



Psycholinguistics of specific language impairment

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Specific Language Impairment:

Difficulty in acquiring language, for no apparent reason, and in the context of otherwise normal development.

- Incidence amongst 5-year-olds has been estimated at 7.6% [Cf Down syndrome and autism, both <1%]
- 70% of those diagnosed at age 5 with SLI will still have abnormal language at age 20
- highly heritable
 - chromosome 16q - phonological difficulties
 - chromosome 19q - grammatical difficulties



Specific Language Impairment:

Difficulty in acquiring language, for no apparent reason, and in the context of otherwise normal development.

Clinical diagnosis often requires that IQ be above some limit e.g. 85.

Why?



"There is a huge magnetic machine. It took a picture inside the brain. You could talk but not move your head because that would ruin the whole thing and they would have to start all over again. After it's all done they show you your brain on a computer and they see how large it is. And the machine on the other side of the room takes pictures from the computer. They can take pictures instantly. Oh, and it was very exciting"

IQ = 50
(Williams Syndrome)

Low IQ thus does not cause poor language acquisition, and so there's no justification in excluding the diagnosis of SLI just because IQ is low



Five subtypes of SLI

- **Phonological Expressive Impairment** subtype
- **Verbal auditory agnosia** subtype
- **Lexical-syntactic** subtype
- **Grammatical** subtype
- **Semantic-pragmatic** subtype

It is rare for an SLI child to show the characteristics of only a single subtype - so why subtype?

Because each subtype can occur in the absence of another subtype, so the subtypes must have separate psycholinguistic explanations, and separate biological explanations.



SLI: the **Phonological Expressive Impairment** subtype

Difficulty in producing speech sounds correctly with no apparent physical cause

- Ability to *understand* speech can be normal
- Sometimes called **developmental verbal dyspraxia**



SLI: the **verbal auditory agnosia** subtype

A specific difficulty in *understanding* spoken words despite normal hearing.

- Despite its name, it is unclear whether in children with this diagnosis the auditory problem is specific to verbal auditory stimuli i.e. to speech (though this kind of selective difficulty for speech can be seen in adults after brain damage)
- Also not clear whether this disorder is ever seen outside the context of clear neurological abnormality e.g. Landau-Kleffner syndrome (acquired epileptic aphasia)
- Frequently initial language acquisition seems normal and then there is regression: here the disorder is not developmental i.e. is not SLI



SLI: the **grammatical** subtype

Grammatical errors in producing and/or comprehending spoken language

PRODUCTION:

- *they can rush to try to help him*
"Them can rush to try to help him"
- *the car has broken down*
"the car has broked down"
- *and it didn't have spots on*
"and not spot on"
- *he bit Daddy's leg but he took no notice*
"bit Daddy leg no notice"



SLI: the **grammatical** subtype

Grammatical errors in producing and/or comprehending spoken language

COMPREHENSION:

Tested by asking child to pick which picture matches a spoken sentence

- "Mowgli says Baloo Bear is tickling himself"
is understood as meaning that Mowgli is tickling himself
- "The boy is hit by the girl"
is understood as meaning that the boy hit the girl



SLI: the **semantic-pragmatic** subtype

The child's spoken language production may be fluent with correct grammar and correct articulation. But what is said or understood is inappropriate:

- bizarre in content
- echolalia
- stilted use of overlearned scripts
- over-literal comprehension
- poor at turn-taking in conversation
- incessant chattering



SLI: the **semantic-pragmatic** subtype

The child's spoken language production may be fluent with correct grammar and correct articulation. But what is said or understood is inappropriate:

- A: "Can you tell me about your party?"
- C: "Yes"
(with no sign of continuing)



SLI: the **semantic-pragmatic** subtype

The child's spoken language production may be fluent with correct grammar and correct articulation. But what is said or understood is inappropriate:

- (at end of long and tiring testing session)
- A: "Can you stand to do some more?"

C: (stands up)



SLI: the *semantic-pragmatic* subtype

The child's spoken language production may be fluent with correct grammar and correct articulation. But what is said or understood is inappropriate:

C: "My brother was feeling sick on Monday"

A: "Mm?"

C: "And I took my trouser off"

A: "Uhhuh . . .?"

A: "Why did you take your trousers off?"

C: "He was sick on my trouser"



The challenge of SLI

- *Phonological Expressive Impairment* subtype
- *Verbal auditory agnosia* subtype
- *Lexical-syntactic* subtype
- *Grammatical* subtype
- *Semantic-pragmatic* subtype

Each subtype can occur in the absence of another subtype, so these subtypes must have separate psycholinguistic explanations, and separate biological explanations.

What are these explanations?

