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The identification of specific language impairment in bilingual children:

How useful is the Matrix Language Frame model?

Research Questions

- What are normal code switching behaviours in children using Pakistani heritage languages?
- Do code switching data from normal children conform to the Matrix Language Frame model (as Paradis et al found for French-English bilingual children)?

Method

- 50 children were assessed as part of a larger study to standardize an early sentences expressive language assessment.
- Written informed consent was obtained with the assistance of bilingual co-workers.
- Parents and teachers did not have any concerns about the children's speech and language development.
- Co-workers assisted the speech and language therapists carry out assessments in the child's home language. All children were assessed in nursery /school.
- Data were collected between December 2001 and May 2003.

Languages

- Language was determined by conversation with the parents by the bilingual co-workers and confirmed by the child's expression during the assessment session. The language profile was as follows:

	Number	Percentage of total
Mirpuri	25	50.0
Punjabi	11	22.0
Urdu	12	24.0
English	2	4.0
Other		0.0
Total	**50**	**100.0**

Context

- Code switching is regarded as normal and socially acceptable by both children and adults.
- Language contact is highly variable prior to admission to Nursery and can therefore not be controlled.

Assessment

- The child's verbal comprehension was determined using versions of the Derbyshire Language Scheme - Rapid Screening Test adapted for both culture and language (Mirpuri, Punjabi and Urdu).
- The child's expressive language was assessed using an assessment devised by the authors.

Assessment

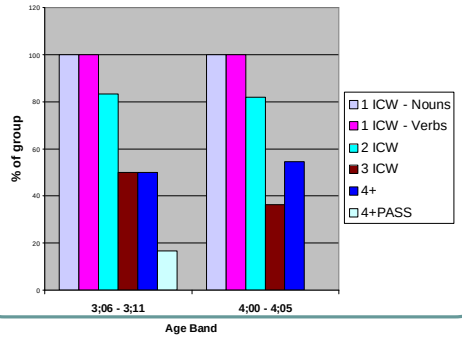
- No child refused the comprehension assessment.
- 5 children did not provide an expressive language sample.
- 2 children used all English responses.
- Of the remaining 43 children, 21 were Mirpuri speakers (48.8%).
- Since this is the main language spoken by the local population the authors focused on this group.

Mirpuri data by age

- 17 of the 21 Mirpuri speakers fell into age band 3 (42-47 months) or band 4 (48-53 months).
- This is the age that children are first typically exposed to English in nursery and also when most referrals are made to the speech and language therapy service.
- It is the code switching data from these children that are contained in this presentation (34% of the total number of children assessed).
- **All** children who provided an expressive language sample in age bands 3 and 4 included English items in the context of an utterance (n=17).

Age Band	Age	Female	Male	Total
3	3;6 – 3;11	3	3	**6**
4	4;00 – 4;5	6	5	**11**

Comprehension Levels on the Derbyshire Language Scheme - Rapid Screening Test



Code switching in Mirpuri data

- Band 3 (3;6 – 3;11)
  - 37/165 utterances contained intrasentential codeswitching (22.4%)
  - Each child produced 2-15 CS utterances (average 6.2)
  - 97 Mirpuri + 49 English = 146 words
  - 49 English words = 19 different words (of 145 unique items used in the group or 13.1%)
  - MLU words = 2.273 (Monolingual +CS)
  - MLU words for CS utterances = 3.842
  - MLU morphemes = 2.978
  - MLU morphemes for CS utterances = 4.842

Code switching in Mirpuri data

- Band 4 (4;00 – 4;5)
  - 93/349 utterances contained intrasentential codeswitching (26.7%)
  - Each child produced 2-16 CS utterances (average 8.272)
  - 271 Mirpuri + 108 English = 379 words
  - 108 English words = 35 different words (of 282 unique items used in the group or 12.4%)
  - MLU words = 2.438
  - MLU words for CS utterances = 4.075
  - MLU morphemes = 3.112
  - MLU morphemes for CS utterances = 5.086

Code switching in Mirpuri data

- Normative data on Pakistani Heritage Language development in the English context MUST recognise codeswitching.

The Matrix Language Framework Myers-Scotton (2002)

- The model predicts that languages "…do not participate equally in structuring intra-CP codeswitching" (p59).
- Surface morpheme order…will be that of the Matrix Language (p59).
- …all system morphemes which have grammatical relations external to their head constituent (i.e. which participate in the sentence's thematic role grid) will come from the matrix language.
- Content morphemes "…assign or receive thematic roles and therefore are not system morphemes…" (p70).

Mirpuri: Grammar of simple sentences

- Mirpuri is an SOV language (although word order may be less rigid than English)
- Male and female gender agreement applies within a simple sentence:
  - The verb phrase looks to the subject (agent) noun phrase for the form of the present progressive suffix and the auxiliary verb form (female 'i' and male 'a')
  - E.g. kur**i** kela kha-n**i** p**i**
    girl banana eat-ing+female is+female
  - mur**a** kela kha-n**a** pij**a**
    boy banana eat-ing+male is+male

Mirpuri: Grammar of simple sentences

- Noun-type actions are followed by a 'dummy-do' in place of a lexical verb which carries the agreement in the same way:
  - E.g. dzenani ishara **kar**-ni pi
    lady point do-ing+female is+female
- Actions that include contact or action upon take a second 'dummy-do' form
  - E.g. dzanani kungi **mar**-ni pi
    lady comb do-ing+female is+female

Hypothesis

- If the MLF model applies to young Mirpuri speakers' early grammar then:
  - Language contact has been minimal so Mirpuri is likely to form the matrix
  - Content morphemes may be drawn from either Mirpuri or English (or other Pakistani Heritage Language):
    - Agents (boy, girl, mum, dad, etc) and
    - Patients (banana, ball, chair etc)
  - System morphemes will always be drawn from the matrix language (Mirpuri)
    - These include verb phrase gender agreements which involve looking "…external to their head constituent", i.e. the agent of the sentence.

Semantic role analysis

- Semantic role assignment is "…purported to occur at the interface of syntax and semantics" Whitworth 1995, p385.
- Of interest to speech and language therapists (SLTs) as English children with specific language impairment (SLI) display weak grammatical morphology (Leonard 1998).
- However, children acquiring other languages do not experience comparable difficulties (Leonard in Fletcher & Hall 1999).

Age Band 3 codeswitching

Spontaneous utterances of 6 children aged 42-47 months (3;6 – 3;11) containing intrasentential codeswitching.

Codeswitching summary

Children using codeswitching for the role
(Number of examples of utterances in the group)

Thematic role	Band 3 (n=6)	Band 4 (n=11)
Agent	**3/6** (11)	**5/11** (6)
Patient*	**5/6** (26)	**11/11** (43)
Goal	**1/6** (1)	**1/11** (1)
Location	**3/6** (5)	**5/11** (7)
Noun + dummy do ('kar'/'mar')	**4/6** (10)	**11/11** (25)
Lexical verb	**1/6** (2)	**7/11** (10)

***No differentiation was made between PATIENT and THEME**

Example of code switching: AGENT(11 examples from 3/6 children)

*CHI: **baby** khalt-a .
%glo: baby stand-ing+male
%tra: baby (he) standing
%com: Target item 2.
(the) man is standing.

Omission of auxiliary verb ‘va’ (is+male)

Example of code switching: AGENT + PATIENT (26 examples from 5/6 children)

*CHI: **daddy football** satan laga .
%glo: daddy football throw about-to.
%tra: daddy about to throw (a) football.
%com: Target item 20.
(the) man is throwing (the) ball.

Example of code switching: PATIENT

*CHI: **ball** ithey khel-ni .
%glo: ball here play-ing+female.
%tra: (she) playing ball here.
%com: Practice item 4.
(the) lady is kicking (the) ball.

Example of code switching: AGENT, PATIENT + GOAL (1 example from 1/6 children)

*CHI: **boy baby** ki **bath** vich baya .
%glo: boy baby to bath in put.
%tra: (the) boy put (the) baby in (the) bath.
%com: Target item 16.
(the) boy is washing (the) dolly.

Example of code switching: LOCATION (5 examples from 3/6 children)

*CHI: **chair** apar beth-i vi eh.
%glo: chair on sit-ing+female is+female is.
%tra: (she) is sitting on (the) chair
%com: Target item 1.
(the) girl is sitting.

Example of code switching with 'dummy do' verb phrase in contact situation (9 examples from 4/6 children)

*CHI: eh # **pen** mar-na eh **pen** mar-na .
%glo: is pen hit-do-ing+male is pen hit-do-ing+male (mar denotes do+contact or hit)
%tra: (he) doing (a) pen he is doing (a) pen
%com:Target item 7.
(the) boy is drawing (a) picture.
The child correctly selects 'mar' (do+contact) rather than 'kar' (do). Children use this construction: English Noun+ dummy do instead of a lexical verb – evidence of delay or attrition?

Example of code switching to accommodate 'verb + do agreement' (2 examples from 1/6 children)

*CHI: daddy tolija naal ath **wash** kar-na pija .
%glo: daddy towel with hand wash do-ing+male is+male.
%tra: daddy is washing (his) hand with (a) towel.
%com:Target item 13.
(the) man is drying (his) hands.
The example demonstrates that the system morphemes suffix '–na' and auxiliary 'pija' are 'outsider' late system morphemes which demand 'kar' ("Examples include…subject-verb agreement" p76)

Example of VERB code switching to accommodate 'verb + do agreement'

*CHI: ami churi chai ta andi **wash** kar-**ni** pi
%glo: mum knife hold and pan wash do-ing+female is+female
%tra: mum is holding (a) knife and washing (the) pan
%com:Target item 21.
(the) lady is cooking (the) rice.
Lexical verb '**to**' (to-ni) is replaced by English content morpheme 'wash' causing the inclusion of 'kar' dummy-do to fulfil the system morpheme '-ni'

Children Referred to SLT Clinic

- The identification of specific language impairment (SLI) in bilingual children is problematic due to few if any clinical indicators (Leonard 1998) and lack of valid assessment tools (Gutierrez-Cullen et al 2000).
- SLI children may have difficulty with grammatical morphology (Fey et al) and by extension; code switching.
- SLTs need to be aware of, and accept as normal, the code switching patterns of local ethnic minority populations in order to identify children presenting with SLI.

Summary

- Children use intrasentential codeswitching shortly after language contact occurs.
- It is rule bound and generally conforms to the models proposed by Myers-Scotton.
- SLI children have difficulty mapping between the semantic level and the grammatical level.
- Semantic role analysis can identify appropriate and problematic codeswitching.
- Unusual codeswitching patterns may therefore be diagnostic of specific language impairment in bilingual children.

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