Semiotics and the Order of Acquisition of Deictics in L1 French

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0. Introduction

This study examines the ontogenesis of certain deictic categories in first language learners of continental French from a functional/semiotic framework which views language as a social tool employed by humans in order to communicate with others or to regulate mind. In looking in detail at the language use of two infants and their interactions with participants in the speech event we hope to ascertain the order of acquisition for pronominal reference in French at its very earliest stages and to elucidate the ways in which the use of pronominal deixis in the language of these children changes at each step. In addition to exploring pronominal deixis this study seeks to link the stages of development of pronominal deixis to changes in the temporal and aspectual deictic development of children and further, to explain the order of acquisition of deixis using concepts of semiotic linguistic theory as proposed by Jakobson, Peirce and Vygotsky.

The first part of this study will attempt to situate our research questions in the larger fields of inquiry of child language acquisition and research on deixis and anaphora. We will then analyze transcripts of data from two children's' language use as it changes across time to exemplify the four stages of early childhood pronominal reference. Finally it is our goal to explicate our findings by reference to the ideas of semiotics and contextualized theories of linguistics, and to demonstrate that views of language which exclude social context and the communicative function of language cannot hope to understand linguistic ontogenesis except in a very superficial and artificial way.

1.0 Some research in first language acquisition: Universal Grammar

Research into first language acquisition falls into two very different theoretical paradigms: the Universal grammar/formalist approach and the various cognitive/functionalist approaches. The formal approach to language ontogenesis is an out growth of Noam Chomsky's generative-transformational grammar. The *a priori* assumptions of this school revolve around the concept of linguistic autonomy: the belief that language is ensconced in an autonomous module or modules in the mind which develop separately from the rest of the human maturational sequence. Further, the linguistic modules in the mind are a part of the human genetic inheritance, and it is the structures already present in the language module(s) at birth that determine the possible structures that a language might have. The fact of language use, both by children learning a language and adults who already know it, is a coincidental and *post hoc* application of a genetic mutation which occurred independent of its current function "All of this [e-language or language use] is, in my view, quite confused and pointless, because the notion of e-language is an artifact, with no status in an eventual science of language... the concept appears to be useless for any empirical inquiry" (Chomsky 1987: 35); see also Chomsky, 1995:168). As such, the Chomskyan research program in first language acquisition research makes a strict and categorical distinction between *cognitive development* and *linguistic development*. Since it is a basic presupposition of the Universal Grammar school that cognition is absolutely independent of language phylogenetically as well as in the modular makeup of the adult mind it is assumed that ontogenetically any connections between cognitive and linguistic development are coincidental. Language exists only as an "accidental"

conduit to relay already formed thoughts. The implications of this point of view are threefold for first language acquisition research: 1) only linguistic information is taken into consideration in doing research, 2) the functional aspects of language are ignored and not considered to play a role in determining the makeup of structures basic to all languages or to cross-linguistic trends in language ontogenesis and 3) cognitive and processual complexity does not impact on first language acquisition, only linguistic elements are to be taken into account in analyzing child language.

Because of the extreme separation of language from all other aspects of development practitioners of this school of thought tend not to be in communication with researchers outside of their paradigm, either in linguistics or in related fields such as psychology or anthropology. The data used in studies consists of decontextualized sentences, which are the largest meaningful unit of analysis for this approach. Research is closely linked to current work in generative syntax, which seeks to analyze the sentence in order to define the principles and parameters of Universal Grammar(UG) which make up the content of the language module(s).

In terms of research on anaphora and deixis, prominent researchers such as Lust (1986) and Wascow (1979, 1986), concentrate on validating or invalidating constraints devised by syntactians on intra-sentential anaphora solely in terms of co-indexing or co-referentiality (intersentential anaphora is acknowledged, but is seen as part of the pragmatic component and not reflective of universal principles, see Wascow (1979)). Intra-sentential co-indexing formed the basis for the Government and Binding paradigm (Chomsky, 1981; Aoun, 1985), wherein the roles of anaphors within the sentence were ostensibly defined with recourse only to syntax, and not meaning. As such the current research on deixis and anaphora in language ontogenesis in this framework attempts to elicit data which show knowledge of anaphoric referentiality within the sentence (see Lust (1986) p. 10). This data is used to ascertain what kinds of parameters are set in the language faculty in the language being studied. In summation, Chomskyan L1 researchers hold as basic 1)the independence of language from cognition, 2) the domain of anaphora as being the sentence, 3) the role of function and meaning as not playing a role in the understanding of anaphora, which is to be understood as being syntactically characterized by universal parameters of co-indexing.

1.1 Cognitive/functional approaches to first language research

Almost everything that can be said of the Universal Grammar paradigm does not apply to any of the various cognitive/functional (C/F) research programs. While UG research is quite self-contemplating and rarely looks to other developmental theories for inspiration, C/F approaches are very eclectic and draw on studies and theoretical notions from psychology (Piaget, Skinner, Vygotsky *inter alia*), functional linguistic theory (Fox, Chafe, Halliday *in. al.*), anthropology, sociology, semiotics (Jakobson, Peirce) and literary theory. There is also a large focus on collecting and transcribing child language and describing the context in which it occurs, exemplified by the CHILDES corpus and associated research (MacWhinney, 1994), of which this study is a part. Further, the unit of analysis is the discourse, which is examined not just in terms of strictly "linguistic " (syntactic) information, but which takes into account functionality, meaning, socialization, cognitive development and interpersonal interaction.

Many practitioners in this field started off in developmental psychology using a Piagetian framework e.g. Bates, whose Piagetian conceptualizations of development had been situated in a theory of functional linguistics (Bates, 1976) and who later (1979) looked at the appearance of metapragmatics in L1 ontogenesis, which reflects the Piagetian concept of the development of the symbolic function whereby sensori-motor

schemata are brought into the symbolic system. Karmiloff-Smith takes a functional approach to language as well, especially in terms of data in (1979) she argues that the sentence is an inappropriate and artificial unit of analysis for language acquisition and in (1980) like Piaget directly relates the development of cognitive capacities with linguistic manifestations. She breaks from Piaget in demonstrating that not only does cognition influence linguistic development, but linguistic development impacts cognitive development. In her (1987) study she shows that language development, that is, the child's functional use of, for example, anaphors, is a process which takes place on different levels of understanding which can be misconstrued if one takes into account only static structural and conceptual comparisons. Thus the emergence and use of a certain form may entail a different process, for example the notion of opposition. The process of realizing that forms are used in creating oppositions in turn may influence conceptual cognitive development.

Vygotskyan approaches to language ontogenesis, exemplified here by Hickmann's (1987) study of anaphora, bring up many of the same concerns as Karmiloff-Smith raised in her (1987) paper. For Hickmann and other Vygotskyan theorists, the development of language systems dramatically impacts and reorganizes all other semiotic systems. Because language is the key to understanding development Hickmann argues that careful attention must always be paid to the social context, discourse function and mediational uses of linguistic elements, especially with common functional features of language such as shifters. For example, she notes that *prima facie* children appear to acquire the referential and situational (see almann, 1996 below) uses of deictics at an early age (3 y.o.); however, she points out that though they are using these words in their speech, their usage varies greatly from the adult norm. That is, three years old children use deictics situationally (her term is *deictically*, meaning referring to physical objects in the speech situation) but not intralinguistically or anaphorically i.e. to refer to elements which are salient in the only in the linguistic, as opposed to physical, context. Further, in response to decontextualized views of language she notes that when young children are using what appear to be co-referential expressions it doesn't necessarily mean that they have acquired the use of anaphora in a pragmatic, intralingual sense. If one takes into account the context in which the speech situation takes place one can see that the three year old child is using what appears to be an interlingual anaphor to refer only to objects in the immediate context. Thus what is anaphoric from a strictly grammatical and syntactic point of view is situational from a pragmatic viewpoint. Likewise 5 year old children appear to have close to full grammatical control of pronouns, yet pragmatically it is not until the age of 10 that children begin to use shifters properly in the discourse function of reported speech. It is misleading and naïve to make conclusions about acquisition of shifters without taking into consideration functional and pragmatic context.

Further, she critiques Piaget for making observations about child language based on appearance of certain words rather than the appearance of a function. For example, Piaget has pointed out that children often use shifters in reference to elements which cannot be identified by their interlocutors because they are not part of the shared information necessary for understanding. Piaget used this example as evidence for an ego-centric stage, where children appear to be speaking for their own benefit rather than for communication. However, Hickmann (1987:181) demonstrates that ego-centricity is a misnomer for this stage of development since her research has shown that not only do four year old children underspecify referents of deictics, they just as often over-specify information that older children and adults would have represented with a

pronominal element. Thus ego-centricity is not the issue, rather competence with the pragmatics of intersubjectivity have not yet been mastered to an adult level.

A recent trend in C/F views of language acquisition has drawn together a wide array of functional specialists who have worked on language acquisition from many angles is parallel-distributed-processing model of first language acquisition, often referred to as connectionism. Jeffrey Elman, Elizabeth Bates, Mark Johnson, and Anette Karmiloff-Smith and other have recently compiled the results of ten years of research into *Rethinking Innateness: A Connectivist Perspective on Development*. This book is a direct attack on the most fundamental belief of the Chomskyan school of ontogenesis: the poverty of stimulus hypothesis. This hypothesis claims that many essential elements of language must be innate and genetically specified at birth because the input to which children are exposed as they are developing is insufficient to explain the rapidity and completeness of their ultimate linguistic attainment. While this would appear to be an empirical claim which must have been based on actual observation of the linguistic milieu of language learning, it is actually a philosophical claim based on rationalist thought experiments, such as Gold's theorem (Gold, 1967) which predicted that certain kinds of grammars, like those exhibited by human language, were not learnable without information being provided at the initial state.

Elman *et al*. (1996) demonstrate that not only are human grammars learnable by human beings without information being innately specified, they are also learnable by neural networks modeled on a computer with much less time and intelligence than a human child. These simple neural networks were programmed to have attributes similar to that of the linguistic and physical situation of a human child during the language learning years: 1) a short term memory which expands as time passes, 2) correct and incorrect input, 3) a gradual decrease in the plasticity of the network and 4) feedback about the system's output. Under these conditions Elman's simulated neural networks were able to learn the grammar of even supposedly "impossible" garden-path sentences, and learn them in a human-like way making human-like mistakes.

The results of connectionist research certainly seem to provide evidence that Chomsky's poverty of the stimulus argument does not adequately describe the philosophical constraints against learnability. However, it must be kept in mind that connectivist models are based on computer simulations of the child's mind and may have no actual bearing on the way in which children learn language in the real world. However, any argument for nativist modularity based principally on rationalist argumentation of the Gold's theorem sort must reevaluate their presuppositions in light of connectionist findings.

It will certainly be interesting to see to what extent neural network modeling and the parallel-distributed-processing framework can inform us about the possibilities for understanding language ontogenesis in humans. In principle at least, the diverse functional approaches to child language might someday be united "in a framework for thinking about development which embodies some aspects of Piaget's, Werner's and Vygotsky's constructivist intuitions, but which goes beyond them to generate empirically testable questions." (Elman et al., 1996:114).

2.0 Relevant research on deixis and anaphora

Before starting the current study it is important to define 1) what exactly is meant by deixis and 2) to review some of the influential theoretical conceptualizations of pronominal deixis which will be relevant to the current study. First off we take Jakobson's (1990b, 1971) definition of deictics as being "shifters", duplex structures whose definition in the code must crucially make reference to the message in which the

term is used. Thus part of the definition of the English shifter *I* must make reference to the situation of enunciation: "the current speaker of a message in direct discourse" For Jakobson all elements which are duplex in that their meaning is dependent on the message in which they are used are shifters or deictics: tense, aspect, pronominals, referential adverbs, etc. Further, Jakobson employs Peirce's terminology to specify that the class of deictic words in adult speech are *indexical symbols*:: symbols because like all words they are primarily semiotically conventionalized configurations of sounds or letter, and indices because they always function to connect the word to an element in the broad context. In this sense all deictics "point" in some way to something in the speech situation, they provide a link tying the language in a discourse to the temporal and physical world of the speech event (Jakobson 1990a) or to the displaced world of the narrated event.

To classify the various ways in which pronominal shifters make reference and function in discourse several taxonomies have been proposed which will prove useful in the current study to aid in categorizing deixis. Himmelmann (1996) proposes four universal functions of demonstratives in narrative:

(1)

Situational: referring to the physical context of the speech event (Hickmann's "deictic function".

Anaphoric: referring to a past word in discourse.

Discourse deixis: referring to a previously uttered chunk of discourse.

Recognitional: referring to a non-present, non-mentioned idea which is part of the conversants' intersubjective knowledge.

Likewise Hanks (1992) has a taxonomy of the potential cross-linguistic functional components of deixis, built around four principles:

(2)

1) **Communicative**: deictics signal speech act value, that is, they provide not just reference but a certain perspective on their referent and its role in the discourse.

2) **Characterizing**: they describe the referent.

3) **Relational**: they signal the relation of the referent to the origo.

4) **Indexical**: they ground reference to the origo in the speech event.

Hanks attempted to show that what he calls deictics share a semantic structure that sets them apart from other expressions, and that they often related to one another in terms of 1) saliency vs. non-saliency and 2) figure vs. ground.

Most past studies in deixis have stressed the relationship between the speech situation and the *origo*. The origo is the deictic center from which the sense of other deictics is calculated. Starting with Bühler, the originator of the term deixis as it is currently used in linguistics, (1982) (see also Sebeok, 1987), the deictic center has been represented as a coordinate plane with the speaker as the center:

Fig. 1
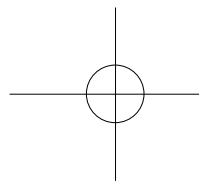
To quote Bühler: "I maintain that three deictic words must be put at the place of O, if this scheme is to represent the deictic field of human language, namely the deictic words *here*, *now*, and *I*... [this is] the coordinate system of 'subjective orientation', to which all parties in verbal exchange are and remain attached." (Bühler 1982: 13-14) Brugmann's formulation of the Indo-European deictic system centered around the *here, now, I* (ich-deixis) vs. the *there, then, you* (*du*-deixis), with *ich* deixis being primary. It is important to point out that from its very first conceptualization deixis is presented as having the speaker as its center, the *here, now*, and *I* as being the primary coordinates from which all other aspects of deixis are determined and specified.

This basic way of conceptualizing deixis has remained relatively unchallenged in must of linguistic theorizing. Prominent researchers working on French such as Cervoni (1987) and Maingueneau (1981) describe *la situation de l'énonciation* as being based on the idea of the *moi, ici, maintenant*. In current day American linguistics Wallace Chafe's (1994) influential *Discourse, Consciousness and Time* presents a self-outward view of discourse interaction, in which the *I* is central. Of course Chomskyan (see Chomsky, 1988) views of language in general are concerned solely with speaker knowledge, and as such other elements of discourse have no role at all except as they relate to the speaker's competence.

One of the goals of this study is to challenge or cast doubt on the idea that the *here, now*, and *I*, constitutes the proper primary deictic center for the conceptualization of shifters. I will demonstrate that, at least ontogenetically, the origo of deixis passes from the external social world inwards towards the speaker, and that the common conceptualization of the speaker as the deictic center may merely be derivative of a more fundamental state of affairs which has been ignored due to the emphasis on studying isolated and decontextualized bits of language which have been artificially divorced from their proper social milieu.

3.0 The Current study
3.1 Data and methods
The data for this study comes from recordings of two monolingual learners of continental French from the CHILDES corpus (MacWhinney, 1997). The files used in the current study are the GREG files and the PHIL files, these files from the on-line CHILDES corpus are especially well transcribed, with interactional, referential and phonetic elements included. Rather than analyzing every file, which would have entailed examining over 43 hours of transcribed language, I have chosen to examine 8 hours of representative data chosen from different age levels in order to get a sense of the global changes taking place in the language of these two children. Certainly one would require forty hours of transcript from forty children to definitively demonstrate an order of acquisition, thus the current work must be viewed as a preliminary essay to generate hypotheses rather than to make iron-clad conclusions.

From the speaker GREG we examined a total of 3,730 words taken from the ages of 1;9.18, 1;9.27 and 2;5.27. The data from GREG was collected sporadically and so there is less of a range of ages to look at. The advantage of the GREG data is that it starts much earlier than PHIL and allows us to see an earlier stage of development. From PHIL we analyzed a total of 7,630 words taken from the ages of 2;1.19, 2;1.26, 2;6.27, 2;10.3 and 3;3.12. The total number of words from both speakers was 11,360. Data from each age level for each speaker was analyzed using the Concorder program from the University of Montréal. Frequency counts and total occurrences of words were generated with this program and these word frequencies were used as a basis for examining the language in more detail by pinpointing key words that could be sought

out in the text quickly and easily. While word frequencies were helpful almost all the conclusions drawn in this work are based on the examination of usage in context, taking into account the discourse functioning of each deictic element at each age level.

4.0 Data Analysis

4.1 Stage 1: Labeling

The first stage we will examine is pre-deictic, evidenced in GRE 1 and 2. This stage is characterized by a almost total absence of shifters of any sort. A look at the word frequencies in fig. 2 reveals that full nominals, names and labels predominate. The main verbal elements are the command *tiens* and the verb *être* (to be).

Fig. 2

STAGE 1		
Gre1		
Date:	**16-FEB-1988**	
Age of GRE:	1;9.18	
Words:	393	
Dist. Words;	87	
Utt:	215	
Ça:	0.5% (2)	
Je:	0%	
Tu:	0%	
Frequency		
1	TIENS	47
2	PINPIN	30
3	PAPA	26
4	MAMAN	25
5	PUZZLE	20
6	EST	20
7	VOITURE	16
8	TOMBÉ	14
9	KIKI	14
10	ÉFANT	11
11	ADRIEN	11
12	ASSIS	8
13	CASSÉ	7
14	VICTOR	6
15	EH	6

STAGE 1		
Gre2		
Date:	**01-MAR-1988**	
Age of GRE:	1;9.28	
Words:	1000	
Dist. words:	168	
Utt:	588	
Ça:	1.3%	
Je:	0%	
Tu:	0%	
Frequency		
1	EST	52
2	PINPIN	52
3	ASSIS	51
4	MAMAN	41
5	GRÉGOIRE	36
6	LÀ	35
7	LE	34
8	POUPÉE	31
9	CROCODILE	27
10	CHIEN	26
11	LA	23
12	LES	23
13	TIENS	21
14	TÉLÉ	20
15	CHAUSSONS	18

In example (1) below the salient characteristics of this stage are demonstrated, where objects in the world are pointed to by the child and labeled by the caregiver (MOT). The child then repeats the name of the object over and over again. At this stage the child is able to combine these labels together to express relationships using simple contiguity, with the selection sets being objects or people present in the physical context of the speech event. Linguistic reference is always accompanied by a pointing gesture or a physical connection with the object being named.

(1)

      *GRE: puzzle Adrien # puzzle Adrien # puzzle Adrien.
      %gpx: Grégoire points to a puzzle on the table
      *MOT: ça c' est le puzzle d' Adrien.
   *GRE: puzzle Victor.
      %act: Grégoire takes a piece of Victor' s puzzle
      *MOT:ça c' est le puzzle de Victor.

There is no evidence of temporality or aspect at this stage, the copula is the basic verbal element and it is used only in an atemporal locative manner by the child. This stage will be referred to as the *labeling stage*, since both full nominals and physical contact are obligatory in the child's speech. The labeling stage is maximally *immediate*, there is a direct connection between a single word labeling a certain object in the world. However, unlike the speech of very young (one word stage) children, GREG appears to be able to make the cognitive leap from each object having its own label to a conceptualization of puzzle as a label that spans a category of things in the world, since as we see in (1) he refers to both puzzles with the same word. While we might characterize the one word, one discrete object stage before this one as has having total physical equivalence, but here we see that the formation of a code is involved. We will use the term *first degree of immediacy* for this early construction of the code, for while the child still requires the immediate presence of physical objects for language use the signifier "puzzle" has become semiotically detached from an individual object and is now applicable to a class of objects, as we see graphically represented in (2)

(2) One degree of immediacy

              Code: /puzzle/   CODE

      Puzzle Adrian   Puzzle Victor   OBJECTS
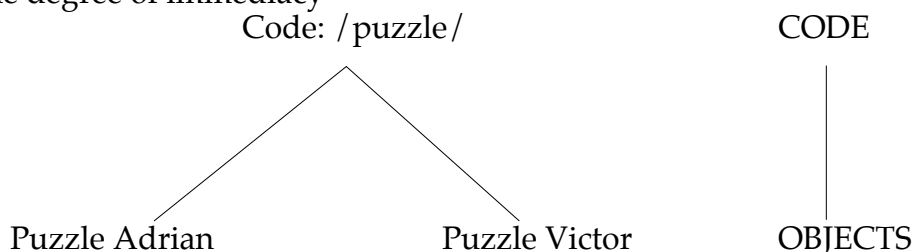
Stage 2: Demonstrative stage.

      In stage two reference is still made only to objects or people physically present in the speech situation. However, the systematic use of the first pronominal element is evidenced at this stage by the use of the demonstrative pronoun *ça* and the demonstrative adverb *là*. Compared with stage one the use of deixis in this stage is quite productive. As we see in figure 2, over 3% of all words in both PHIL 1 and 2 is made up of the demonstrative pronoun *ça*. The interpersonal discourse shifter pronouns *je* (I) and *tu* (you) are absent or rare and are never used productively.

Fig. 2

Stage 2	
Phi1	**Phi2**
Date: 22-APR-1971	**Date: 29-APR-1971**
Age of PHI: 2;1.19	**Age of PHI: 2;1.26**
Time Duration: 9:15-10:15	**Time Duration: 9:30-10:30**
Words: 1298	**Words: 1435**
Dist. Words: 248	**Dist. words: 257**
Utterences: 443	**Utterences: 508**
Ça: 3.0%	**Ça: 3.7%**
Je: 0%	**Je: 0.4% (7)**
Tu: 0%	**Tu: 0.2% (4)**
Obj. Pron: 0%	**Obj. Pron.: 0%**
Frequency:	**Frequency**
1 LA 91	1 LA 78
2 EST 64	2 LE 61
3 L 50	3 PAPA 58
4 LE 50	4 ÇA 53
5 DE 41	5 EST 51
6 ÇA 38	6 DE 37
7 C 27	7 CAMION 32
8 DANS 25	8 LES 26
9 EAU 24	9 PAS 23
10 RAQUETTE 23	10 PETIT 23
11 MAMAN 22	11 VOITURE 22
12 PETITE 22	12 UN 21
13 IL 21	13 PHILIPPE 21
14 ET 21	14 DANS 21
15 LÀ 18	15 ET 20

Self reference at this stage is generally in the third person, as we see in (3) where Phillipe uses his name to label himself, as opposed to *je*.

(3)
        *PHI: fait manger le philou?
        *PHI: maman fait manger philou?
        %com: philou est un diminutif de philippe
        *MOT: maman fait manger philippe, oui.

In example (4) the salient characteristic that differentiates this stage from stage one in terms of deictic use is the semiotic lessening of immediacy by the use of a shifter instead of a full nominal. While the referent is still present in the speech situation it is quite a cognitive leap in complexity to use a word (*ça*) that signifies the relationship between a concept in the code (*micro*) and indexes it to an object in the world. In the case of ça the conceptual leap is one of a second degree of immediacy, wherein the word doesn't just refer to a class of objects in the world, as did puzzle, but to a kind of relationship between types of objects in the world and a concept in the code. This relationship, demonstrated by the use of *ça* in reference to a microphone, does not have to be the

same as the adult. Indeed here the child equates the microphone with the same category as a telephone receiver, and is corrected by the mother. In light of the fact that so many of the child's hypotheses about the connection between the code being built and objects in the world will be wrong, having a linguistic mechanism for pointing to objects which require names allows the child both to elicit information from the care giver and to refer to objects in the world without the use of a full nominal. In the utterance *ça marche pas ça* it is obvious that the child has realized that the object is not what he thought it was, yet he does not yet have the phonetic form of *micro* confidently in place. Employing *ça* allows reference without full use of the nominal.

(4)

      *PHI: un écouteur ça.
      *MOT: ça, c' est un micro.
      %sit: la mère montre le micro
      *PHI: un écouteur ça.
      *MOT: ça, c' est un micro.
      %sit: la mère montre le micro
      *MOT: tu vois, c' est un écouteur dans l' autre sens xxx.
      *PHI: un micro.
      *PHI: parler dedans.
      *PHI: ça marche pas, ça.
      *PHI: ça tourne pas.
      *PHI: ça marche pas le micro.
      *MOT: il faut pas le faire tomber, philippe, hein.
      *PHI: tomber.
      *MOT: xxx après ça tombe.
      *PHI: après ça tombe.

Thus at this stage the child has acquired the use of a basic situational deixis that provides an index to present objects in discourse. This second degree of immediacy places a shifter form in between full nominals in the code and objects in the world, and represents quite a conceptual leap in cognitive and semiotic terms.

(5)
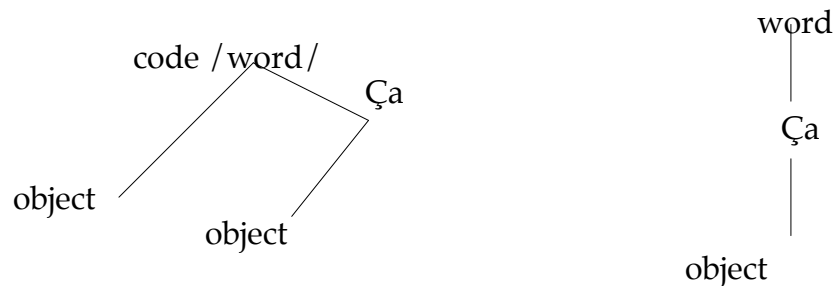
In (5) I have attempted to schematize the second degree of immediacy, wherein the possibility of a semiotic mediating factor (demonstrative pronouns) between the code and objects in the world represents a linguistic and conceptual leap for the child but which also allows for more vagueness in reference and provides an indirect mechanism for acquiring new connections in the code.

Stage 3: Expansion of personal discourse pronouns.

The capacity to use shifters to acquire vocabulary about objects in the world is greatly increased by the introduction of personal shifters. While up until this point only objects were referred to with shifters, the child now realizes that labels for participants in the speech event can either be used refer to them as human objects in the world (names) or to refer to their roles in the discourse (personal shifters). This represents a double expansion semiotically, for while objects can have specific coded labels as referents or generic positional shifter-pointers, their roles in the discourse do not change and are never coded in the shifters. Moreover this stage evidences a new spatial dimension as well, for while in stages 1 and 2 only visible objects in the space before the child were topics of discussion with shifters, now the self, which is not in the field of vision, is conceptualizable with a deictic. This realization requires a good deal of semiotic inferencing since up until this point gestures pointed out names attached to objects.

Fig. 3

STAGE 3	
Phi13	**Greg10**
Date: 30-SEP-1971	Date: 25-OCT-1988
Age of PHI: 2;6.27	Age of GRE: 2;5.27
Time Duration: 9:00-10:00	Time Duration: unknown
Words: 1720	Words: 2337
Dist. Words: 259	Utt: 476
Utt.: 429	Dist. Words: 349
Je: 4.0%	Je/moi: 11.1%
Ça: 3.0%	Ça: 1.4%
Tu: .8% (14)	Tu: 0.7%

Frequency			Frequency:		
1	EST	139	1	JE/J	151
2	C	105	2	MOI	108
3	JE	68	3	OUI	81
4	LÀ	63	4	EST	77
5	PAS	54	5	LA	64
6	ÇA	51	6	IL	53
7	NON	42	7	AI	53
8	QUOI	41	8	C	50
9	VEUX	36	9	A	50
10	DE	33	10	ELLE	48
11	QU	33	11	PAS	42
12	LE	32	12	ET	36
13	O	31	13	DE	36
14	CE	29	14	LE	34
15	QUI	29	15	ÇA	33

Now gestures may also point out discourse roles, the word Phillip pointed to the person Philip, just as *puzzle* pointed to the game *puzzle*. But *je* points to Phillip only when he is the speaker, and *tu* points to Phillip only when he is the hearer.

When this realization is made we see a huge jump in the use of *je* and *tu*, as in fig. 3:

Personal shifters represent a new axis of deictic reference, between shifting roles in the discourse as opposed to shifting different labels in the code to different objects in the world.

Likewise, while the first two stages of deictic acquisition of pronouns ran along one axis of reference to objects physically present, so too was temporal reference confined to a single plane. Since temporal do not have relevance unless there exists some contrast with the moment of speech, stages one and two must be considered atemporal. There was never an instance of now vs. not now, so we cannot say that there was present tense usage. Likewise while we saw no contrast between prefectivity and non-perfectivity in the childrens' speech in stage one, where aspect did not yet play a role, in stage 2 aspect begins to be used. Aspectual distinctions are being encoded, with the distinction being between punctual events completed before the child's eyes, as in (6), and stative elements which do not have a definite end-point. The development of aspect before tense is widely recognized (Antinucci & Miller, 1976; Bronckart & Sinclair, 1973), and it is analogous to the development of pronominal shifters of the second degree of immediacy in that there exists a new formal convention for encoding the indexical mediation between actions, an intermediary between the action as a label and its role in the speech event.

(6)
      *PHI: faire boum sur le gros le petit.
      *PHI: a tombé le gros.

While the usage in (6) might appear to temporal, the *passé-composé* occurs in stage 2 only where punctuality and completion is being indexed. Obvious past tense reference to events that happened earlier in the speech event is not made, nor is mention of the events of prior days made.

In stage three, however, we do begin to see a past vs. present distinction, as in (7). This opens up another semiotic axis on the verbal plane, conceptualized in (9) just as personal deictic reference creates a new axis on the pronominal one, as presented in (8).

(7)
      *MAD: qu' est-ce que tu faisais dehors?
      *PHI: je suis allé voir monsieur boirat.
      *MAD: oui, et puis qui encore?
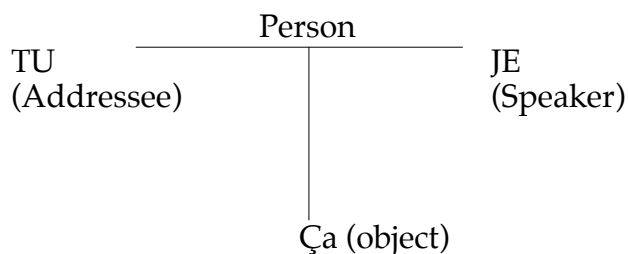   *PHI: le chien de monsieur boirat.
      *MAD: et puis après, quand tu es arrivé á la gare, qu' est-ce qui s'
      est passé?
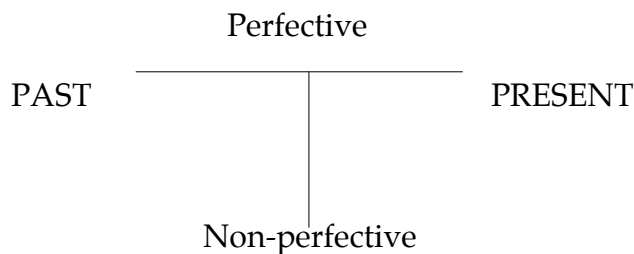   *PHI: j'ai vu danielle.
      *MAD: hein?
      *PHI: j'ai vu danielle.

(8)

```
                        Person
    TU          _____|_____          JE
(Addressee)             |             (Speaker)
                        |
                        |
                        |
                        |
                   Ça (object)
```

(9)
```
                     Perfective
    PAST        _____|_____          PRESENT
                        |
                        |
                        |
                        |
               Non-perfective
```

Thus, the three major deictic categories in French are semiotically interconnected and develop in concert ontogenetically according to the principle of immediacy. In stage three we see a third degree of immediacy develop, a cognitively more complex system but one which allows the child the essential function of direct address to the caregiver in order to elicit information about objects in the world. Stage three is thus the stage at which we see an enormous increase in questions of the "what's that?" type. In PHIL "qu'est-ce ça?"

Stage 4: Anaphoric stage
        The final stage treated in this study is characterized by a large increase in the use of the object pronoun anaphors (*le, la* and *les*) and an increase in use of perfective past tense. The use of these anaphoric pronouns is pragmatically not adult-like in that they are still only used to refer to objects in the speech situation. They are more complex in that they are clitics and thus phonologically less salient, unstressed, and not accompanied by the formerly essential gesture. If we compare figure 4 and figure 5 we see that the use of pronominal deictics, viewed in terms of *frequency*, is approaching adult-like norms.

Fig. 4

STAGE 4	
Phil23	Phil33
Age of PHI: 2;10.3	**Age of PHI: 3;3.12**
Time Duration: 9:15-10:15	**Time Duration: 9:00-10:00**
Words: 1088	**Words: 2089**
Dist. words: 277	**Dist. words: 399**
Utterences: 378	**Utterences: 484**
Je: 4.0%	**Il: 2.6%**
Ça: 1.3%	**Je: 2.3%**
Tu: 0.2%	**Ça: 2.3%**
	Tu: 1.1%
Frequency	**Frequency**
1 OUI 84	1 EST 85
2 LE 49	2 LÀ 77
3 NON 40	3 LE 61
4 JE 32	4 IL 55
5 PAS 29	5 UN 54
6 EST 28	6 JE 53
7 UN 26	7 PAS 53
8 LES 24	8 OUI 52
9 C 23	9 LA 50
10 IL 21	10 ÇA 49
11 A 20	11 NON 44
12 UNE 15	12 A 40
13 L 15	13 C 40
14 ÇA 14	14 DE 34
15 ELLE 14	15 Y 32
16 ON 14	

In addition, the imperfective aspect appears for the first time at this stage, after the introduction of the perfective as predicted by Bronckart & Sinclair (1973) and Antinucci & Miller (1976). Predictably this stage shows as increase in the complexity of the deictic system and a decrease in immediacy between the physical context and the semiotic system.

Fig. 5 (From Barnes (1986) Corpus)

Pronoun	Nº of Words	Percent of Total
Je:	2477	3.4%
Ça:	1546	2.1%
Tu(2nd sing.):	1363	1.9%
Total Words:	73,369	100%

5.0 Discussion
5.1 Expected Later stages:
      Since each stage of development in the deictic system of the French first language learners in this study has progressed from a greater immediacy in terms of the physical speech situation to less immediacy, the next stage of complexity would be entail a complete disjuncture between objects in the speech situation and the deictics in pronominal reference. The latest stage reached in our data is Himmelmann's (1996) anaphoric use, and even though grammatically we appear to have anaphora, pragmatically (to keep in mind the admonition of Hickmann, 1987) the sole type of reference is situational. The next stages in pragmatic and functional complexity would be the use of pronominal deictics in reference to intralinguistic elements, see (11). This would entail the use of discourse deixis and anaphora which does not rely on physical objects as secondary referential "props", as in the adult usage (10).
(10) Discourse deixis with identifiable discourse referent:

      B: Tu n'en as jamais bu?
      "You've never drank any of this?
      C.: Non, c'est pas *ça*, c'est pas *ça*...
      "No, it's not that, it's not that." (Barnes I-1(1) p. 13)

The final pragmatic usage may be recognitional, though it is unclear what the relative order of discourse deixis and recognitional usage would be since they are not evidenced in our data.

(11) Predicted stages of acquisition of deictic reference in terms of Himmelmann's (1996) taxonomy:
      1) Situational
      2) Anaphoric
      Not yet reached:
      3) Discourse deixis
      4) Recognitional

In terms of the data that have been examined for this study we may make preliminary claims that the order of acquisition is as follows:

      1) Situated nominals, almost no shifters.
      2) Situational deixis with demonstratives.
      3) Personal self-reference with shifters.
      4) Anaphora with object pronouns to situated elements
      5) Discourse deixis/endophora, recognitional (respective order not yet determined)

In figure 6 I have summarized the relationship between the pronominal, temporal and aspectual deictic categories as they appear ontogenetically in French.

Fig. 6: Four Stages of Deictic Use in Early Child Language

	Stage 1 Nominal	Stage 2 Demonstrative	Stage 3 Self Referential	Stage 4 Anaphoric
Pronominals	None	Situated, Demonstratives	Appearance of self-reference	Use of anaphora
Tense/Aspect	Atemporal	Present, perfectivity	Past perfective	Imperfective aspect
Comment	Labeling	Beginning of Deixis	Non pointing deixis	Language as object of reference

5.2 What is the basic deictic center?

To return to the question asked in section 2.0 about the origo we saw the traditional view of deixis as being centered in the here, now, I. In light of the findings of this paper there does not appear to be evidence from child language acquisition that the *here*, *now*, *I* is in any way primary. Semiotically, the origo of deixis in French children starts out in the visible world of objects the (*there* and *that*) and only after several cognitive/functional stages does the I and the now become relevant ways of referring to the world with language. In the same way we found no implicatum between the *I*, the *here* and the *now* (*ich*-deixis) as concepts for the child nor between the *you*, *then*, *there* (*du*-deixis). Rather, *I* and *you* appeared in concert in our data, preceded by the combination *that* and *there*. For Bühler, the ability to say that something exists *there* in the world logically presupposes that there first be an *I* from which to distinguish the *there*. This may be a logically possible state of affairs but it does not appear to be empirically justifiable claim. Moreover, the presupposition that the *here* is more basic that the *there* is not substantiated in adult speech in many European languages where *there* has taken over the role of the *here* (French), or where the *there* plays a much more prominent role in the referential system of the language (English, German). Thus, contrary to many conceptions of the relationship between deictic elements:

1) Children do not appear to start out with the *I, here, now*, but with the *that, there, atemporal* (in contrast to the view of Maingueneau, Cervoni, Bühler *et alia*.)
2) Brugmann's *du-deixis*, grouping second person pronouns (e.g. *tu*) with distal deictics, is not substantiated in child language acquisition order in this study.

While the current study has provided evidence to cast doubt on the traditional view of the origo, our data analysis of pronominal deixis and tense/aspect has provided further substantiation for Bronckart & Sinclair (1973) and Antinucci & Miller's (1976) predictions and observations about the appearance of passé-composé forms marks punctual aspect at an earlier stage, before it begins to mark tense and Youssef's (1989) prediction of the appearance of perfective aspect before imperfective.

5.3 Semiotic characterizations of the acquisition of deixis:

While it might seem radical to a researcher in the Western world that the *I* is somehow a derived concept, there are nonetheless semiotic theories of the conceptualization of the self which predict that apprehension of the outside world must precede a concept of the self. C.S. Peirce's (1932) *law of mind*, i.e. that signs are appropriated through the mediation of other signs and that apprehension of signs must

naturally proceed from the most salient to the most derived, predicts the order of acquisition of deictics to pass from the maximally immediate and physical context dependent to less immediate and more linguistically context dependent. Thus the external is appropriated first, since the salience of external signs and the contiguous relationships among them as objects in the world is more immediate and apprehensible. Further the Peircean theory of *affectibility* which holds in part that hypotheses of the self are based on error, predicts that the social construction of the *I* must precede understanding of other signs. This is reminiscent of Sartre's (1956) concept of identity by way of other-objectification: "the Other has not only revealed to me what I was; he has established me in a new type of being which can support new qualifications. This being was not in me potentially before the appearance of the Other. " (222). In Peircean terminology we can characterize the self as a concept of thirdness, being a socially constructed notion, while apprehension of contextual variation (see stage one above) is a function of firstness, the domain of qualities. The stage two usage of shifters provides evidence of the child's appropriation of objects in the world indexically, the property of Peirce's secondness.

In Jakobson's framework the initial stage of deictic acquisition might be seen as one revolving around isomorphic iconicity, wherein the principle of linguistic organization is built around repetition of identical elements in different contexts. When we begin to see true deixis at stage two it begins first with the spatial-contiguous-secondness and then passes eventually to symbols embedded in the linguistic context, the adult use of language as predominantly a function of thirdness.

In the Vygotskyan (1978, 1962) framework of development semiosis manifests itself first always in the external world of social interaction and only later in development do symbolic tools take on a semiotic role in organizing the self (see Wertsch, 1979). This is analogous to Voloshinov's (1986) portrayal of the individual as always already being immersed in the stream of language, and that learning a language entails becoming part of the social world into which one was born, of taking the external and inventing the self from an internalization and appropriation of the linguistic world (see also Rommetveit (1985) for a discussion of how language organizes and structures experience).

The most useful way of explicating the findings of this study is to regard the development of deixis in the child as a progression in terms of the Vygotskyan concept of locus of control. Stages one and two above are archetypal instances of *object regulation*. In object regulation language is oriented to the level of visible objects in the world, in our data even the self and interlocutors are labeled in the same way as objects are. Every aspect of language is distinctly iconic or indexical in that it is always physically tied to present situation. Language is used not as much as a communicative tool, but as a way to gain greater control over the environment in terms of naming things in the world, bringing them into language. Words can only be learned indexically or iconically because symbolic equivalence (circumlocution) is impossible at this stage.

The level I have called stage three is commensurable with Vygotsky's *other regulation*. The understanding of discourse shifters, of *je* as current speaker, *tu* as current addressee allows for the use of questions to elicit the names of things. The infant is thus reliant on others for the names of objects in the world: e.g. enormous use of *c' est quoi ça?* At this stage the child is progressing away from a strict reliance on objects in the world as semiotic tools for constructing consciousness and now able to symbolically mediate the world through the aid of the other in a process of scaffolding in the zone of proximal development (Vygotsky, 1968).

The final stage examined in this study (stage four) shows the child progressing towards self regulation, where the locus of control is not always ensconced in objects or in the other but where the child is undergoing the "transformation of "other-regulation" into higher level symbolic self-regulative capacities" (Rommetveit 1985). At this stage the child is able to use abstract shifters that will eventually point from one utterance to another, relying on linguistic contiguity as opposed to purely situational indexicality. While it is obvious that the child is still largely object and other regulated at this stage one can see the seeds of self regulation appearing in the increased use of anaphors which refer both to the linguistic context as well as to the physical one.

6.0 Conclusion

I draw three preliminary conclusions about the nature of deixis from this study. First, that it is impossible to understand the ontogenesis of language if one does not take into account the simultaneous development of the child's cognitive capacities and the appropriation of semiotic frameworks through which the child understands the world. The divorcing of cognition and language as is practiced in theories such as UG has required researchers to limit the study of anaphora to trivial details which rarely occur in actual language use, such as reflexive co-indexing. Since it is obvious that practically (I would venture 100%) of the use of deixis in language is dependent on context which is greater than the "sentence", and that the child's cognitive conceptualization of the context in which he/she exists is absolutely crucial in understanding how they use shifters, any approach which divides language ontogenesis and cognition is doomed to dealing in trivialities.

My second point relates to the conceptualization of deixis and the acceptance of philosophical and rational arguments for the status of elements in language without concurrent empirical investigation. While researchers such as Bühler and Chomsky may be able to come up with possible theories about the way language works through philosophizing, it is apparent that only through empirical evaluation of actual linguistic data can one verify whether or not these possible worlds are consistent with the actual reality of language as it is used by real humans. Thus, while Bühler's placement of the deictic origo in the self seems logical to the adult speaker in the western world, it is not substantiated in any way in the actual facts of first language acquisition.

Finally, I would like to conclude that the basic, preliminary finding of this study is that the acquisition of deixis proceeds conceptually from the context of the social world of interaction towards the child's eventual construction of self. That is, language data reveals that the child is conscious of the external social milieu long before he/she linguistically marks consciousness of self. This supports both the Yygotskyan notion of development as "increased self-regulation via linguistic-symbolic structuring and control" (Rommetveit, 1985: 183) and Peirce's law of mind and doctrine of affectibility. In closing I must stress that the findings of this study are preliminary and that much more empirical work must be undertaken in much greater depth in order to validate any of this study's conclusions.

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