Some issues behind specific language impairment (SLI).
- prevalence
- assessment

Additional issues arising for bilingual SLI:
- diagnosis
- testing

In particular, we list available language-specific and non-specific tools.

Bilingual issues pertinent to Cyprus
Issues central to bilingualism (‘bi-x’)
Definition of Specific Language Impairment (SLI)
Tools for profiling SLI in Cyprus (moSLI vs biSLI)
Evidence for word retrieval impairments in SLI
Study (participants, method, and procedure)
Performances on the Cypriot Object and Action Test
Discussion of the results
Interpretation w.r.t. theories of SLI and bilingualism

Among the better understood differences between CG and SMG are mostly lexical, phonetic, and (morpho-)phonological properties of the language.
(e.g., Menardos, 1969 [1896]; Newton, 1972; Arvaniti, 2001)

Cypriot Greek (CG) and / or / vs. Standard Modern Greek (SMG):
- L2 acquisition as a sensitive measure for studying social-environmental effects (i.e. Cypriot and Greek)
- school context of some sort of bilingualism and potential early L2 acquisition (Greek)
- simultaneous bilingualism or even multilingualism (e.g. a child exposed to Cypriot and Russian from birth and later to Greek at school)

However, there is little work on morpho-syntactic description & analysis. (Terzo, 1999a, 1999b; Apostolakis, 2006; Grohmann et al., 2006; Tsipplakou et al., 2006, Fotiou, 2009; ongoing research by CAT, the Cyprus Acquisition Team)

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</table>
LANGUAGES IN CYPRUS (FOR CHILDREN)

- **Speaker–Hearer Languages**: English, Russian, Romanian, Bulgarian, Polish, Arabic (and more)
- **Reading–Writing Languages**: English, German, French, Italian, Spanish (at school)

Official languages:
- Greek
- Turkish

Minority languages:
- Arabic (Cypriot Maronite)
- Armenian

Unofficial but widely used:
- English

Prominent immigrant languages:
- Russian (Ukrainian, also Georgian)
- Bulgarian, Romanian, etc.
- Plus British and Hellenic Greek
- And many more, plus students...

Taught in schools:
- German
- French
- Italian

Labor immigration:
- Philippines
- Sri Lanka

CENTRAL TOPICS TO BILINGUALISM

How is bilingual language development affected by the relationship between the two (or even more) languages being acquired?

- bi-x": diglossia, bidialectism, language distance...
- the inter-relations between second language (L2) acquisition and first language maintenance or loss
- bilingualism and the language–cognition interface
- two (or more) languages but one brain
- plasticity and language acquisition

(BILINGUAL) LANGUAGE ACQUISITION AND DISORDERS: WHOSE DOMAIN?

- How children acquire language is fundamentally interdisciplinary,
- drawing on fields as different as linguistics, psychology, computer science, neuroscience, communication disorders, and education.
- Both linguistic and speech pathology stand to benefit from each others' perspectives by way of
- the types of breakdown inherent in communication disorders (and associated challenges), for instance,
- or the nature of characteristics and dynamics of linguistic and paralinguistic dimensions.

OVERALL OUTCOMES

- By comparing children with language impairment to their typically developing peers, we may be able to differentiate with greater levels of sensitivity and specificity during language assessment
- by identifying particular grammatical structures that are more likely to affect children (and adults) with language impairment.
- These grammatical structures that are most problematic for children with language impairment may then be incorporated into both formal and informal measures of language assessment.

LET THE CHILDREN SPEAK (COST A33)

Cross-Linguistically Robust Stages of Children’s Linguistic Performance with Applications to the Diagnosis of SLI

- COST Action A33 (Coordinator: Uli Sauerland)
- 25 countries (EU member states and others)
- 28 languages (some even non-Indo-European)
- 4 years of hard work (2006–2010 and beyond)
- testing 100s of typically developing children
- normative information: 5-year-olds
- 1 disorder: SLI
SPECIFIC LANGUAGE IMPAIRMENT (SLI)

- Specific Language Impairment (SLI) is a severe limitation in language ability in the absence of other factors that typically accompany language problems (e.g., hearing impairment, low non-verbal IQ, neurological damage).

- SLI is the most common and most studied type of developmental language disorder, yet research comparing bi and monolingual development is surprisingly lacking, leaving potential implications of bilingualism for children with language disabilities an under-explored area.

SPECIFIC LANGUAGE IMPAIRMENT & LANGUAGE-SPECIFICITY

- Expressive: syntax, vocabulary, phonology
- Receptive: comprehension difficulties
- Can be classified according to the language component that is impaired
- SySLI, PhoSLI, LeSLI, and PraSLI? (van der Lely, 2005; Conti-Ramsden & Botting, 2006; Friedmann & Novogrodsky, 2007)

IS IT A DISORDER?

- The answer is largely pre-determined by the specific cut-off value chosen to define disorder.
- Difficult to determine whether prevalence changes with age because the same cut-off value should yield the same prevalence rate, regardless of age (Law et al., 2000).
- Children with language difficulties may simply represent the lower end of the normal distribution of language skills (Leonard, 1987).
- Children with SLI differ primarily in degree, rather than in kind, from their typically developing peers (Dollaghan, 2004).

NORMAL VS. DISORDERED OR DELAYED

- Not always clear cut!
- Requires expertise in child language development
- Knowledge of risk factors predisposing to specific developmental problems
- Co-morbidity and associated problems
- Multi-disciplinary teamwork is necessary in SLI diagnostics and follow-up to ensure early identification, proper diagnosis and sufficient supportive actions (Rutter, 2006).

IS SLI SPECIFIC TO LANGUAGE?

- The construct of “specific” language impairment is to some extent artificial, and
- The observed impairments are frequently not entirely specific to the domain of language.
- Language versus non-language performances (e.g., executive functions)
- Auditory memory skills
- Working memory
- Executive control

PREVALENCE

- How many children have SLI?
- Important question to parents, professionals, policymakers, and researchers
- EU national levels
- International level

Importance

- Key starting points for other important enquiries
- Lifespan prevalence data are valuable in understanding the natural history, course, and prognosis of SLI
- Assessment of possible risk and protective factors
**Challenges for Prevalence Estimates**

- An accepted definition
- Reliable methods of identification
- Complicated by questions related to co-morbidity, or
- Overlap among language disorders, other communication disorders, and other developmental disorders

Speech and language disorders are complex developmental conditions with varied behavioural manifestations.

Estimates must be based on large representative community samples, and not clinical samples only.

**Aetiology**

**Genetic component**
- Genes (e.g., twin studies)
- Different models of inheritance for SLI
- Observed characteristics of SLI vary individually and in relation to age, which makes determination of phenotypes difficult.
- (Bishop, 2006)

**Maternal factors**
- Young mothers, low SES
- Mother’s low educational level
- Birth (2nd or later child)
- Mother’s own deficits in language and academic abilities
- (Prathanee et al., 2007)

**Anomalous Neurodevelopment**

**Cortical structures**
- Cortical dysplasia
- Abnormalities in white matter
- Atypical asymmetry of the language cortex
- SLI as a disorder of neurobiological origin

(Weber & Shevell, 2004)

**Subcortical structures**
- Subcortical region involvement
- Memory systems (different underlying brain areas)

(Ors et al., 2005)

**At Risk Children**

- Delayed speech, but not always (Asikainen, 2005)
- Early receptive language problems (Chiat & Roy, 2008)
- A positive family history of SLI
- Poor RAP scores (Barnisch & Tallal, 2002)

- Late talkers with receptive language problems and a familial risk for literacy problems had the worst outcomes on all language measures at 5.5 years of age (Lyytinen et al., 2005).

**Clinical Markers: Cost A33 Findings**

**Universal**
- Children’s knowledge of pronouns as a robust marker of linguistic development
- Understanding of exhaustive questions
- Delay in comprehension of passives in LI children across languages

**Language-specific differences**
- Direct object clitics as a clinical marker of SLI: YES for French, Italian but perhaps NO for Cypriot (and/or Greek?)
- Understanding of aspect
- Understanding wh-questions
- Acquisition of relative clauses
- Comprehension of quantification and implicatures

**Evidence-Based Practice (EBP)**

- Increasingly, SLTs are being asked by policy makers, supervisors, parents, and professional associations to provide a justification of their clinical practices on the basis of existing research evidence.
- Assessment
- Therapy
INTERVENTION
- Individual speech and language therapy
  - When?
  - How much?
  - By whom?
  - On what?
- Multimedia software for language development
- Evidence from a recent longitudinal study (van Weerdenburg et al., 2006) suggests that language intervention over several domains (e.g., lexicon-syntax-auditory comprehension) may have greater impact than intervention on one separated language domain.

EDUCATION AND ACADEMIC ATTAINMENTS
- Sometimes unrecognized when the child has good phonological ability and reads superficially fluently (Nation, 2004)
- Tutoring or other educational support at school

SOCIAL AND EMOTIONAL ASPECTS
- Poor social competence and targets of bullying at age 11 (Conti-Ramsden & Botting, 2004)
- Perceive themselves (at 10-13 years of age) as poor scholars, with little social acceptance
- Low self esteem and shyness
- Anti-social personalities

CONSISTENCY OF SYMPTOMS ACROSS LIFESPAN
- SLI persists through adolescence and into adulthood.
  - Problems in academic and occupational attainment.
  - In emotional and mental health, and in social functioning (Clegg, 2005)
  - And social participation (Tomblin, 2008)
- Females with SLI became mothers at an earlier age than peers without language problems,
- And they were more likely to be single mothers at the age of 25 (Belichman et al., 2008).

HEALTH-RELATED QUALITY OF LIFE
- 2- to 4-year-olds: lower overall well-being and psychosocial health than typically developing peers (Lau et al., 2006)
- 29 young adults with a history of SLI: feelings of less control over their lives, reduced mental competence, reduced global self esteem
- Depression (Tomblin, 2008)
Overall, individuals with SLI and their families have problems in their day-to-day lives which extend beyond the symptoms that characterize their disorder.

SLI DEFINITION
- How is SLI defined precisely?
- So far, there are several definitions!
- European consensus (across the EU member states): exclusionary and/or inclusionary criteria
- Other countries (e.g., Turkey, Russia)
Probably the most widely accepted definition of SLI is that proposed by (i) Tomblin et al. (1997) and (ii) Leonard (1998). SLI is defined as a combination of normal intelligence (performance IQ greater than 85) and language impairment (a composite language measure falling more than 1.25 SD below the mean). A –1.25 SD cut-off for language impairment (equivalent to the 10th percentile or below) was chosen by Tomblin et al. because this is the level at which speech-language pathologists consistently identify a child clinically as having a language impairment.

The International Classification of Diseases and Related Symptoms, 10 (ICD-10) by the World Health Organization (WHO) uses a statistical definition of specific language impairment and requires that a child’s language skills fall more than 2 SD below the mean, with language skills being at least 1 SD below that measured for nonverbal skills. In Finland, ICD-10 is the basis for a diagnosis of SLI.

The Diagnostic and Statistical Manual of Mental Disorders-IV-TR (DSM-IV-TR) (American Psychological Association, 2000) uses similar criteria and subdivides specific language impairment into expressive language disorder and expressive-receptive language disorder. The definition includes a requirement that the language impairment is associated with functional impairment, and that there is a substantial discrepancy between language and non-verbal skills.

What constitutes a substantial difference between language and non-verbal skills is not operationalized precisely. The discrepancy between verbal and non-verbal scores has also been questioned: Measures of verbal/non-verbal discrepancy may have poor reliability. Performance on tests of visual-spatial skills (e.g., Wechsler Intelligence Scale for Children (WISC) III picture completion and block design tests) is often used as a measure of non-verbal IQ; in children with SLI, there is evidence that visual-spatial skills are also impaired.
BILINGUALISM + SLI

How do we diagnose SLI in bilingual populations?

- Are bilingualism and SLI "two of a kind" (Crago & Paradis, 2003)?
- Do bilingual children with SLI show a "double delay" (Paradis 2007; Paradis et al., 2003; Paradis et al., 2005/6)?
- Can bilingualism be instructive for children with SLI (Roeper, 2009)?

PREVALENCE?

- Children with SLI are estimated at 5–10% of the population (Bercow Report, 2008)
- An estimated 7% of 5-year-olds are said to have SLI (Tomblin et al., 1997).
- The number of 5-year-olds in public nurseries and kindergartens in Cyprus was 9,894 in 2008.
- The potential number of children with SLI in Cyprus alone could be around 700.

CROSS-LINGUISTIC RESEARCH

- ongoing need for cross-linguistic studies of SLI
- SLI emerges as highly heterogeneous disorder
- languages investigated include: English, French, Italian, Hebrew, German, Greek
- local effort (CAT): Cypriot Greek

SPEECH THERAPY IN CYPRUS

- Association of Speech Pathologists in Cyprus
  - info@speechtherapy.org.cy
- Member of CPOLO (Standing Liaison Committee of EU Speech and Language Therapists and Logopedists)

Practitioners got trained in:
- Bulgaria: 147
- USA: 67
- Greece: 43
- Russia: 23
- UK: 14
- Hungary: 7
- Germany: 6
- Canada: 2
- Ukraine: 1
- South Africa: 1

SLI QUESTIONNAIRE

- "Assessment of Bilingual Children for Identification of Language Impairment: Current Findings and Implications for Practice"

NON-LANGUAGE-SPECIFIC TOOLS

- Bilingual Language Questionnaire (Li et al., 2006)
- MacArthur-Bates Communication Developmental Inventories (CDI)
- COST A33 tools
- Raven Matrices
- Peabody Picture Vocabulary Test (PPVT)
- word and non-word repetition tasks
- sentence repetition tasks
- mean length of utterances (MLU)
- tests of executive function (COST IS0804)
LANGUAGE-SPECIFIC ASSESSMENT TOOLS

Cypriot (CG)
- COST A33 tools
- COAT: Cypriot Object and Action Test
- Informal articulation test
- sentence repetition subtest
- CDI (0-18 months): toddlers’ phonological development

Greek (SMG)
- COST A33 tools
- DVIQ: Developmental Verbal Intelligence Quotient (Tsimpli & Stavrakaki, 1999)
- PPVT (working test)
- GOAT: Greek Object and Action Test
- Phonological and Phonotactical Articulation Test (Panhellenic Association of Logopedists)
- Aphasia Test based on Minors Test of Psycholinguistic Abilities
- Picture Naming Test based on Renfrew
- Auditory Comprehension Test based on Reynell (Vogindroukas, 2009)
- Anomilo4 (Epreuves de Reperage des troubles du Language) (Panhellenic Association of Logopedists)

LANGUAGE-SPECIFIC ASSESSMENT TOOLS

English
- GOAT (English version)
- Boehm Test of Basic Concepts
- TACL: Test of Auditory Comprehension of Language
- CELF: Clinical Evaluation of Language Function
- PPVT
- Verb Agreement and Tense Test (VATT: Van der Lely)
- Test of Active and Passive Sentences-Revised (TAPS-R: van der Lely)
- Bus Story (Renfrew)
- Action Picture Test (Renfrew)
- Word Finding Vocabulary Test (Renfrew)
- Preschool Language Scale (4th edn.)
- Goldsmi-Fraser Test of Articulation

Russian
- Russian adaptations below serving as working tools:
  - GOAT
  - Boehm Test of Basic Concepts
  - TACL
  - PPVT
  - Narratives-MLU
  - LH Questionnaire

PART 2: LEXICAL ACCESS

- Involves the progressive development of the learner’s mental lexicon (Nation, 2001).
- Is incremental given 3 major aspects of mastering words:
  - size
  - depth of lexical knowledge
  - operationalization of the lexical knowledge
- Word knowledge: knowing a word in terms of forms, meanings and use.

BILINGUAL LEXICAL RETRIEVAL STUDY

Aim:
To study bilingual language development, we need to know about monolingual development in both languages.

Background:
- Children with SLI are less accurate at naming pictures of common objects (nouns) than age-matched peers with no language impairment (NLI) (Lahey & Edwards 1996, 1999).
- Children with SLI have difficulty retrieving and using verbs in communication.

WHY IS WORD RETRIEVAL IMPORTANT?

- Word retrieval plays a central role in language processing and cognitive development, but there is little research (Tomblin & Zhang, 2006).
- It is useful for effective communication and psychosocial well-being (Tomblin, 2008).
- Difficulties with word retrieval are predictive of reading problems and poor performance at school (Messer et al., 2004).

DEFINITIONS

What do we mean by word retrieval?
- To successfully access the phonological form of a word form from semantics.
- We will exclude impairments of phonological processes and articulation.

What is a word retrieval problem?
- When the target word is not the item most activated and/or selected from the lexicon.
Phonological Output Lexicon

Speech output
Phonological Buffer / Phonemes

Semantics

Idea, picture or seen object

Store of word meanings

Store of phonological word forms

Assemble phonemes into syllables. Retrieve articulatory plans.

Phonemes

Phonemes

Semantics

Object, picture or idea

Phonological Lexicon

Phonological Buffer / Phonemes

Phonological Lexicon

Phonological Buffer / Phonemes

Phonological Lexicon

Phonological Buffer / Phonemes

Phonological Lexicon

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HOW DO YOU KNOW WHAT THE LEVEL OF IMPAIRMENT IS?

Why does it matter?

Different levels of impairment require different treatment.

WHAT ARE THE UNDERLYING CAUSES OF WORD RETRIEVAL IMPAIRMENTS?

**Semantic impairment**
- problem with the stored word meanings
- semantic representations and/or features might be degraded or lost
- no longer possible to clearly distinguish between closely semantically related items
- comprehension impaired (e.g., word-picture matching with semantically related distractors, synonym judgements)
- written naming impaired as well with similar rates of semantic errors

**Post-semantic impairment**
- problem within the lexicon
- problem with the links between semantics and the phonological output lexicon
- comprehension unimpaired
- writing possibly unimpaired as well or at least better than spoken naming

NEUROLOGICAL PROCESSES UNDERPINNING WORD RETRIEVAL

- neuroimaging studies of adults and more recently children
- discussed in relation to more general theories of cognitive functioning e.g., Nicolson & Fawcett (1999) for dyslexia and Ullman (2004) for SLI
- location of different components of the word retrieval process according to task
- discrete picture naming (i.e., confrontational naming): associated with parietal and frontal lobe structures (Wilg, Zureich & Chan, 2000)
- implications of bilingualism

GRAMMATICAL WORD CLASS

- **Verbs**
  - describe relational concepts
  - structured entities that vary in type and number of constituents
  - linked to thematic role assignment and argument structure
  - organized in matrices
  - multiple meanings (e.g., break a glass, break the news, break even)
  - harder for children to learn
  - harder for older adults to remember
  - more abstract/less specific

- **Nouns**
  - non-relational
  - single object reference
  - organized in hierarchies: any given noun tends to be strongly related to a small group of nouns
**BRAIN AREAS**

- Verbs: processed in Broca’s area, in the frontal or prefrontal motor areas of the left cerebral hemisphere
- Nouns: posterior areas of the left cerebral hemisphere
- (S)LI: prefrontal abnormalities, particularly in motor regions (Jaencke et al. 2007)

**GREEK OR CYPRiot?**

- Greek is a stem-based language, with a complex morphology (Holton et al. 1997)
- First, morpho-phonological word forms are inflected according to grammatical category, for instance skoup-izi ‘he/she sweeps’ is a verb and skoup-a ‘broom’ is a noun.
- Thus, nouns and verbs are differentiated by different suffixes, and they are also marked for phi-features (person, number, gender).
- Prominent morphosyntactic features in Greek must be accurately projected, marked, and expressed during single word production.
- Problems with verb and/or nouns may arise at any stage in the process of lexical retrieval, i.e. lexical-semantic, lemma, lexeme or articulation.

**CYPRiot OBJECT AND ACTION TEST (COAT)**

**Single Word Naming**

- Stimuli are concrete nouns and verbs depicted by coloured photographs showing objects or actions.
- The same sets of target items are included in tests for noun/verb comprehension and noun/verb production; nouns are common nouns, i.e. the names of common non-living objects/things and include no body parts.
- Nouns are not controlled for gender.
- The internal word structure of verbs consists of [root + affix] and [root + affix + affix].

**MATERIALS: OBJECT WORD LIST EXAMPLE**

<table>
<thead>
<tr>
<th>Greek</th>
<th>Cypriot</th>
<th>translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>σφουγγαρίστρα</td>
<td>φλόκκος</td>
<td>mop</td>
</tr>
<tr>
<td>στυλός</td>
<td>πέννα</td>
<td>pen</td>
</tr>
<tr>
<td>τσουγκράνα</td>
<td>γτενιά</td>
<td>rake</td>
</tr>
<tr>
<td>κατσαρόλα</td>
<td>µαείρισσα</td>
<td>saucepan</td>
</tr>
<tr>
<td>κρεβάτι</td>
<td>καρκόλα</td>
<td>bed</td>
</tr>
</tbody>
</table>

**MATERIALS: ACTION WORD LIST EXAMPLE**

<table>
<thead>
<tr>
<th>Greek</th>
<th>Cypriot</th>
<th>translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ανακατεύει</td>
<td>νεκατώνει</td>
<td>to stir</td>
</tr>
<tr>
<td>κόβει</td>
<td>κόφκει</td>
<td>to cut</td>
</tr>
<tr>
<td>πλένει</td>
<td>πλυνήσκει</td>
<td>to wash</td>
</tr>
<tr>
<td>μαζέξει</td>
<td>μαζέζεκει</td>
<td>to gather/rake</td>
</tr>
<tr>
<td>ψαρεύει</td>
<td>ψαρεύκει</td>
<td>to fish</td>
</tr>
<tr>
<td>μαζευρεύει</td>
<td>μαζευρεύκει</td>
<td>to cook</td>
</tr>
</tbody>
</table>

**TEST STIMULI**

- Noun (object)
TEST STIMULI [CONT'D]

- Verb (action)

PSYCHOLINGUISTIC VARIABLES (COAT)

- mean item of characteristics for object and action pictures (standard deviations in brackets)

<table>
<thead>
<tr>
<th>Picture Type</th>
<th>Lemma frequency</th>
<th>Syllable length</th>
<th>AoA</th>
<th>Imageability</th>
<th>Picture complexity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objects</td>
<td>0.0094 (0.023)</td>
<td>2.88 (0.832)</td>
<td>2.76 (0.562)</td>
<td>6.59 (0.49)</td>
<td>6.56 (0.28)</td>
</tr>
<tr>
<td>Actions</td>
<td>0.0070 (0.015)</td>
<td>2.92 (0.793)</td>
<td>2.73 (0.473)</td>
<td>6.42 (0.170)</td>
<td>6.19 (0.670)</td>
</tr>
</tbody>
</table>

PROCEDURE (COAT)

- Object naming: 35 photographs in total, all designed to elicit one correct response
- Action naming: 39 photographs designed to elicit one specific monotransitive verb
- Word production: Children were asked to name (one word) the object or action represented in the photograph.

ONGOING WORD RETRIEVAL STUDIES ON CG

Lexical access of nouns and verbs
- accuracy of naming
- speed of naming (reaction times)
- definitions of verbs and nouns
- picture description/narratives

DIFFICULTIES INCLUDE:

- increased errors in naming ✔
- longer response times (RTs) to low frequency words
- differences in types of errors ✔
- more difficulties in word finding during spontaneous speech

DIFFICULTIES WITH:

- different word frequencies
- different word classes (e.g. nouns versus verbs) ✔
- source of problem: general lexical delays or atypical patterns of lexical performance ✔
AIMS

- to report whether Greek Cypriot children with SLI are less accurate than aged-matched peers with TLD on naming pictures of objects and actions;
- to explore quantitative and/or qualitative differences between monolingual and bilingual naming accuracies;
- to look for any grammatical word class effects (e.g. N>V or V<N) in naming performances.

AIMS [CONT’D]

- to examine naming errors (i.e. phonological and/or semantic) with reference to psycholinguistic models of word processing (e.g. Levelt et al. 1999);
- to determine whether error types differentiate children with SLI from peers;
- to determine effects of lexical (e.g. word frequency) and other psycholinguistic variables (e.g. age of acquisition and picture imageability) on children’s naming accuracies.

METHOD: PARTICIPANTS

64 children

14 monolingual children with SLI (3 girls and 9 boys), aged 5;5 – 9;9 years (average age: 6;9 years)

4 bilingual children with SLI (2 girls and 2 boys), aged 7;6 – 9;2 years (average age: 8;0)

- recruited from speech and language therapists in private practices and primary education

METHOD: CONTROL GROUP

- 30 TLD children first graders matched on chronological age (CA) with the SLI children (15 girls, 15 boys), aged 6;0 – 6;11 years (average age: 6;3) [NL CA]

- 10 TLD pre-school children serving as a language control group for the monolingual children (2 girls, 8 boys), aged 3;05-5;2 years (average age: 4;4 years) [NL LA]

- 6 TLD bilingual pre-school children serving as a language control group for the biSLI children (4 girls, 2 boys), aged 5;2-6;11 years (average age: 6;1 years) [NL LA]

INCLUSION CRITERIA

- a Greek Cypriot, “monolingual” (?) Cypriot-speaking background for the monolingual children
- a bilingual background for the bilingual children where Cypriot was one of the languages spoken (L1 or L2)
- no history of neurological, emotional, or behavioural problems
- hearing and vision adequate for testing purposes
- normal performance on screening measures of non-verbal intelligence or as reported by school psychologist
- normal articulation
- no gross motor difficulties
- medium-high socio-economic status

RESULTS

Results of two subtests of the COAT will be reported in this study:

- object/noun naming and
- action/verb naming
ERROR ANALYSIS

- semantic errors
- semantic descriptions/circumlocutions
- phonological errors
- grammatical class errors
- don’t know/no response
- mixed errors (2+ errors)
- other errors
- code-switching errors (biSLI)

CORRECT PERCENTAGES

<table>
<thead>
<tr>
<th>Participants</th>
<th>mosLI</th>
<th>biSLI</th>
<th>mosTLD-o</th>
<th>mosTLD-y</th>
<th>biTLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object names (nouns)</td>
<td>72%</td>
<td>65%</td>
<td>85%</td>
<td>58%</td>
<td>66%</td>
</tr>
<tr>
<td>Action names (verbs)</td>
<td>62%</td>
<td>55%</td>
<td>77%</td>
<td>55%</td>
<td>54%</td>
</tr>
</tbody>
</table>

RESULTS

- Although the mosLI group have higher percentages correct than the biSLI group, this difference failed to reach significance using the Mann-Whitney U-test.

PRELIMINARY CONCLUSIONS: TLD VS. SLI

- TLD and SLI children had similar error types for action (semantic descriptions) and object names (‘don’t know’)
- SLI children less accurate in naming than younger TLD children
- error type cannot differentiate the 2 groups
- SLI children delayed but not atypical
- SLI children showed no grammatical class effect
**PRELIMINARY CONCLUSIONS [CONT'D]**

Psycholinguistic variables:
- no effect of word frequency-variable that operates at the level of the form (apart from object naming in TLD children)
- age of acquisition robust predictor of word retrieval performance for all 3 groups of children for both object and action naming

**L2 RESULTS**

<table>
<thead>
<tr>
<th></th>
<th>Object names L1</th>
<th>Object names L2</th>
<th>Action names L1</th>
<th>Action names L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>biSLI 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>biSLI 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**L2 RESULTS [CONT'D]**

<table>
<thead>
<tr>
<th></th>
<th>Object names L1</th>
<th>Object names L2</th>
<th>Action names L1</th>
<th>Action names L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>biSLI 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>biSLI 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PRELIMINARY CONCLUSIONS [CONT'D]**

Why are action names more difficult?
- naming actions involves different cognitive processes to the naming of objects
- "packaging" and "perspective" problems
- verbs are acquired later (maturational limitations)
- semantically more complex (semantic-conceptual explanations in early acquisition)
- grammatically more complex (order of information)

**PRELIMINARY CONCLUSIONS [CONT'D]**

For SLI children?
- general delay in acquiring words
- individual lexical items are poorly differentiated in their semantic-lexical representations
- poor organization of semantic-lexical representations
Inaccuracies in naming and perhaps word finding problems in general may vary with pattern of language deficit.
CONCLUSION

- The bilingual children with SLI (albeit 4 only) did not show a significant difference in naming accuracies for action and object names compared to their monolingual counterparts with SLI.
- This finding is in line with research indicating that bilingualism does not impact negatively on children affected with SLI (see Paradis et al. 2003).
- In other words, the outcome of SLI children learning two languages for verb and noun retrieval at the single word level revealed no significant differences between the bilingual and monolingual SLI groups.

KEY QUESTIONS

1. Is SLI evident in both languages? YES!

- Kambanaros & Grohmann (in preparation)

KEY QUESTIONS (CONT’D)

2. Is bilingualism detrimental to LI children? NO!

- Kambanaros & Grohmann (in preparation)
- Morpho-syntax in language production — the Extended Optional Infinitive framework (children’s use of tense-bearing and non-tense-bearing morphemes in obligatory context in spontaneous speech)
- All SLI children showed greater accuracy with non-tense than with tense morphemes.
- All SLI children had similar mean accuracy scores for tense morphemes. The bilingual children did not exhibit more profound deficits in the use of these grammatical morphemes than their monolingual peers.
- SLI may not be an impediment to learning two languages, at least in the domain of grammatical morphology.
3. Can bilingualism facilitate (S)LI?

**IN CLOSING**

Our results are more consistent with the predictions of a representational account of SLI as opposed to a processing account of SLI, suggesting that the observed difficulties retrieving grammatical word types (e.g., actions/verbs and objects/nouns) in SLI are internal to the linguistic system for both moSLI and biSLI.

**PART 3: NARRATIVE RE-TELL STORY**

- Narrative is the temporal organization and sequencing of past experience into a linguistic device available to speakers. (Labov & Waletzky, 1967)
- Narrative is a recapitulation of past experience in which language is used to structure a sequence of events (real or fictional). (Crystal, 2003)

**Aims**

1. To report whether monolingual and bilingual Cypriot Greek children with SLI (Specific Language Impairment) are less accurate than monolingual peers on narratives abilities.
2. To identify any special area(s) of difficulty with respect of narration.
3. To explore differences between monolingual and bilingual narrative accuracies.
4. To identify whether narratives might be informative in language assessment.

**KEY QUESTIONS [CONT’D]**

3. Can bilingualism facilitate (S)LI? YES!

- The omission errors are claimed here to place biSLI children in a better position regarding language acquisition potential, since they are indicative of both grammatical knowledge and knowledge of their other language.
- Bilingual children with SLI rely on their knowledge of L1 in acquiring L2, giving them an advantage over monolingual children with SLI.

**BUT… NO EU CONSENSUS ON:**

- definition and diagnosis
- terminology
- classification
- aetiology
- prevalence
- early signs
- clinical marker(s)
- co-morbidity
- intervention
- education and academic attainments
- social and emotional aspects
- consistency of symptoms across life span
- health-related quality of life
Why Narratives?

- Narratives are found across different cultures and times. (Reilly et al., 2004)
- An informative approach to language assessment. (Justice, et al., 2009)
- Narratives can be predictive of later academic skills. (Appelbaum, 1986; Fey et al., 2004)
- Narratives may be sensitive indicators of higher level language skills. (Paul & Smith, 1993)
- Narratives offer important theoretical and clinical implications for linguists as well as speech and language pathologists.

Narratives and SLI

- Children with SLI...
  - ... produce and retell less competent narratives; (Gillam & Pearson, 2004; Botting, 2002)
  - ... produce shorter narratives; (Botting, 2002)
  - ... experience significant weakness in composing and transmitting oral narratives. (Epstein & Philips, 2006; Fey et al., 2004; Catta et al., 2001)
  - Details that make a story more complete, cohesive are missing in children with SLI. (Leonard, 1998)
- Narrative ability has been found to impact literacy development and academic achievement. (Fey et al., 2004; Dickinson & Tabors, 2001)
- Difficulties in narratives are less likely to resolve over time. (Giovanetti et al., 2002; Marhardt & Razzoli, 2002)

Analysis

Hughes, MacGillivray & Schmidek (1997)

Microstructure Analysis
- Mean Length of Utterances
- Number of clauses per t-unit
- Quantity of vocabulary
- Diversity of vocabulary

Macrostructure Analysis
- Episodic structure
- Setting information
- Coherence of the narrative

Renfrew Bus Story Test (BST)

- screening test of verbal expression
- examine story retell with picture support
- demonstrate difficulties with verbal comprehension, phonological, semantic, grammatical issues, and sequencing
- can be given to children from 3 to 8 years
- and to adults who have learning difficulties

BST and Language Impairment

- BST predicts language impairment. (Stothard et al., 1998)
- BST reveals residual language problems in children who resolved impairment on other language measures. (Fey et al., 2004)
- BST can be used to discriminate between typically developing (TD) children and language-impaired (LI) children. (Paul & Smith, 1993)
Method

Procedure
1. The examiner read the story showing the corresponding pictures.
2. The child re-told the story.
3. The narrations were recorded using digital voice recording equipment.
4. Stories were transcribed and scored.

Method [cont’d]

Analysis
Stories were transcribed and scored:
- information (macro-)
- mean sentences length- A5LS (micro-)
- subordinate clauses (micro-)
- mean length of utterance (micro-)
- number of sentences (micro-)

Example 1

/λεωφορείο εφύγε και βρήκε ένα τρένο/
‘The bus left and it found a train.’

Scores: 1
- information → 3
- mean length of utterance → 3
- number of sentences → 1

Scores: 2
- information → 2
- mean length of utterance → 3
- number of sentences → 1

Example 2

/παρατίθησε ότι έχει μια λίμνη πιο κάτω/
‘It (the bus) noticed that a pond there was further down.’

Scores: 1
- mean sentences length → 7
- subordinate clause → 1
- mean length of utterance → 7
- number of sentences → 1

Scores: 2
- mean sentences length → 7
- mean length of utterance → 7
- number of sentences → 1

Results [1/6]

<table>
<thead>
<tr>
<th></th>
<th>TD (n = 11)</th>
<th>MoSLI (n = 10)</th>
<th>BiSLI (n = 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td>Inf. Total (mean)</td>
<td>29.8</td>
<td>7.264</td>
<td>23.5</td>
</tr>
<tr>
<td>A5LS (mean)</td>
<td>8.8</td>
<td>2.581</td>
<td>6.4</td>
</tr>
<tr>
<td>Sub. Cl. (mean)</td>
<td>4.1</td>
<td>2.071</td>
<td>2.0</td>
</tr>
<tr>
<td>MLU-words (mean)</td>
<td>5.1</td>
<td>1.223</td>
<td>3.8</td>
</tr>
<tr>
<td>No. of sentences (mean)</td>
<td>18.4</td>
<td>3.957</td>
<td>17.7</td>
</tr>
</tbody>
</table>
Although the TD group have higher performance than both groups children with SLI, this difference failed to reach significance using a one-way analysis of variance (ANOVA).

ANOVA indicates significant difference between groups. A significant difference is revealed between TD children and MoSLI children according to a post-hoc t-test, with MoSLI producing significantly shorter sentences compared to TD.

ANOVA indicates significant difference between groups. A significant difference is revealed between TD children and both MoSLI and BiSLI according to a post-hoc t-test, with SLI producing significantly less subordinated clauses compared to TD.
**Results [5/6]**

- ANOVA indicates significant difference between groups.
- A significant difference is revealed between TD children and MoSLI children according to a post-hoc t-test, with MoSLI producing significantly shorter sentences compared to TD.

**Mean Length of Utterances**

- MLU: TD
- MLU: SLI

**Results [6/6]**

- The difference between groups failed to reach significance using ANOVA.

**Number of Sentences**

- No. of Sentences: TD
- No. of Sentences: SLI

**Summary of the Results**

- No significant differences between MoSLI and BiSLI children in narratives.
- No significant differences between TD and BiSLI children in 4 measures (language-matched).
- Significant differences between MoSLI and age-matched TD children.
- Significant differences in terms of sentence length and subordinated clauses.
- Significant difference between BiSLI and language-matched TD children in terms of subordinated clauses.

**Discussion**

- Children with SLI demonstrate difficulties with story retelling.
- Microstructural analysis can identify language-impaired children.
- Narrative can be used as a part of the assessment outcome in clinical practice.
- Using narratives to evaluate therapeutic procedure?
- More data are needed (age-matched TD, other language in BiSLI, and so on).
**PART 4: CLITIC PLACEMENT**

- Looking at the acquisition of clitic production how do Greek Cypriot children perform (cf. Petinou & Terzi, 2002)?
- We observed some apparent inconsistencies in terms of clitic placement by younger versus older children.
- In concurrent work with different groups of children, we try to find explanations along the lines of the Socio-Syntax of Development Hypothesis (“schooling factor”, “competing motivations”).

**State of the Art: Greek in Cyprus**

- Cypriot Greek (CG) is a dialect of Standard Modern Greek (SMG) spoken in... Cyprus
- Substantial differences between CG & SMG

**State of the Art: Linguistic Portrait**

- Linguistically (formally) understudied, despite the highly intriguing linguistic situation
  - Two official languages: Greek (SMG) & Turkish
    - Trilingualism in Greek, Turkish & English? (Arvaniti 2002) and/or
      - Bilingualism in SMG and CG? (Newton 1972, Vassiliou 1995) and/or
        - Bidialectism in SMG and CG? (Pavli & Christodoulou 2001)
      - Among others: Russian, Georgian, Armenian, Arabic, German, French, Italian, and languages from Sri Lanka, the Philippines, and many others...

**State of the Art: Bi-x**

- The dialect (CG) within the Greek-speaking part of the island is not homogeneous

**State of the Art: Bi-x**

What remains to be answered…
State of the Art: Bi-x

What remains to be answered...

“A grammar is a set of abstract rules…”

Dialect = Language

Bidialectism = Bilingualism?

Properties of CG Grammar

- mainly lexical, phonetic, and (morpho-) phonological differences between CG and SMG
  (Menardos 1969; Newton 1972; Arvaniti 2001; Firth 2006)

<table>
<thead>
<tr>
<th>SMG</th>
<th>CG</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ke</td>
<td>tfje</td>
<td>and</td>
</tr>
<tr>
<td>koritzi</td>
<td>goura</td>
<td>girl</td>
</tr>
<tr>
<td>ine</td>
<td>en</td>
<td>COP (3.SG/PL)</td>
</tr>
<tr>
<td>ðen</td>
<td>en na</td>
<td>NEG</td>
</tr>
<tr>
<td>ða</td>
<td>en na</td>
<td>FUT</td>
</tr>
</tbody>
</table>

Properties of CG Grammar: Clitics

- CG shows mixed clitic placement and is largely enclitic (post-verbal), as opposed to SMG, which is proclitic (pre-verbal).

- Syntactic environments are similar to differences in clitic placement observed for European Portuguese vs Iberian Spanish (cf. Terzi 1999a, 1999b).

Properties of CG Grammar: Clitics

1. (O Jannis) ðvi diavazi to vivlio. [CG & SMG]
   - Yiannis reads the book.
   - ‘Yiannis is reading the book.’

2. (O Jannis) ðvi diavazi to. [CG]
   - Yiannis reads it.
   - ‘Yiannis is reading it.’

3. (O Jannis) to diavazi. [SMG]
   - the Yiannis it reads.
   - ‘Yiannis is reading it.’

Properties of CG Grammar: Clitics

Imperative

4. ðvi Diavase to ton! [CG & SMG]
   - Read it now!

NEG-clauses

5. Dhen to diavazi (o Jannis)! [CG & SMG]
   - ‘Yiannis doesn’t read it.’

na-clauses

6. Perimeno na to ðvi diavasi (o Jannis). [CG & SMG]
   - ‘I expect (Yiannis to read it).’
Original intention: Carry out a clitic production study with monolingual Greek Cypriot children at 5 years of age (Grohmann 2011), then ranging from 2 to 6 (Grohmann et al. 2010).

Compare clitic study administered to three groups:
A. monolingual Greek Cypriot children (3;0–8;11)
B. monolingual Hellenic Greek children (3;0–8;11)
C. binational Greek/Cypriot children (3;9–9;1)

Initial results obtained for COST A33 “Crosslinguistic Robust Stages of Children’s Linguistic Performance”

4-year research network (COST-funded, 2006–2010)
– over 50 MC members from 25 countries
syntactic, semantic & pragmatic development
– target group: 5-year-olds (TLD5) across languages
鑫 results and extensions of today’s clitic-test tool

Clitic Study: Participants

Children:
- were randomly recruited all across Limassol
- attended Greek-speaking kindergartens/nurseries
- are monolingual speakers of CG
- did not receive speech & language therapy services
- were tested upon written parental consent
  with approval from Ministry of Education & Culture

Control group:
- “monolingual” speakers of CG
- did not receive SLT services in the past
- randomly recruited all across Limassol

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Age Range</th>
<th>Number of participants</th>
<th>Gender</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2;0 – 2;11</td>
<td>6</td>
<td>4 M, 2 F</td>
<td>2.9</td>
<td>1.04860</td>
</tr>
<tr>
<td>2</td>
<td>3;0 – 3;11</td>
<td>20</td>
<td>11 M, 9 F</td>
<td>3.6</td>
<td>3.32894</td>
</tr>
<tr>
<td>3</td>
<td>4;0 – 4;11</td>
<td>21</td>
<td>10 M, 11 F</td>
<td>4.10</td>
<td>3.04680</td>
</tr>
<tr>
<td>4</td>
<td>5;0 – 5;11</td>
<td>50</td>
<td>22 M, 28 F</td>
<td>5.8</td>
<td>3.50602</td>
</tr>
<tr>
<td>5</td>
<td>6;0 – 6;11</td>
<td>20</td>
<td>9 M, 11 F</td>
<td>6.7</td>
<td>2.48231</td>
</tr>
<tr>
<td>6</td>
<td>Adults (27 – 56)</td>
<td>8</td>
<td>4 M, 4 F</td>
<td>38</td>
<td>12</td>
</tr>
</tbody>
</table>

Clitic Study: Procedure & Method

- production of 3rd person acc. clitics within islands
- after 2 warm-up sentences, 12 target structures plus 4 fillers were randomized
  Replication of COST A33 testing tool

(7) I mama stenizí ti korua tīs e korua en omorfi. Jati i korua en omorfi? I korua en omorfjat i tis... [stenizí tīs(CL)]
Mommy is combing the girl and the girl is beautiful. Why is the girl beautiful? The girl is beautiful because mommy... [combs her-CL]

Results: Clitic Production

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Age Range</th>
<th>Overall Clitic Production %</th>
<th>Target (post-verbal) production %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2;0 – 2;11</td>
<td>98.6</td>
<td>90</td>
</tr>
<tr>
<td>2</td>
<td>3;0 – 3;11</td>
<td>86.7</td>
<td>89</td>
</tr>
<tr>
<td>3</td>
<td>4;0 – 4;11</td>
<td>88.5</td>
<td>88</td>
</tr>
<tr>
<td>4</td>
<td>5;0 – 5;11</td>
<td>94.3</td>
<td>68</td>
</tr>
<tr>
<td>5</td>
<td>6;0 – 6;11</td>
<td>87.3</td>
<td>47</td>
</tr>
<tr>
<td>6</td>
<td>Adults (27 – 56)</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

鑫 The older the children, the less post-verbal clitics they produce.
**Results: Clitic Production**

- Age groups 1, 2 & 3 performed as expected
  - High percentage of post-verbal production
- Age groups 4 & 5 are believed to be affected by school instruction ('Schooling Factor')

**Socio-Syntax of Development Hypothesis for CG**

**Results: Clitic Production**

- Age groups 1, 2 & 3 performed as expected
  - High percentage of post-verbal production
- Age groups 4 & 5 are believed to be affected by school instruction ('Schooling Factor')

**Results: Re-Thinking Age Groups**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Class</th>
<th>Mean Age</th>
<th>Overall Clitic Production %</th>
<th>Target (post-verbal) production %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>–2 (20)</td>
<td>3.3</td>
<td>89.6</td>
<td>93</td>
</tr>
<tr>
<td>2</td>
<td>–1 (18)</td>
<td>4.3</td>
<td>88.0</td>
<td>82</td>
</tr>
<tr>
<td>3</td>
<td>0 (59)</td>
<td>5.6</td>
<td>93.6</td>
<td>73</td>
</tr>
<tr>
<td>4</td>
<td>1 (20)</td>
<td>6.7</td>
<td>87.3</td>
<td>47</td>
</tr>
</tbody>
</table>

6 Adults 100 100

**Results: Pre-Verbal Clitic Production**

- Both types of analysis ➔ The younger the children, the stronger the preference for post-verbal clitic placement.
- The **Socio-Syntax of Development Hypothesis** for CG (Grohmann in press, Grohmann et al. 2010)
- Metalinguistic and sociolinguistic factors may influence children to use more ‘proper’ language (Grohmann et al. 2010, Leivada et al. 2010)

➔ Is this a(n un)conscious demonstration of metalinguistic awareness driven by linguistic anxiety to (show that they are able to) speak ‘properly’? (Leivada et al. 2010)

**Discussion**

- Both types of analysis ➔ The younger the children, the stronger the preference for post-verbal clitic placement.
- The **Socio-Syntax of Development Hypothesis** for CG (Grohmann in press, Grohmann et al. 2010)
- Metalinguistic and sociolinguistic factors may influence children to use more ‘proper’ language (Grohmann et al. 2010, Leivada et al. 2010)

➔ Is this a(n un)conscious demonstration of metalinguistic awareness driven by linguistic anxiety to (show that they are able to) speak ‘properly’? (Leivada et al. 2010)
2nd CG Clitic Study

- similar tool in both CG and SMG version with different populations, namely:
  a. Greek Cypriot Monolinguals → born and schooled in Cyprus, with both parents from Cyprus
  b. Hellenic Monolinguals → born and schooled for some time in Greece, with both parents from Greece
  c. Binational → born in either Cyprus or Greece and with one parent being Greek Cypriot and the other Greek

2nd CG Clitic Study: Participants

- Leivada et al. (2010): All participants were tested in both versions with a week interval in between
- randomly selected from Nicosia district

<table>
<thead>
<tr>
<th>Ethnic Group</th>
<th>No of Children</th>
<th>Age Group/Range</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hellenic Greek monolinguals</td>
<td>40 (10 per group)</td>
<td>3.0 – 4.5, 4.6 – 6.11, 6.0 – 7.5, 7.6 – 8.11</td>
<td>6</td>
</tr>
<tr>
<td>Greek Cypriot monolinguals</td>
<td>40 (10 per group)</td>
<td>3.0 – 4.5, 4.6 – 5.11, 6.0 – 7.5, 7.6 – 8.11</td>
<td>6</td>
</tr>
<tr>
<td>Hellenic Cypriot binational</td>
<td>30</td>
<td>3.5 – 9.1 (M=6.5)</td>
<td>No control group</td>
</tr>
</tbody>
</table>

2nd CG Clitic Study: Results

<table>
<thead>
<tr>
<th>AGs</th>
<th>Hellenic Monolingual Children</th>
<th>Cypriot Monolingual Children</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Clitic Target</td>
<td>Clitic Target</td>
</tr>
<tr>
<td></td>
<td>SMG version</td>
<td>CG version</td>
</tr>
<tr>
<td>3-0-4.5</td>
<td>91.7</td>
<td>100</td>
</tr>
<tr>
<td>4.6-5.11</td>
<td>95.0</td>
<td>100</td>
</tr>
<tr>
<td>6.0-7.5</td>
<td>92.2</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Binational Children</th>
<th>Clitic Target</th>
<th>Clitic Target</th>
<th>Clitic Target</th>
<th>Clitic Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMG version</td>
<td>93.6</td>
<td>97.3</td>
<td>96.4</td>
<td>25.1</td>
</tr>
</tbody>
</table>

2nd CG Clitic Study: Discussion

- Clitic production across all AGs (& adults) is very high
- 3.0–4.5 CG monolinguals show clear preference towards post-verbal clitic placement
- Binational children show stronger preference for pre-verbal clitic placement
- 4.6–8.11 CG and SMG monolinguals show stronger preference for pre-verbal clitic placement
- Verification of Socio-Syntax Hypothesis
- BUT: Why aren't the Binational and Hellenic Greek children affected by their peers' post-verbal placement?
Metalinguistic Awareness

- The importance of the *schooling factor*
- It signals the onset of exposure to a ‘high’ variety
- It discourages/marginalizes the use of the ‘low’ variety
- It raises children’s awareness of the sociolinguistic functions and registers that each variety facilitates
- It promotes SMG as the ‘standard’, even ‘polite’ and ‘appropriate’, way to talk

Metalinguistic Awareness

- Some CG monolinguals, even up until age 5;10, make use of non-target placement and verbs that don’t exist in either variety.
- Misapplication of SMG morphological suffixes to a CG stem gave rise to forms that *prima facie* resemble but are not SMG.
- This type of error is absent from the production of the *binationals* children due to:
  i. native SMG competence that disallows such errors
  ii. lack of linguistic anxiety to show that they are able to speak properly

Metalinguistic Awareness

- Still, CG monolinguals commented on the experimental material in the post-test period in CG.
- Language awareness is manifested as awareness of the sociolinguistic functions of the two varieties in Cyprus (Yiakoumetti et al. 2005).
- This also explains the performance of *binationals*.
- Despite being exposed to both varieties from early on, *binationals* chose to align themselves with SMG and use mostly proclisis in both version of the test.

Competing Motivations

- Why assume competing motivations?
- Hellenic Greek children are exposed to Cypriot Greek both inside and outside class, yet their performance remains unaltered.
- They are reluctant to code-switch and employ the post-verbal clitic placement that pertains to CG.
- Indication that children of that age are aware of the sociolinguistic prestige that each variety carries.
- Evaluation of different sources of linguistic input.
- Motivation is to stick to the ‘high’ variety.

Competing Motivations

- Findings of our two experimental studies on the acquisition of object clitic placement are indicative of what Delpit (1995: 48) identified as children’s “sensitivity to language and its appropriate use”.
- Linguistic sensitivity should be approached also with respect to the prestige each variety carries in diglossic environments and of how aware the children are made of it.
- CG monolingual adults also did not perform at ceiling with respect to target placement (76.7%).
- Can children’s mixed performance be a licit option in adult CG…?
The question addressed here does not refer to the linguistic production of Greek Cypriot and binational children in general. It is specific to the linguistic production that two experimental studies elicited. If Greek Cypriot children are bidialectal in SMG and CG, their production should resemble the production of the binational children. Could they be bidialectal in a 'high' and a 'low' form of CG (cf. Arvaniti 2006)?

Recent inquiries into socio-syntactic research postulate that sociolinguistically determined functions facilitate choosing between variants. Distinctions between sociolinguistics, psycholinguistics, and theoretical syntax might fade away somewhat (Grondelaers & Speelman 2007). "[E]ncoded in the semantics of grammar we find cultural values and ideas, we find clues about the social structures which speakers maintain (...)" (Enfield 2002: 3). Cultural values are also found to be interwoven to the choice of one syntactic variant over another.

We're trying to develop an account for language acquisition in diglossic environments that aims to uncover its context- or domain-specific character. The current view of the SSDH:

- For Greek Cypriot children, the process of building a sociolinguistic repertoire primarily involves the need to resolve linguistic anxiety and adjust to the 'high' variety.
- For Hellenic Greek children, sociolinguistic development involves the need to stay true to the 'high' variety, so they are motivated to decipher different sources of input.
Conclusion

- Target clitic placement is fully mastered by age 3.
- CG is the actual target grammar Greek Cypriot children are trying to acquire... or is it?
- ‘Diglossia’ may be real, but there is a distinction between CG and SMG, and the mixing/confusion possibly only arises after entering schooling.
- And of course the setting is still something to be considered and solved for future research.
- What are the varieties involved in this bi-x situation? SMG and CG or Standard CG and CG?
- Our preliminary working hypothesis is the Socio-Syntax of Development Hypothesis qua effects of schooling. (Grohmann in press, Grohmann et al. 2010)

http://www.research.biolinguistics.eu/CAT

CAT activities for COST Action A33 & IS0804
http://www.zas.gwz-berlin.de/cost.html?&L=0

http://www.bi-sli.org

THANK YOU! Ευχαριστούμε σας!