

**Self-Other Pointing and the Acquisition of "*You-Me*"
Pronouns: Does Gestural Knowledge Facilitate the Acquisition of
Verbal Forms?**

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Paper presented at the Society for Research in Child Development
Kansas City, April 27-30, 1989

An expanded version of this paper is currently in preparation. Requests for
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INTRODUCTION

FACTS:

1. Children gesture prior to language onset (9-12 mths)
2. Children gesture during the production of 1st words (around 12 mths ++)

QUESTION:

What is the Role of Gesture in Language Acquisition?

3 ACCOUNTS OF ACQUISITION:

1. Gestures are the foundation upon which language is directly "mapped" ("gesture based" accounts)
2. Gestures and language are symbolic expressions of a single underlying cognitive capacity ("function based" accounts)
 - gestures and language have "equal symbolic status"
 - cognitive-general rather than language-specific knowledge is involved in language acquisition
3. Gestures and language are governed by distinct forms of knowledge ("language-specific" accounts)
 - gestures and language do not have "equal symbolic status"
 - language acquisition involves language-specific knowledge

What is the Role of the Pointing Gesture in Language Acquisition?

Children's pointing has been studied more than any other infant gesture. Their pointing gestures have been attributed lexical, morphological, and syntactic status: some researchers have analyzed pointing as:

- "sensorimotor naming"
- nascent markers of definite and indefinite reference (i.e., the precursors of *the* and *a*)
- protodeclaratives and protoimperatives
- the gestural foundation upon which knowledge of linguistic, verbal deictic words--context-bound indicating terms such as *here*, *there*, *you*, *me*--is directly mapped in a natural and continuous progression from deictic gestures to deictic words

What Do The 3 Accounts Predict About the Language Acquisition Process?

Construed as testable hypotheses about the knowledge underlying language acquisition, very strong predictions follow from the above accounts:

1. Once the child has mastered the semantic and communicative functions of a particular gestural form, she should acquire the subsequent complementary verbal form in a relatively error-free manner.
2. Whichever comes first (gestures or words) there should be evidence of a cross-transfer of skill from one domain to the other, given that both gesture and language are driven by the same underlying cognitive motor, i.e., if the child uses a particular gesture correctly, we would expect to see the child use the corresponding word correctly, and vice versa.
3. Because gesture and language are judged to be ontologically distinct forms of knowledge, there will be differential patterns of gesture and language use throughout development. Differential knowledge and use of language and gesture should be apparent even when there's a 3-way correspondence between (i) the form of the gesture, (ii) its meaning, and (iii) its semantically equivalent verbal form.

OBJECTIVES

The development of a young child's knowledge and use of pre-verbal self-other pointing was compared to his knowledge and use of the corresponding verbal forms, the pronouns *you* and *me*. Our study is concerned with the following questions:

1. Time of onset claims: Are gestures acquired prior to--or at the same time as--the onset of corresponding verbal forms?
2. Equal symbolic status: Are gestures used in semantically and functionally equivalent ways? Are there "parallels in content" between gestural and verbal forms, especially when both gesture and word refer to identical people or things in the world? (modality-free)
3. Transfer of skill: Is there "transfer of skill" between gesture and words? For example, if a particular gestural form is observed to have consistent meaning and systematic use in both comprehension and production, will the corresponding verbal form be acquired in a relatively error-free manner?

More generally speaking, is there any evidence that a single cognitive capacity underlies both gesture and language in the young child's acquisition of language?

METHODS

Longitudinal data were collected from a normally developing male child (10 - 32 months).

Experimental data from 4 elicitation tasks were collected to assess the child's production and comprehension of 1st and 2nd person pronouns, using 3 speaker conditions (mother, father, experimenter), at 3 distinct ages (22, 24, and 32 months); additional pronoun data were assessed at ages 21 and 23 months.

All sessions were videotaped in the child's home. Videotapes were transcribed and data were entered into a computer data base for subsequent analyses, paying careful attention to several critical dimensions of each gestural and verbal form, including details about their ...

- production
- comprehension
- referential and/or symbolic properties
- age of onset

The child in this study is named Richard.

RESULTS

A. Two findings from the **longitudinal** data are noteworthy with respect to the child's

- use of communicative, deictic pointing
- onset of self-other pointing and onset of verbal pronouns

1. Communicative, deictic pointing: Richard used pointing gestures communicatively to "point out" or "refer to" objects and locations ("non-objects") (see **Figure 1**). His pointing was rich and abundant and was used flawlessly to signal communicative intentions, such as requesting.

2. Onset of self-other pointing and onset of verbal of verbal pronouns: Richard began systematic use of pointing gestures in self reference and in reference to others by 16 months. He began producing verbal pronouns at approximately 23 months.(see **Figure 2**).

B. Three findings from the **experimental** verbal pronoun data are noteworthy.

1. Verbal pronouns and pronoun reversals: Pronouns first appeared in Richard's vocabulary at 23 months; he used the pronoun *you*, which was well after he consistently produced self-other pointing gestures, i.e., 7 months later. There was also a striking asymmetry between Richard's comprehension and production of 1st and 2nd person pronouns (*I/me* and *you*).

Comprehension: Richard comprehended *I/me* as said by any given speaker to **indicate the speaker**, $n=51$ (pronoun *me*=multiple "other" referents). He comprehended *you* as said by speakers to **indicate himself**, and only himself, $n=57$ (pronoun *you*=single referent, Richard).

Production: Richard never produced *I/me* to refer to himself, nor did he use the form to refer to any other person. **However, he did produce the pronoun *you*, but the referent of this pronoun was himself.** Between ages 23 and 24.5 months Richard consistently and systematically produced the pronoun reversal, *you=me*(= Richard in 1st person role, rather than *you*=addressee in 2nd person role), $n=53$ instances of *you=me* verbal pronoun reversals across three taping sessions (see **Figure 3**).

2. Simultaneous gesture and language use: Of the 53 tokens where the child **incorrectly** reversed the verbal pronoun *you*, there were 16 instances where he **simultaneously** and **correctly** produced the pointing gesture to himself (center chest, as if to mean "me"); in each and every case, all experimental and contextual indices revealed that the child fully intended to convey the meaning "me", e.g. Experimenter (object in hand, asks Richard): "Who should I give this to?"

Richard: Verbal: *YOU

Gesture: points to self, as in "me", and grabs object

3. Comprehension and production of proper names: At the same time, there were no instances where Richard failed to comprehend the meanings of proper names as produced by various speakers, $n=31$. During this time Richard produced proper names without error, $n=20$.

By 32 months Richard demonstrated flawless comprehension and production of 1st and 2nd person pronouns. All other indices of the child's language acquisition were entirely normal.

Summary of Results

The results indicated that the child began to gesture consistently and appropriately to self and others with the pointing form by 16 months. There was a significantly **later** onset of his verbal pronouns, at 23 months. The child's onset of verbal pronouns was marked by a **systematic** and **incorrect** reversal error; he produced *you* to refer to himself (as in *me*). Surprisingly, however, during the time when the child incorrectly reversed the verbal pronoun *you*, he **simultaneously** and **correctly** produced pointing gestures to himself.

DISCUSSION AND CONCLUSIONS

Why did the child produce correct gestural forms, but incorrect linguistic forms--**at the same time**--when the former preceded the latter by 7 months? If language (a) progresses from a gestural base in a continuous fashion, and/or (b) has "equal symbolic status with gestures", why did the child consistently produce linguistic pronoun reversals while gesturing correctly?

The prevailing gesture/function-based views of child language can not fully account for these findings. By 16 months the child exhibited full knowledge of the referential properties and deictic contrasts underlying self-other indicating in the gestural channel. Moreover, the child was developing normally along all other dimensions (cognitively, socially, emotionally, etc.). Nonetheless, his acquisition of verbal pronouns at 23 months contained pronoun reversals. Thus, there was no evidence that the child's knowledge of gestural deixis either facilitated or transferred to his acquisition of the corresponding verbal forms.

Instead, the child's error was a specifically linguistic one; it reflected his partial knowledge of the complex syntactic, co-referential, and contrastive nature of personal pronouns (see Petitto & Kato, in preparation).

Data from this study and others support the "language-specific" accounts described above: aspects of the knowledge underlying language acquisition are discontinuous or distinct from other forms of communicative, gestural knowledge during development.

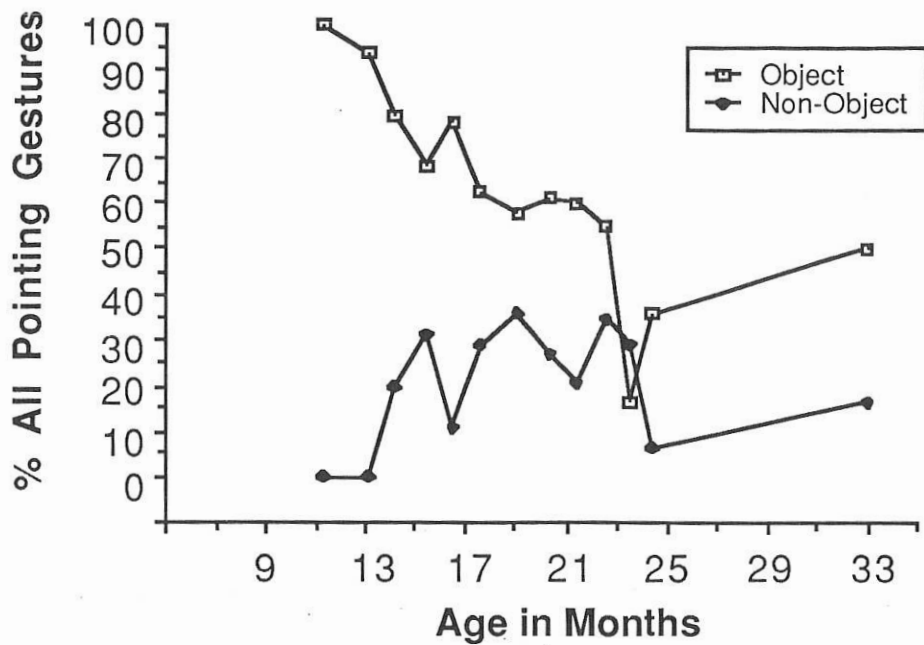


FIGURE 1. Longitudinal Development of Object and Non-Object Points

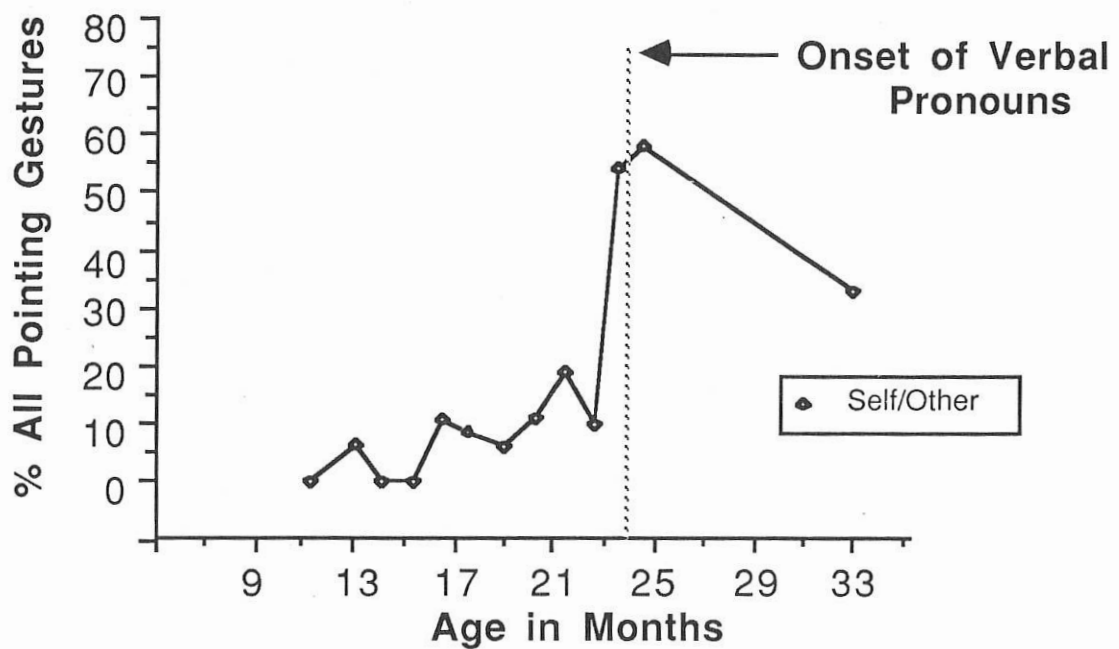


FIGURE 2. Onset of Self/Other Points and Verbal Pronouns

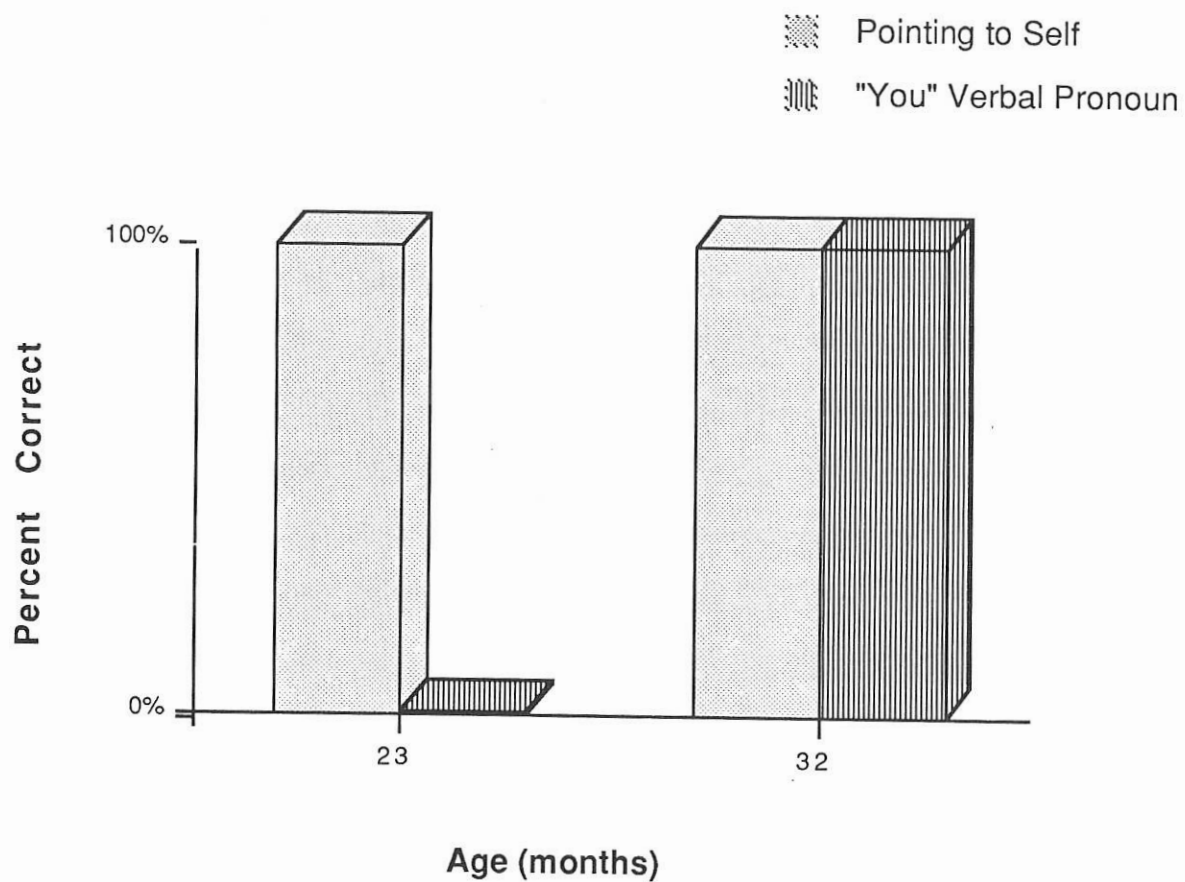


Figure 3: Percent Correct of Pointing to Self as Compared to Use of the "You" Pronoun

Bilingual Language Development: Does learning the New damage the Old?

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Footnote

Δ All of the comparisons between the Adults and bilingual children's morphological category distributions were analyzed using Pearson Correlations. The correlation coefficients are presented in the **Appendix**

Age Group	# of Years into Exposure	Child	HOME Language Sessions			NEW Language Sessions		
			1	2	3	1	2	3
I	1	May	.94**	.90**	.95**	NS	NS	.94**
	2	Ivan	.73*	.72*	.91**	.96**	.80**	.94**
II	1	lise	.74*	.80**	.82**	.89**	.93**	.97**
	2	Sally	.95**	.98**	.97**			
	2	Diego				0.84**	0.96**	.92***
	2	& Marco	.94**	.95**	.95**			
III	1	Paola				.84**	.84**	.87**
	1	& Carlos	.91**	.92**	.90**			
	2	Nina	.90**	.94**	.95**	.85**	.91**	.92**

** Correlation is significant at the 0.01 level

* Correlation is significant at the 0.05 level

