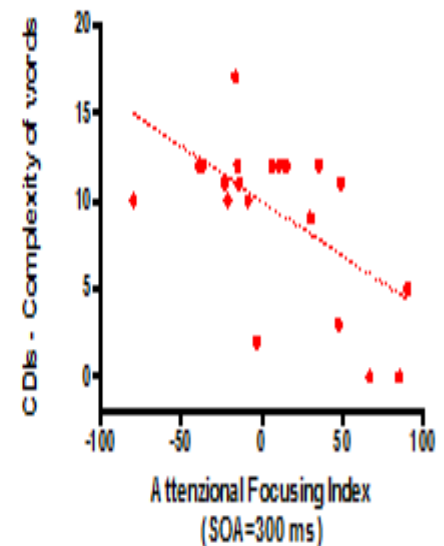
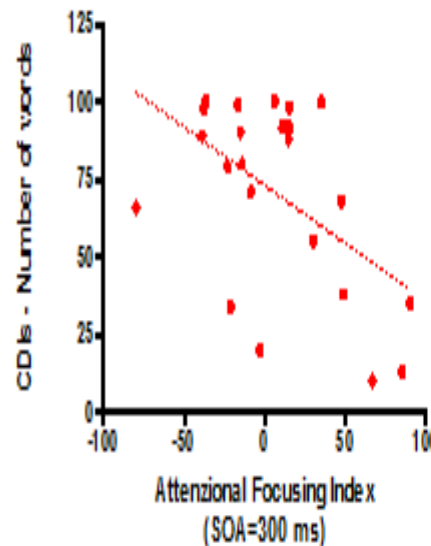
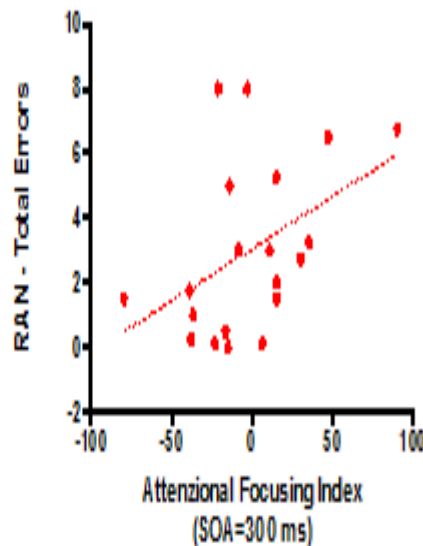
$$\begin{aligned}
 &\text{Attentional Focusing Index} \\
 &\text{SOA 100 / 300} \\
 &= \\
 &\text{Saccadic Latencies Large Cue} - \\
 &\text{Saccadic Latencies Small Cue}
 \end{aligned}$$

# Future Language Skills (31 months)

Rapid Attentional Focusing (SOA=100 ms)



Sluggish Attentional Focusing (SOA=300 ms)



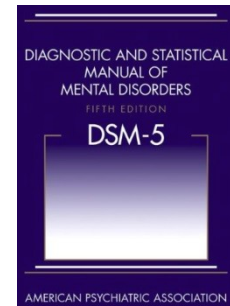
---

## Neurodevelopmental Disorders (31)

---

### Intellectual Disabilities (33)

- 319** (\_\_\_\_) Intellectual Disability (Intellectual Developmental Disorder) (33)  
*Specify current severity:*
- (F70) Mild
  - (F71) Moderate
  - (F72) Severe
  - (F73) Profound
- 315.8** (F88) Global Developmental Delay (41)
- 319** (F79) Unspecified Intellectual Disability (Intellectual Developmental Disorder) (41)

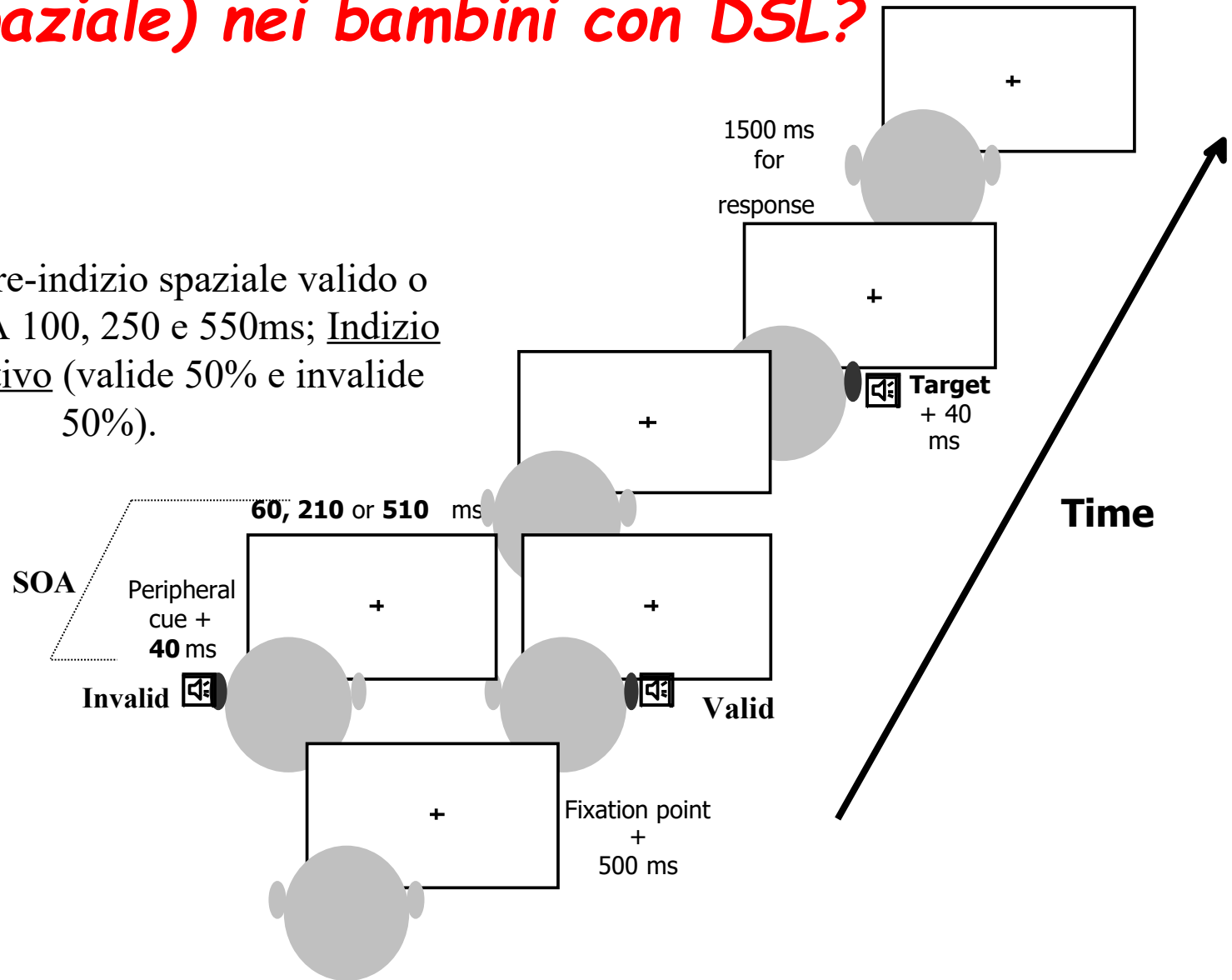


### Communication Disorders (41)

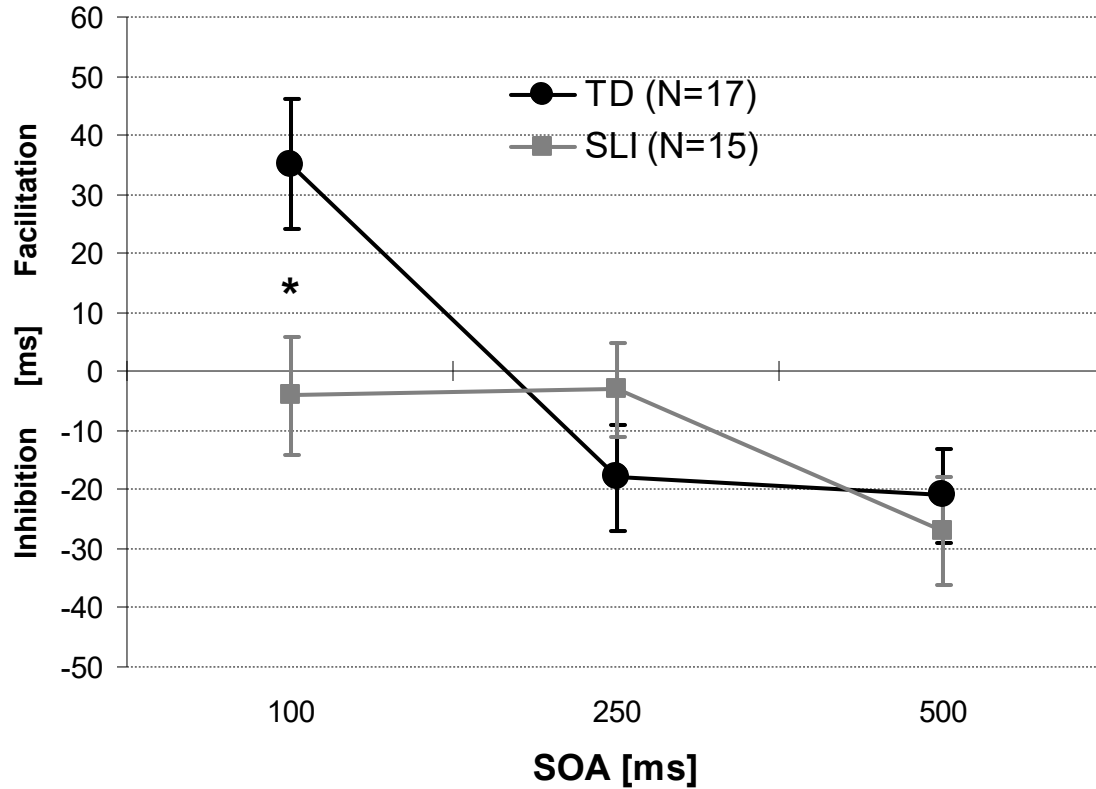
- 315.39** (F80.9) Language Disorder (42)
- 315.39** (F80.0) Speech Sound Disorder (44)
- 315.35** (F80.81) Childhood-Onset Fluency Disorder (Stuttering) (45)  
*Note:* Later-onset cases are diagnosed as 307.0 (F98.5) adult-onset fluency disorder.
- 315.39** (F80.89) Social (Pragmatic) Communication Disorder (47)
- 307.9** (F80.9) Unspecified Communication Disorder (49)

# E se misurassimo l'attenzione uditiva (spaziale) nei bambini con DSL?

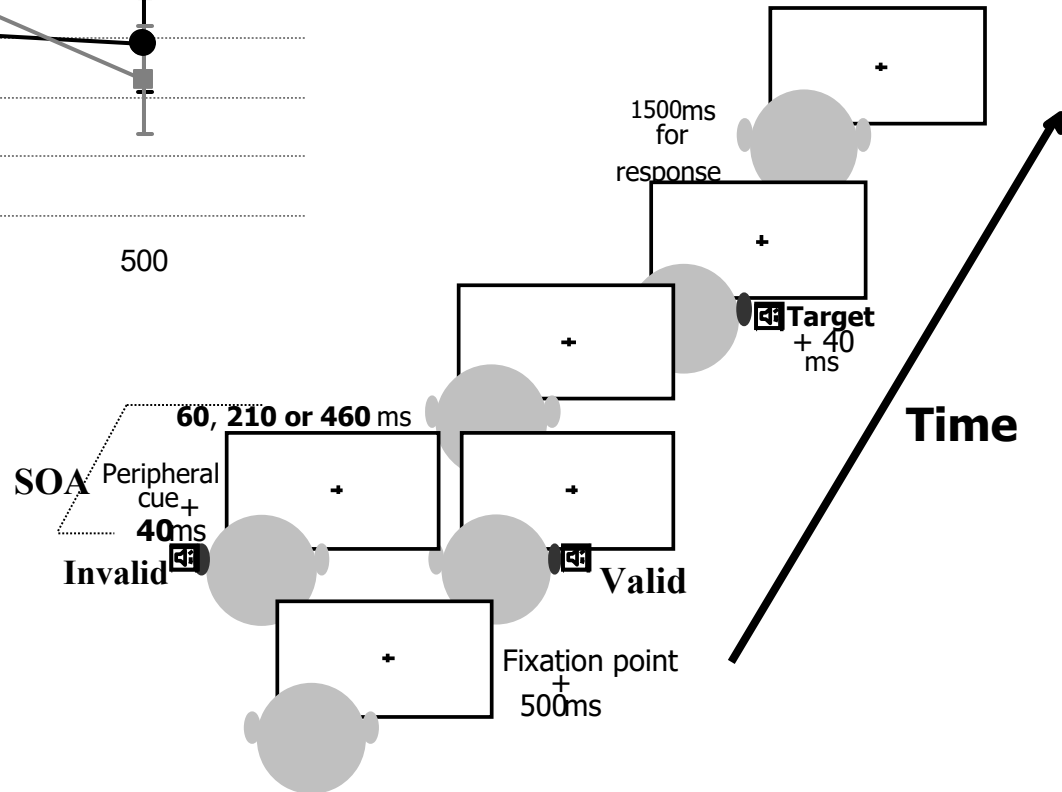
Procedura: pre-indizio spaziale valido o invalido; SOA 100, 250 e 550ms; Indizio non informativo (valide 50% e invalide 50%).



# Auditory Spatial Attention and Language



(Exp. 6 of my Ph.D thesis)



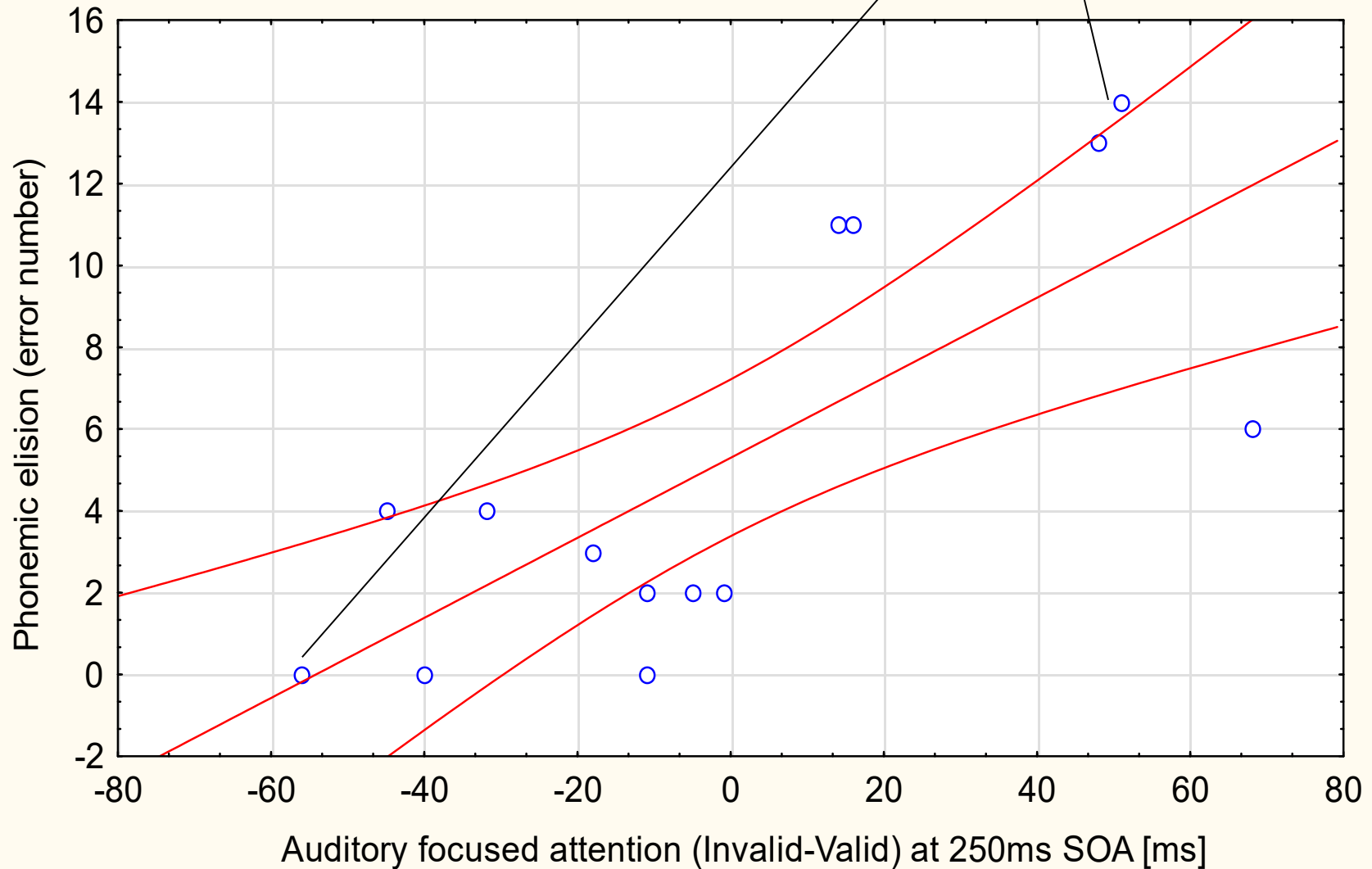
# Un disturbo dell'attenzione uditiva nei DSL???



# L'Attenzione Uditiva e la Segmentazione Fonemica

I bambini con DSL con lento orientamento dell'attenzione uditiva (facilitazione al SOA 250ms) manifestano anche un disturbo nella segmentazione fonemica. Chi orienta velocemente (IOR) non ha problemi di segmentazione.

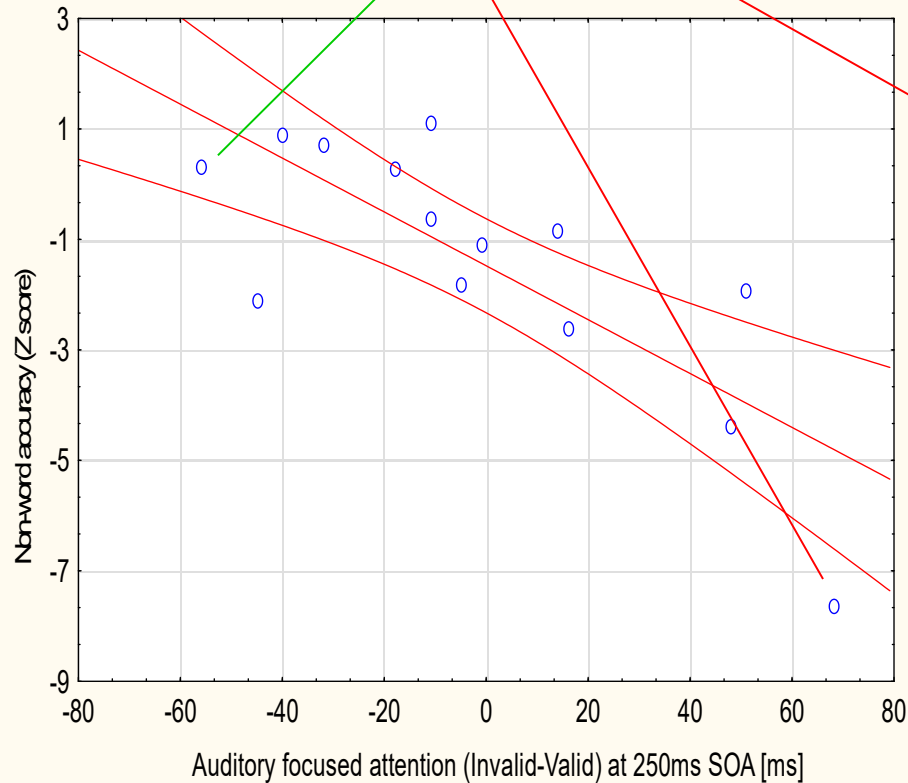
Correlation:  $r = .73400$ , 54%



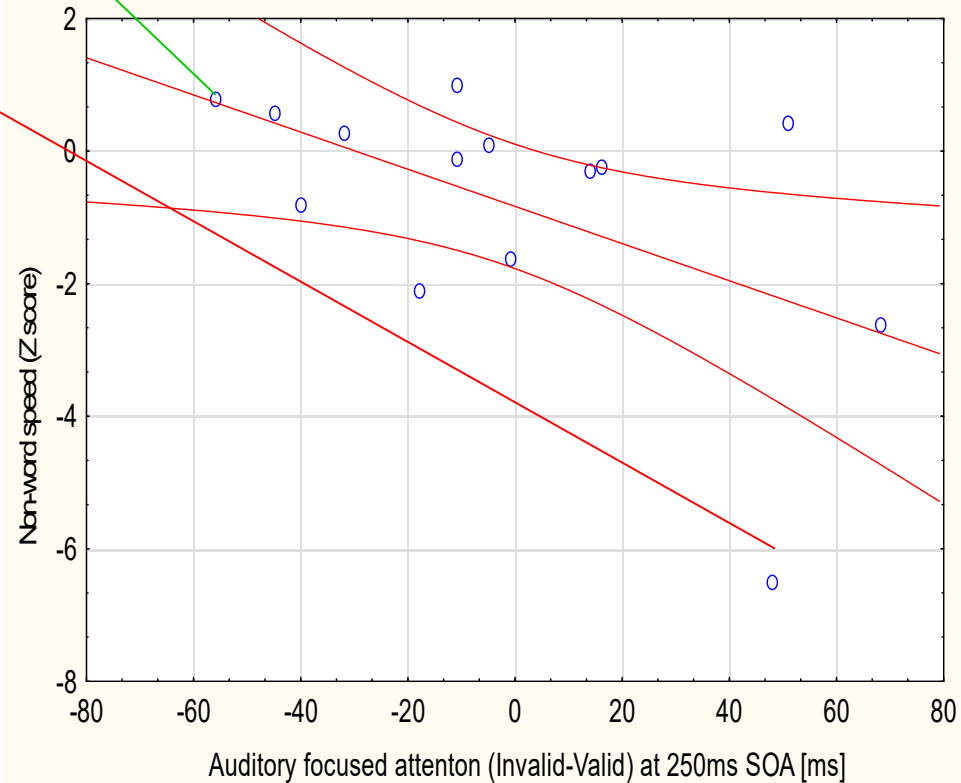
# L'Attenzione Uditiva e la Decodifica Fonologica (lettura di nonparole)

Chi presenta già IOR a 250ms non ha difficoltà di decodifica fonologica (accuratezza e rapidità). Invece, chi presenta facilitazione a questo SOA (lento ad orientare l'attenzione) ha grosse difficoltà nella decodifica (sia accuratezza che rapidità)

Correlation:  $r = -.7716$ , 59%



Correlation:  $r = -.5346$ , 29%





Research report

# Visual attentional engagement deficits in children with Specific Language Impairment and their role in real-time language processing

Marco Dispaldro <sup>a,\*</sup>, Laurence B. Leonard <sup>b</sup>, Nicola Corradi <sup>c</sup>, Milena Ruffino <sup>d</sup>, Tiziana Bronte <sup>e</sup> and Andrea Facoetti <sup>c,d,\*\*</sup>

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<sup>b</sup> Child Language Research Lab, Speech, Language and Hearing Sciences Department, Purdue University, IN, USA

<sup>c</sup> Developmental & Cognitive Neuroscience Lab, Dipartimento di Psicologia Generale, Università di Padova, Italy

<sup>d</sup> Unità di Neuropsicologia dello Sviluppo, Istituto Scientifico "E. Medea" di Bosisio Parini, Lecco, Italy

<sup>e</sup> Centro Medico di Foniatria, Casa di Cura "Trieste", Padova, Italy

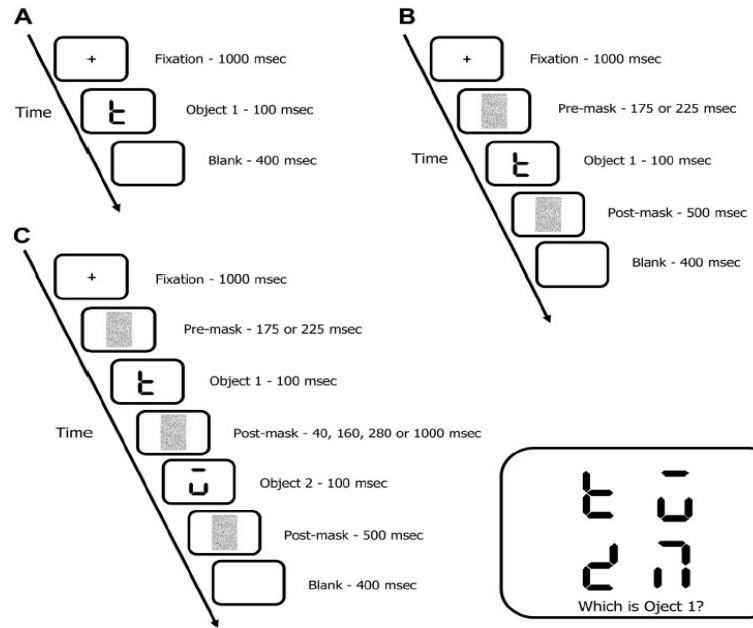
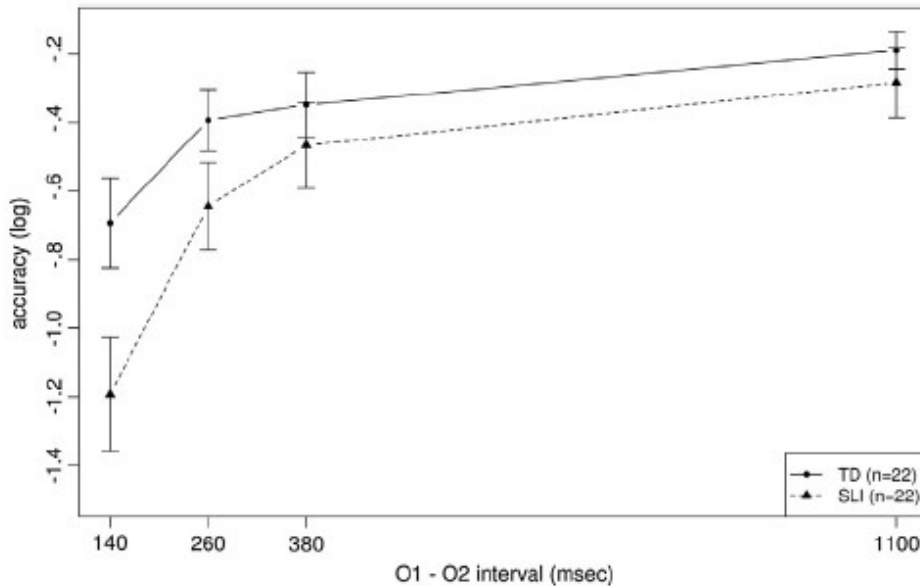


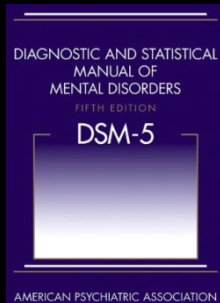
Table 6 – Multiple regression analysis on inverse efficiency in pronouns comprehension.

	Pronoun comprehension					
	SLI (n = 12)			TD (n = 22)		
	R <sup>2</sup> change	β	p	R <sup>2</sup> change	β	p
Step 1: Age	.206	-.454	.138	.183	-.428	.047
Step 2: AM	.484	.845	.005	.042	.225	.326

# Section II

## Diagnostic Criteria and Codes

<b>Neurodevelopmental Disorders</b> .....	<b>31</b>
<b>Schizophrenia Spectrum and Other Psychotic Disorders</b> .....	<b>87</b>
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DIAGNOSTIC AND STATISTICAL  
MANUAL OF  
MENTAL DISORDERS  
FIFTH EDITION  
DSM-5

AMERICAN PSYCHIATRIC ASSOCIATION

# Neurodevelopmental Disorders

The neurodevelopmental disorders are a group of conditions with onset in the developmental period. The disorders typically manifest early in development, often before the child enters grade school, and are characterized by developmental deficits that produce impairments of personal, social, academic, or occupational functioning. The range of developmental deficits varies from very specific limitations of learning or control of executive functions to global impairments of social skills or intelligence. The neurodevelopmental disorders frequently co-occur; for example, individuals with autism spectrum disorder often have intellectual disability (intellectual developmental disorder), and many children with attention-deficit/hyperactivity disorder (ADHD) also have a specific learning disorder. For some disorders, the clinical presentation includes symptoms of excess as well as deficits and delays in achieving expected milestones. For example, autism spectrum disorder is diagnosed only when the characteristic deficits of social communication are accompanied by excessively repetitive behaviors, restricted interests, and insistence on sameness.

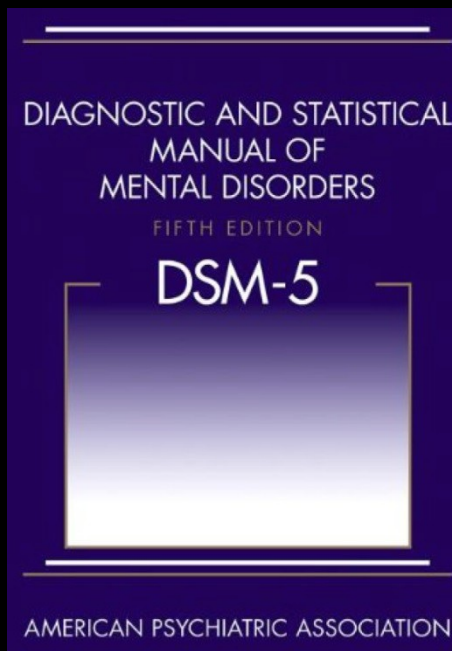
## Autism Spectrum Disorder (50)

### 299.00 (F84.0) Autism Spectrum Disorder (50)

*Specify if:* Associated with a known medical or genetic condition or environmental factor; Associated with another neurodevelopmental, mental, or behavioral disorder

*Specify current severity for Criterion A and Criterion B:* Requiring very substantial support, Requiring substantial support, Requiring support

*Specify if:* With or without accompanying intellectual impairment, With or without accompanying language impairment, With catatonia (use additional code 293.89 [F06.1])



## Attention-Deficit/Hyperactivity Disorder (59)

\_\_\_ (\_\_\_) Attention-Deficit/Hyperactivity Disorder (59)

*Specify whether:*

- 314.01 (F90.2)** Combined presentation
- 314.00 (F90.0)** Predominantly inattentive presentation
- 314.01 (F90.1)** Predominantly hyperactive/impulsive presentation

*Specify if:* In partial remission

*Specify current severity:* Mild, Moderate, Severe

- 314.01 (F90.8)** Other Specified Attention-Deficit/Hyperactivity Disorder (65)
- 314.01 (F90.9)** Unspecified Attention-Deficit/Hyperactivity Disorder (66)

## Motor Disorders (74)

- 315.4 (F82)** Developmental Coordination Disorder (74)
- 307.3 (F98.4)** Stereotypic Movement Disorder (77)  
*Specify if:* With self-injurious behavior, Without self-injurious behavior  
*Specify if:* Associated with a known medical or genetic condition, neurodevelopmental disorder, or environmental factor  
*Specify current severity:* Mild, Moderate, Severe

## Tic Disorders

- 307.23 (F95.2)** Tourette's Disorder (81)
- 307.22 (F95.1)** Persistent (Chronic) Motor or Vocal Tic Disorder (81)  
*Specify if:* With motor tics only, With vocal tics only
- 307.21 (F95.0)** Provisional Tic Disorder (81)
- 307.20 (F95.8)** Other Specified Tic Disorder (85)
- 307.20 (F95.9)** Unspecified Tic Disorder (85)

## Other Neurodevelopmental Disorders (86)

- 315.8 (F88)** Other Specified Neurodevelopmental Disorder (86)
- 315.9 (F89)** Unspecified Neurodevelopmental Disorder (86)

DIAGNOSTIC AND STATISTICAL  
MANUAL OF  
MENTAL DISORDERS

FIFTH EDITION

DSM-5

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