THE ROLE OF LINGUISTIC THEORY IN THE READING WARS

INTRODUCTION

Since the 60’s, research in early reading has been sharply divided between those who focused on language subskills as the key to learning to read, and those who favored more holistic, meaning-based approaches to early literacy. Labeled the “great debate” by Jeanne Chall (1967), the controversy was fostered, in part, by assumptions about the basic nature of language that characterized concurrent linguistic theory. At the heart of the debate lay different views on the relative contribution of print to the larger process of reading comprehension. The present paper will begin by examining the debate at its most basic level, that of linguistic theory. A thorough analysis of the major linguistic theories that have contributed to the debate will reveal that many share common assumptions about language. In particular, three underlying assumptions will be investigated: (1) linguistic dualism: a view of language that treats the structural form of language and its meaningful use in communication as separate domains of inquiry; (2) representationalism: the notion that language represents thought; and (3) nomenclature: the idea that language names pre-existing categories of the real world. The problems each assumption has brought to the field of reading instruction will also be discussed.

In addition to analyzing linguistic theory that has contributed to the great debate, this paper will also examine issues in early literacy from the perspective of the sign-based linguistic theory developed by William Diver and his colleagues at Columbia University.
Columbia School Linguistics differs from most other linguistic theory in that it views language as a tool or instrument in the process of communication. As such, the structure of language is intimately tied to its communicative use; meaning is the organizational base upon which structure rests. This theoretical assumption rejects the dualistic notion that the structure of language can be studied apart from meaning. CS further rejects both the representationalist and nomenclaturist position since neither the thoughts we communicate nor real-world referents serve as the basis for linguistic analysis. The instrumental view of language differentiates between meaning within language itself and the messages or ideas that we construct from the specific information encoded in the conceptual organization of a language. From this perspective, how language functions in the process of communication differs significantly from what language means. Since CS theory seeks to examine the specific role language plays within the larger framework of human communication, it is hoped that this paper will offer some insight into issues that as yet remain problematical in the area of reading pedagogy. Perhaps this new perspective will contribute to a cohesive theory of reading that will synthesize findings from both top down and bottom up research. Both Goodman (1989) and Chall (1967) agree that in the absence of a cohesive theory, language arts curricula have been determined more by the promotional rhetoric of publishers of basal texts than research findings.

HISTORICAL OVERVIEW OF THE DEBATE

In *Learning to Read: The Great Debate*, Jeanne Chall (1967) asserted that reading was the most thoroughly researched topic in the field of education during the 60s.
Yet despite the impressive body of research, there was sharp division among practitioners as to whether phonics instruction or meaning-based sight reading was the more effective methodology for the beginning reader. Phonics focused on the relationship between sounds and their corresponding graphic representations. The idea was that children should learn to build and recognize (encode, decode) words by “sounding” them out. In contrast, the look-see approach emphasized whole words (meaningful units) which children learned to recognize by sight in simplified basal texts.

Each of the opposing camps could point to studies that supported its position in the polemic. Chall blamed this lack of consensus on the fact that most research in reading was geared toward bolstering some existing practice rather than toward creating a unified theory of reading. Her conclusion was that without some underlying theoretical principles to synthesize findings, research in reading would continue to be inconclusive and contradictory.

The title of Chall’s book remained an apt description of reading pedagogy throughout the 80’s. While the lines of confrontation shifted, the controversy continued. The former adversaries, phonics and sight reading, were united under their common purpose of word recognition and termed “reductionist” (or bottom up) by advocates of the “top down” or “natural,” integrative philosophies of whole language and emergent literacy. As Meredyth Daneman noted in 1988, comprehension became the central focus of reading research, but the relative contribution made by graphic input and constructive inference was still widely debated. Combatants continued to lay claim to extensive research that supported their respective positions.
Whole language advocate Kenneth Goodman (1989) boldly asserted, “whole language represents a coming of age of educational practice, a new era in which practitioners are informed professionals acting on the basis of an integrated and articulated theory that is consistent with the best scientific research and the theories in which it is grounded” (1989, p. 207-208). Based on his own (1967, 1977) and Halliday’s (1975) miscue analysis, his theoretical position for three decades was that reading was not phonological decoding. Children needed to do more than say the words to comprehend a written text. According to Goodman, readers made predictions as they read and “sampled” the text to confirm or disconfirm those predictions. From this perspective, better word recognition skills did not make children better readers. In fact, Goodman described the inefficient reader as one who was too dependent on graphic input; whose errors were close to the graphic representation, but made no sense syntactically or semantically. His view was that over-dependence on graphic input impeded the process of comprehension (1967, 1977, 1989). Similarly, Smith stated, “the better reader barely looks at the individual words on the page” (1973, p. 190).

While Smith and Goodman occupied the most extreme position in the whole language retinue, the success of their psycholinguistic arguments was due in part to the fact that it meshed nicely with other constructivist (top down) approaches to reading comprehension which emphasized the creative role of the reader in building meaning from print (Anderson & Pearson’s schema theory, 1984, Sulzby & Teale’s emergent literacy, 1991). Jay Ludwig (1977) noted that the whole language perspective that grew out of miscue analysis supported the “cognitive concepts of human development -- again growing out of the anti-behaviorism of the generative-transformational analysis of
language” (p. 31). In essence, the appeal of Smith and Goodman’s theory rested as much upon its rejection of the behaviorist (bottom up) model of learning as it did upon the validity of its linguistic foundations.

However, other researchers in basic reading processes effectively challenged Goodman and Smith’s view of the minimal contribution of graphic input to reading comprehension. Eye-movement studies by Stanovich (1991) and Rayner and Bertera (1979) revealed that readers’ sampling of visual information was very dense and the loss of a single letter could slow down reading speed by as much as 50%. Other basic premises of whole language were also challenged. Perfetti (1988) noted that a strong dependency on contextual clues for word recognition characterized poor, not good readers. And even good readers, given unlimited time, were found to be very poor at predicting what word will follow next in a text (Gough, Alford & Holley-Wilcox, 1981).

Contrary to Goodman’s perspective, good word recognition skills correlated highly with reading comprehension. Juel (1994) pointed to Clay (1979), Lundberg (1984) and her own studies in 1988 which indicated that children who lagged in word recognition in first grade remained poor readers throughout successive grades unless some intervention remediated the problem. Chall (1967, 1983) cited studies indicating that early awareness of letters and their sounds was a better indicator of how well a child would read in later grades than tests of intelligence or oral language ability. Both Chall and Juel asserted that there was no evidence that supported the notion that decoding ability reduced children’s awareness of meaning. On the contrary, Juel contended that

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1 Gough (1983) also supports this finding. College students succeed in guessing only 1 word out of 10 in a continuous text. The probability of guessing a word also decreased with increased word length and relative
children who were skilled at decoding read more and thus developed their vocabulary and conceptual understanding of the world.

The basic premises of emergent literacy were similarly questioned and investigated. Research by Gough and Juel (1991) indicated that the paired association involved in “reading” environmental print often involved no print awareness whatsoever. In fact, when “experts” in environmental print were asked to read the familiar logos in regular print, the distribution of the results was “markedly bimodal and was not distributed continuously as one might expect if it were true that the accumulation of environmental print experience leads children into word reading” (Masonheimer, Drum, Ehri 1984, p. 268).

Despite the effectiveness of their arguments against whole language and emergent literacy models of reading acquisition, bottom up proponents themselves faced serious problems at the theoretical level. The impressive array of technical equipment and terminology did not obscure the fact that their research was not supported by any clear understanding of how language worked. While theories of reading processes or reading acquisition flourished, most had no cohesive linguistic underpinnings. In addition, their conclusions were often not tempered by a recognition that their evidence was

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rarity of use. Gough concluded that guessing only helps with short, high-frequency words which do not present problems to the young reader.

2 Much borrowed terminology from the descriptivist tradition characterizes this research, but in a rather loose way. The terms such as phonemic awareness, phonological awareness and cryptanalytic intent (Gough & Juel, 1991) roughly refer to the same nebulous concept. It calls to mind Ellis’s caveat that “obsessive claims of scientific status for a field have routinely been signs of uncertainty of direction and deep conceptual troubles; they are invariably found in fields that are not part of the natural sciences. Moreover, the emphasis in these fields is always on the surface trappings of scientific procedure: quantification, diagrams, and a technical vocabulary. Just as routinely, the really important part of science is absent -- a well-developed and refined conceptual framework the basic shape of which is absolutely compelling” (1993, p. 112).
overwhelmingly correlational, (having X, predicts Y) or comparative (What do good readers do or seem to have, that poor readers do not?) of naturally occurring states where it was never certain that the variables under consideration were not confounded by others. That the relationship between phonological awareness and reading acquisition was unclear was underscored by Tunmer (1991) who cited three possibilities: (1) phonological awareness was causally related to reading acquisition; (2) phonological awareness was the result of reading acquisition; or (3) phonological awareness was both a cause and a result of reading acquisition.

Daneman (1988) underscored the fallacy of assigning causal relationships to positive correlations when she cited the misguided effort in the 60’s to improve reading comprehension through eye movement training. That poor comprehension correlated positively with specific patterns of eye movements (long fixations and frequent backtracking) led some researchers to believe that eye movements caused poor comprehension. However, the subsequent training of poor readers in more effective eye movements did not produce better reading results. Similarly, Adams (1990) noted that while knowing the names of letters correlated positively with early success in reading, training young children to name letters did not produce better reading performance.

The pedagogical implications remained as unclear as the conclusions to be drawn from the bottom up research perspective. Even Perfetti, whose verbal efficiency theory explained individual differences in reading comprehension in terms of the resource demands placed on working memory, was quick to point out that the implications for

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3 Haberlandt (1988) notes that in reading research there are so many confounding variables that one might well question whether such research is possible at all!
teaching were not straightforward. “A theory of skill performance is not a theory of skill acquisition” (1988, p 138). Although his verbal efficiency theory postulated that rapid identification of words left more of the limited resources of working memory available for higher level processing, Perfetti cited the studies of Fleischer, Jenkins & Pany (1979) and Piggins & Barron (1982) where attempts to train students to read words more rapidly did not result in better comprehension.

While some researchers (Adams, 1990, Chall, 1967, 1983, Juel, 1991, 1994) advocated direct instruction of letter-sound correspondences, other bottom-up theorists (Stanovich, 1991; Perfetti, 1991) were less anxious to return to skill and drill phonics instruction. Stanovich stated, “It could well be the case that language experience or whole language approaches might provide the child with the optimum amount of exposure for the induction of spelling-sound correspondences” (1991, p. 26). Most agreed that phonological awareness was not a set of rules to be memorized, but some naturally internalized knowledge (Perfetti, 1991, Stanovich, 1991, Gough & Juel, 1991). Even those who put forth models of acquisition were not clear whether such skills as phonemic segmentation should be taught before, or while, children learned to read (Ehri, 1978).

Given these two widely divergent, yet academically rigorous perspectives, what was the practitioner to do? How could sensible practice be teased out of the theoretical impasse that characterized reading theory for thirty years? Was reading a “psycholinguistic guessing game” (Goodman, 1967), or was phonetic decoding the conduit for gaining meaning from print? The solution seemed to be to incorporate aspects of both positions into classroom practice. Thus in the 90’s, academians and practitioners have
looked to eclecticism as a means of resolving the great debate in early literacy. Accordingly, Adams (1990) stresses the importance of connected texts to facilitate systematic phonics instruction. Top down advocates, Dorothy Strickland and Bernice Cullinan, in an Afterword to Adams’s book, agree on the importance letter-sound correspondences for the early reader, “We do believe in phonics; that is we believe in providing opportunities for children to learn about letter-sound correspondences” (1990, p. 426).

However, the eclectic approach is not based on any unifying linguistic theory, but rather a recognition by both sides of the considerable research support accrued by their opponents. Neither has détente at the academic level translated into clear directions in classroom practice. Strickland and Cullinan, while recognizing the importance of letter-sound correspondences, disagree with Adams’ recommendations for direct instruction when they add, “We do not believe, however, that phonics should be taught in isolation from other aspects of a child’s literacy development or that it is a precursor to reading development” (Afterword in Adams, 1990, p. 426). Adams notes that there is still not a clear understanding of what aspects of phonics instruction are beneficial or how much and when phonics should be introduced, especially for the child who enters the classroom with little solid literacy preparation (1990, p. 285-292).

These are the real questions faced by teachers in the classroom each day. The answers lie in the more fundamental questions: What is language and what contribution do marks on a page or variations in a stream of sound make in the process of human communication? Although these questions are central themes of all linguistic study, Chall (1967) noted that, by and large, linguists have added little insight into reading theory.
With the exception of Bloomfield (1961), linguists have left the work of applying their theories to others. Goodman (1967) attempted to integrate Chomskyan linguistics into whole language theory only to find the connection disclaimed and condemned by generative-transformational linguists on the basis that the innate language processing structures that directed the natural acquisition of spoken language did not support the “unnatural” process of learning to read (Gee, 1996). The more basic problem was the failure of whole language theorists to recognize that what Chomsky referred to as “language” was an hypothesized structure of the brain, not the tool we use in spoken and written communication.

In the following section, the contribution of underlying linguistic theory to issues central to the great debate will be examined. As John Ellis has noted, “a proper understanding of how language works [can] produce far-reaching consequences in a number of different fields, when rigorously applied to the central problems of those fields” (1993, p. 117). He presents compelling arguments that “poor and ill informed” linguistic theory led Ayer, Piaget and Vygotsky astray.⁴ A basic thesis of this paper is that the same has been true in the field of early literacy pedagogy.

THEORETICAL ROOTS OF THE DEBATE

Chall separated the various reading theories of the 60’s into four distinct categories: look-see, phonics, linguistic and alphabet reform. Her reason for labeling one group “linguistic” was that this was a pedagogy proposed by a leading linguist, Leonard

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⁴ A more detailed explanation on where Ellis feels these theorists went astray will be presented later in this paper in the section on nomenclature.
Bloomfield (1961). By specifically designating one methodology “linguistic,” she seems to imply the others are not. However, all theories of literacy are essentially and inescapably “linguistic” due to the fact that underlying assumptions about the fundamental nature of language and its use in human communication permeate all reading pedagogies. Such theorists as Daneman (1988) and Perfetti (1988) state that in order for a child to read she must (1) understand spoken language and (2) be able to identify written words. While these theorists expend much effort on the issue of word recognition, they do not provide a cohesive theory of language as support for their models of the reading process itself. The result is that basic and often conflicting assumptions about language go unquestioned. Three common assumptions about language and the methodological ramifications of each as it applies to early literacy pedagogy will be discussed here: linguistic dualism, representationalism and nomenclature.

LINGUISTIC DUALISM

At the core of the great debate, lay the premise, shared by both camps, that the structure of language and its use in human communication constituted separate domains of inquiry. Bottom-up theorists focused on the structure or form side of the dichotomy, while top-down advocates concentrated on meaning or the communicative purpose of language. Linguistic dualism allows each side to discuss meaning and fluency apart from linguistic structure. A brief review of the historical development of linguistic dualism will help clarify the influence that this assumption has exerted in reading methodologies.

The notion of dualism in philosophy can be traced back to Plato’s theory of a separate world of form imperfectly mirrored in the objects of everyday life. A similar dichotomy between the seen and unseen can be found in the linguistic theory of Fernand
de Saussure\textsuperscript{1} who compared language to a game of chess (Culler, 1986). Behind the observable board and gamepieces that we see manipulated during play, lie the relational values of individual pieces and rules that govern their movement. In a like manner, Saussure postulated that the observable manifestations of language, \textit{parole} (what is said or written), evinced an unobservable network of interrelated concepts understood by language users, which he termed \textit{langue}. However, \textit{langue} itself contained both both formal and conceptual components. He proposed a bi-polar pairing of signal and meaning, the \textit{sign}, as the basic analytical unit of linguistic study. Thus for Saussure, both aspects of language -- its observable manifestations (signals) and the underlying conceptual framework (meanings) -- were essential considerations in understanding the basic nature of language.

However, most of Saussure’s successors did not keep the unifying sign as their basic analytical unit. What constituted the polarity of Saussure’s linguistic sign hardened into a rigid dichotomy where the structure of language and its meaningful use in communication (function) came to represent separate domains. This new dualism asserted that the forms of language at neither the morphemic level (individual meaning-bearing unit, roughly a word) nor the syntactic level (how words are arranged in communication) were shaped or influenced by how language was used in communication. And for some linguistic schools, only the form or structure of language was considered the proper object of linguistic study. In particular, both schools that have successively

\textsuperscript{1}Saussure taught a general linguistics course at the University of Geneva from 1907 through 1911. The source of his considerable influence is the \textit{Course in General Linguistics}, which his students pieced together from their notes after his death in 1913.
dominated modern linguistic thought in the US, American descriptivists⁵ and the
Chomskyans have ascribed to linguistic dualism as an underlying principle of their
theoretical construct of language.

**Dualism in the Behavioral Approach to Language**

American descriptivists, strongly influenced by behavioral psychology, viewed
language as conditioned behavior learned through repetition and reinforcement.
Descriptivists strictly limited their study to observable phenomena in order to remain true
to empirical scientific inquiry. Thus they hoped to avoid the mentalistic bias of
traditional grammar which linked language to thought, an unobservable phenomenon.
Spoken language was considered primary, with written language occupying the secondary
role of artifact. By defining meaning as the situation (stimulus) that elicited an
observable language behavior (response), Bloomfield (1933, p. 27) effectively eliminated
from their science any systematic consideration of semantics. Meaning was so global and
so variant as to be impervious to quantification and analysis.

Armed with tape recorders, an astute ear and a working knowledge of the
International Phonetic Alphabet, these linguists saw their job as one of recording and
transcribing an extensive corpus (body or representative sample of actual language) which
could then be subjected to rigorous analysis in order to discover its phonemes,
morphemes and syntactic patterns. Although meaning was not the object of their study,

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⁵ In selecting labels for the separate linguistic schools, I have attempted to use the ones that would render
this section most easily comprehensible to those whose field is not linguistics. American Descriptivists
were also termed American Structuralists, but the latter could be confused with the “structuralism” of
literacy criticism, so I avoided it. Chomskyan linguistics is also called Transformational Grammar and
Generative Grammar, but I sometimes refer to traditional grammar as TG, so I have adopted the name of its
founder for that school.
it was indirectly included as the criterion for determining which sounds were distinctive (resulted in a change of meaning, like b and p in bat and pat). Since their methodology was used to study previously unwritten languages of many indigenous peoples, the accuracy of their work was largely dependent on the reliability of native informants.6

The descriptivist paradigm of language as conditioned behavior was the theoretical foundation of bottom-up pedagogies in both early literacy and second language instruction during the 50s and early 60’s. For example, the audiolingual method of foreign language instruction stressed the formation of speech habits through oral repetition of sentence patterns and, in some cases (e.g. Berlitz), delayed any access to orthographic representation. In early literacy instruction, phonics-based programs emphasized letter-sound correspondences which were reinforced and practiced as students read rather nonsensical texts.7 Bloomfield’s (1961) reading program fostered the formation of good language habits by teaching beginning readers to memorize the spelling of words with consistent regular patterns (fan, pan, can). Bloomfield, himself, did not advocate directly teaching phonics since he felt children would discover the correspondences on their own if provided with the right examples. However, in all cases, the pedagogies influenced by American descriptivism stressed habit formation and memorization over meaningful use of language.

6 Goodenough (1981, p. 12) gives a humorous account that illustrates how native informants did not always understand the point of linguistic inquiry. The famed Sapir became suspicious when his Native American informant kept repeating “yes” to all his questions as to whether one could say this, or one could say that. Finally in frustration Sapir asked, “Well, what does it mean?” His nonplused informant replied, “It doesn’t mean anything, but you can say it!”

7 Chall (1967, p. 96) noted that some phonics texts actually improved when read bottom to top rather than top to bottom.
Today’s bottom-up advocates no longer adhere to the behaviorist model of language of the American descriptivists. Habit formation and reinforcement have given way to parallel-architecture connectionist models borrowed from current theory in psychology (Stanovich, 1991; Perfetti, 1991). Neither can it be said that at the theoretical level, bottom-up researchers maintain the descriptivist’s dichotomy between linguistic form and meaning, since comprehension is an important component of their research (Daneman, 1988). However, the American descriptivist paradigm continues to influence early literacy methodologies that break language down into its smallest and, in some cases, meaningless subcomponents and emphasize “bottom-up” drills in subskills. Such pedagogies often attempt to train students in behaviors that characterize good readers (e.g. knowledge of letter-sound correspondences, rapid word recognition, awareness of syllables, etc.) rather than in the meaningful use of language.

Problems Resulting from a Descriptivist Approach to Reading Pedagogy

All phonics-based programs continue to reflect the descriptivist’s favoring of spoken language and the use of spoken language as a conduit to learning to read. Thus the terms “coding” and “decoding” refer not to the mapping of meaning onto language (which will be discussed later in representationalism), but rather to the mapping of spoken language onto its written form. However, two formidable obstacles impede the use of phonics in early reading instruction. First, the 40 to 50 phonemes of English do not enjoy a one-to-one mapping or even consistent representation (consider /f/ = f = ph)\(^8\) in the alphabetic system.

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\(^8\) Stanovich (1991) astutely points out that the sound-spelling correspondences in English are far more consistent than George Bernard Shaw’s famous ghoti (fish) example when the location of letters in words is taken into account. Gh is never /f/ in word initial position.
Another issue, laden with socio-cultural implications, is that children enter schools with the phonological system of the regional or ethnic dialect that they speak. For example, inner-city, African-American dialect is characterized by a phonemic inventory that lacks the /θ/ of standard English. Thus for speakers of Black English Vernacular (BEV), *math* is pronounced /maf/ (Labov, 1973, Gay & Abrahams, 1972). As a result, those children whose dialect varies greatly from the standardized version of English taught in school are presented with the difficult challenge of learning unfamiliar graphic forms linked to equally unfamiliar-sounding words. Unfortunately, as noted by Pearson, it is minority children, whose home dialect has the least phonological connection to standardized English spelling, who are receiving the heaviest dose of phonics-based instruction (1992, p. 1080).

**Dualism in the Cognitive Approach to Language**

Linguistic dualism is also a foundational premise in whole language theory, but its source is Chomskyan linguistics rather than American descriptivism. The connecting thread to early reading pedagogy is not as apparent as that between American descriptivism and bottom-up reading practices; however, it is possible to trace the connection without unraveling the entire theoretical tapestry. The Chomskyan revolution of the 60’s represented a rejection of the “bottom-up” empiricism and behaviorist orientation of American descriptivism. Generative grammar was closely aligned with the more constructivist views of cognitive psychology. What interested Chomsky was not how language was used in communication, which he considered to be incidental, but rather what the syntactic structures of language revealed about the internal processing of the mind (Cook, 1988, p. 14). Consequently, Chomskyan linguistics represented a return
to the mentalistic perspective of traditional grammar and a rejection altogether of the empirical methodology of American descriptivism. Rather than observed language behavior, decontextualized sentences constructed by linguists themselves became the focus of Chomskyan analysis. He proposed a quasi-mathematical conception of language as an infinite set of sentences, constructed from a finite set of elements. The original goal of his research was to discover algorithmic formulations that could describe the basic structures of this infinite set of sentences (1957, p. 2). Thus from the onset, Chomsky limited linguistic study to a consideration of the structure or form of language, not its use in communication nor, initially at least, to meaning.

Similar to Saussure’s distinction between *langue* and *parole*, Chomsky differentiated between *competence* (what language users know) and *performance* (what they actually say in any given situation) (1965). However, it is not the division between competence and performance that is important here, since Chomsky limited his theoretical inquiry to competence. According to Chomsky, the competence that language users possess is an unconscious knowledge of what is and what is not grammatical (1957, p. 16). Unlike *langue*, which in the Saussurean scheme refers to a sign-based system of semantic classification, competence consists of mental blueprints for the formation of grammatical sentences (Pinker, 1994, p. 43). Furthermore, Chomsky asserted that this knowledge of grammatical structure is independent of meaning (1957, p. 17). As a result, Chomskyan linguists, like their American descriptivist predecessors, maintained the division between syntactic structure and meaning -- linguistic dualism -- in their discipline.
To illustrate the independence of grammatical structure from meaning, Chomsky gave the example, “Colorless green ideas sleep furiously,” which he noted was “grammatical” and at the same time pure nonsense (1957, p.15). While Chomsky allowed for the inclusion of a very sparse semantic component in the logical relations of syntactic structures, the criterion for determining the “meaningfulness” of a given sentence was the condition that it describe or refer to some actual or plausible state of affairs in the real world. Thus in his example, the lexical incoherence (colorless/green, sleep/furiously) renders this sentence meaningless since there is no real world situation to which it can conceivably refer. The apparent grammaticality of the sentence resides in the agreement between the plural subject and present tense verb (ideas sleep0) and the fact that subject-complement, adjective-noun and verb-adverb word orders are followed. The presumption here is that the coherent grammatical inflections are meaningless in and of themselves.9

At first glance, it is not apparent what appeal this abstract theoretical model devoid of any connection to the communicative deployment of language would hold for practitioners in early literacy or second language instruction. It is perhaps even more surprising that those who champion meaning in language instruction should seek theoretical support in the generative-transformational tradition. However, it is not the

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9 This presumption will be challenged later. Suffice to say here that as noted by Ellis (1993) most labels for grammatical structures are laden with meaning (i.e. plural means more than one).
Chomsky's model of what language is per se, but rather the proposed picture of how language is acquired by children that has generated its tremendous influence.10

Bridging the Epistemological Gap: How Children Acquire Language

Chomsky begins by observing that between the ages of four and five all normal children achieve competence in their native language. It is important to remember that, within the Chomskyan scheme, competence is an unconscious understanding of what is and what is not grammatical.11 Pinker (1994) gives examples of the sort of rules that children unconsciously acquire and, true to his Chomskyan orientation, he asserts that these rules operate independently of meaning. In one example, young children instinctively knew which auxiliary to invert when researchers instructed them to “Ask Jabba if the boy who is unhappy is watching Mickey Mouse” (Crain & Nakayama, 1986 in Pinker, 1994, p. 42).12 No children responded with ill-formed questions like, “Is the boy who unhappy is watching Mickey Mouse? (Ibid). Pinker explains that children are

10 It is interesting to note that Chomsky’s theory of child language acquisition is not based on extensive analysis of recorded child language (as is Roger Brown’s A First Language, 1973). Stephen Pinker (1994) gives a candid depiction of Chomsky as a theorist completely detached from actual language use and users. Chomsky’s methodology was to begin with what adult language users know, and then speculate his way backwards to account for how they could have arrived at this knowledge (Cook, V. J., 1988).

11 In this paper, I have tried to remain true to Chomsky’s own version of competence as a parsing device rather than a productive model, as the term “generative” would seem to imply. Pinker and others who adhere to the Chomskyan tradition often describe competence as that which enables speakers to produce grammatical sentences; a misconception which perhaps led to the misapplication of the theory in such fields as reading. Chomsky’s insisted that sentence production within the grammar not be confused with speakers’ production of sentences in the process of communication since the latter is marred by “errors of performance” (Lyons, 1970. p. 37-38).

12 This example is fairly typical of the sort of questions posed by Chomskyan theorists. Some have considered them profound, others far afield from how language operates. It’s worth noting that as a reader is progressing through linguistic input, s/he has no idea how many is’s or how many words an utterance or written sentence will contain. The question of which is to invert, or reversing the words in a sentence could only be considered as a procedural option once the entire sentence or utterance is complete. In this sense, Chomskyan analysis is an “after-the-fact” view of language.
operating on a question-forming rule that does not just invert the first *is* that comes along, but rather seeks out the *is* that follows the subject noun phrase. Since the first *is* in the example is buried within the subject noun phrase, it is passed over in favor of the second or correct auxiliary. Pinker anticipates that some might reject the notion that children’s brains are registering the subject of a sentence in favor of the more simple explanation that they are “just going by the meanings of the words . . . keeping track of which words are about particular actors, not which words belong to the subject noun phrase” (p. 42). He counters this objection by noting that children also insert and invert meaningless placeholders such as *it* which “does not refer to anything; it is a dummy element that is there only to satisfy the rules of syntax, which demand a subject” (p.42). Thus his argument is that since children are able to manipulate meaningless linguistic components, the grammatical sense or competence that they have operates independently of meaning.

The inherent dualism of Chomskyan linguistics presents an epistemological challenge to the whole issue of child language acquisition. Because meaning is separate from the sense of grammaticality or competence that children develop, how is it that they manage to learn these rules for sentence formation? The paradox is intensified by the fact that children appear to learn in five years a system so complex that it has defied the efforts by generative grammarians to describe it formally despite having devoted three decades to unraveling its secrets. Chomsky’s answer is simple and straightforward:

13 *It* is meaningless in Chomskyan theory because it often has a rather general or poorly defined referent, such as in the example, “It is raining.” Pinker also refers to *there* (Is there a snake in the garden?) as a dummy subject along with other words “that are not things,” such as *love* (Pinker, 1994, p. 43). The idea
children do not learn language in the same way that they learn about other features of their world through problem solving and hypothesis testing. His argument is as follows: It is not possible for children to inductively learn their native language because the linguistic data they receive is not sufficiently rich to support such a rapid and uniform acquisition (Larson-Freeman & Long, 1991, p. 228; Cook, 1988, p. 55). Furthermore, the linguistic input is impoverished by vagaries in performance which include false starts, slips, fragments and so forth.\textsuperscript{14} More importantly, parents rarely correct mistakes; and the language children hear contains no negative examples to instruct the child as to what is not possible. For example in Crain and Nakayama’s study (1986), children had never heard that they could not say, “Is the boy who happy is watching Mickey Mouse,” yet they all seemed to know this was not a possibility. On the basis of this “poverty of input” argument, Chomsky concludes that children can not simply learn language by applying their general cognitive ability to naturally-occurring linguistic input.

How then do children “learn” language? What Chomsky has proposed is an innate structure in the brain, a language acquisition device (LAD), that directs and controls language acquisition (Cook, V.J. 1988). Built into the LAD are certain universal principles that represent an initial state from which the rules of individual languages are derived. These principles\textsuperscript{15} effectively determine what a human language

\textsuperscript{14} Larson-Freeman & Long (1991, p. 115-116) note that research in caretaker language casts strong doubt on this point.

\textsuperscript{15} Principles of Universal Grammar include Structure Dependency, the Projection Principle, Government and Binding (Cook, 1988, p. 55).
can not be by precluding such possibilities as reversing the 4th (or nth) word of a sentence to form questions (Cook, 1988, p. 50). In addition to these limiting principles that set constraints on human language, the LAD further contains “settings” for specific parameters of language, such as the head-right or head-left feature, which are set by linguistic input to produce the grammars of specific languages. The lexicons of specific languages do not reside in the LAD, but putative universal syntactic categories, such as transitive and intransitive verb, do. According to the Chomskyan scheme, the grammatical categories of language are “pre-wired” into the LAD and are then activated by the linguistic input that the child receives. For example, when a child learns the verb sleep, the word is automatically tagged as an intransitive verb which can not have a noun phrase following it (Ibid., p. 57).

In this way, the LAD enables children to parse linguistic input into sentence components such as subject noun phrase and verb phrase which, in turn, allows them to construct a core grammar of their language. This internalized core grammar is the source of children’s competence to understand and produce well-formed sentences that they have never heard before. Thus, it is through the intervention of the LAD that Chomsky accounts for the rapid and uniform acquisition of a type of knowledge that, according to generativists, could not be derived from the linguistic input that a child receives.

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16 Chomskyan linguistics is dominated by the metaphor of the brain as a computer as evinced by the constant references to setting switches or toggles in the LAD. Head right or left refers to the position of the head of a phrase relative to other components of the phrase. For example, in the prepositional phrase “on the table” the head, table, is located in the far right slot. This is termed head right. Another parameter is the non-prodrop feature that requires a subject before a verb, or S-V-O (subject, verb, object) order. English is a non-prodrop language, Spanish is pro-drop. since the subject can follow the verb.

17 The projection rules in later theory alleviated much of the complexity of syntactic rules of earlier transformational grammars. Any construct that violated a projection rule, such as the intransitivity of sleep (My sister’s VW Voyager sleeps six people) would be relegated to peripheral grammar.
In summary, the LAD was a consequence of (1) Chomsky’s basic assumption about the nature of linguistic knowledge; specifically, that grammatical competence consisted of a complex set of rules for forming sentences; and (2) the dualist notion that grammatical competence operated independently of meaning. These assumptions led to the epistemological paradox that it was not possible for children to acquire grammatical competence through the normal processes of problem solving. The solution was to hypothesize that linguistic structure was innate; that language acquisition was an automatic process directed by a dedicated structure of the brain that operated independently of general intelligence. However, the LAD not only solved Chomsky’s theoretical dilemma, it further proved to be the thread that linked the linguistic dualism of Chomskyan theory to the debate in early literacy pedagogy.

The LAD and Language Education

Most of the key constructs of Chomsky’s model of language acquisition have had little influence on language pedagogy. Principles, Parameters, etc. remain part of internal discussions within the specialized field of linguistics. However, despite the fact that the LAD is little more than a deus ex machina to a sticky epistemological problem, the innateness of language is a precept that has been uncritically embraced in both early literacy and second language instruction. The notion that language acquisition is directed

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18 Many who study child language acquisition disagree with Chomsky’s notion that language is acquired via a structure in the brain that operates independently of general intelligence. Roger Brown (1973) links stages of first language acquisition to the cognitive development of the child. According to Brown, general intelligence does not alter the order of acquisition of linguistic structure, but strongly influences the rapidity of language development. Interestingly Brown’s exhaustive longitudinal study of the language development of three small children has figured less in early literacy methodology than the Chomskyan model which is by design purely speculative.
by an autonomous structure of the brain has led to the pedagogical stance that grammatical competence is unteachable -- at least through direct instruction. The function of education is not to directly teach grammar, but rather to provide an environment where grammatical structures will be naturally acquired. Dorothy Watson (1989) cites whole language as a methodology that seeks to provide early literacy instruction with the same type of natural settings that foster oral language development. The current shift away from “reading readiness” to “emergent literacy” implies that learning to read can be as natural as learning to speak (Morrow, 1993).

Krashen and Terrell’s (1983) Natural Approach extends the functioning of the LAD to second language acquisition. Both methodologies favor participation in natural language use over direct instruction or drill in subskills. According to Krashen and Terrell, direct instruction which appeals to conscious, analytical reasoning can hinder the natural process of language acquisition (1983, p. 19). Similarly, whole-language advocates cite cases where emphasis on spelling and grammar reduced the fluency and creativity of young writers (Watson, 1988). Because both whole language and Krashen & Terrell’s natural approach assume that the communicative purpose of language is independent of its grammatical structure, it seems perfectly reasonable to talk about fluency and expressing ideas without undue concern about linguistic form.

**Problem Areas for the Natural Acquisition Model**

Despite its child-centered orientation, the Chomskyan model presents educators with very serious problems. At the theoretical level, both whole language advocates and Krashen & Terrell insist that language must be presented in a meaningful context in order
to be learned. Yet the actual role comprehension plays in an autonomous process guided by an innate structure remains problematic. If “grammaticality” and grammar itself are independent of meaning, why is understanding necessary for their acquisition?

At a more fundamental level, educators failed to recognize that Chomsky’s theoretical construct of what language is and the functioning of the LAD had little to do with those aspects of language that they wanted children to learn. Chomsky limited the domain of the LAD to core grammar, excluding other aspects of language such as: peripheral grammar, pragmatic competence and other communication skills which contributed to actual performance. In order to master those aspects of language not supported by the LAD, children must rely on general cognitive ability and associative learning. Cook (1988) states, “It is not denied that in actual use the production and comprehension of language depends upon other mental faculties and physical systems, although, as we see later, it is tricky to disentangle them” (p. 69). Universal Grammar theory, then, is only concerned with those aspects of language that are acquired via the LAD, which accounts for only a portion of what the layman would term, “language.” Whole language advocates erroneously extended the functioning of the LAD to all aspects of language use, a misconception that has resulted in well-founded criticism by linguists (Gee, 1996).

Krashen and Terrell managed to avoid this problem by focusing on the processes of language development rather than the product. Their acquisition-learning hypothesis states that there are two ways of developing second language competence. The first and preferable means is through natural acquisition via the LAD. Acquisition occurs
unconsciously during actual language use. The second way to develop proficiency is the conscious process of learning through direct instruction (1983, p. 26-27). Since knowledge of rules seems to be the product of both processes, the only way to distinguish between what is learned and what is acquired is whether or not the knowledge is conscious or unconscious. Krashen and Terrell are quite resistant to any differentiation in content when they insist that the acquisition-learning hypothesis “does not specify what aspects of language are acquired and what are learned, or how the adult performer uses acquisition and learning in performance. It only states that the processes are different and both exist in the adult” (p. 26). By obscuring the whole issue of what is learned and what is acquired, Krashen and Terrell have insulated themselves from the type of criticism that has seriously eroded the theoretical underpinnings of whole language.

Beyond the theoretical wrangling, lies the very human issue of how we evaluate young language learners. If language development is driven by an innate device, why is there so much variance in language performance between children? The nativist position asserts that all children naturally acquire “language” as if it were some complete “whole.” While no one would deny that all normal children learn to speak (i.e., use sound to convey messages), that does not imply that they all learn the same body of systemic oppositions;\(^1\) or that they use speech in the same way (Heath, 1983); or, for that matter, that they achieve the same degree of mastery. Neither does it appear that the process of language acquisition is complete by the age of five. Studies by C. Chomsky (1972)

\(^1\) For example, a child reared in a home where standard English is spoken learns the opposition between *he works* and *he is working*, whereas an inner city African-American child learns the opposition between *he working* and *he be working.*
indicate that some complex structures are not mastered by some children until the age of eight or nine. Larson-Freeman and Long point out that English dative movement is not completely mastered until a child is sixteen (1991, p. 236).

Krashen and Terrell solve the problem of variance in second language acquisition by placing an affective filter between input and the LAD so that differences in output can be relegated to “emotional factors” (Krashen & Terrell, 1983). For native speakers, Chomskyans could argue that differences exist only at the level of performance, not in the covert knowledge of grammatical competence. But children in school are evaluated on performance rather than their ability to judge the grammaticality of word strings.

Finally, naturalistic pedagogies that avoid direct instruction of grammar have spawned suspicions of a “hidden agenda” among Black educators and parents. Lisa Delpit (1995) has accused liberal educators of withholding the teaching of basic grammar as a means of preventing Black children from developing the language skills they need to succeed. Examination of the linguistic underpinnings of whole language theory reveals that the strong theoretical stance that grammar could not be directly taught is a possible source of the omission of explicit grammar instruction from the curriculum.

**Summary on the Influence of Linguistic Dualism**

In summary, it is clear that linguistic dualism lies at the heart of the debate in early literacy. While, bottom-up theorists no longer exclude meaning or comprehension from their research paradigm, the pedagogies that they foster retain the descriptivist’s favoring of spoken over written language and tend to focus on effective reader behaviors.
The young reader’s ability to recognize and reproduce the forms of language, at both the sub-morphemic and morphemic level, is the major goal of early reading instruction. Whole language proponents, on the other hand, emphasize the importance of providing a natural, meaningful reading context so that the young reader’s innate language processing system can direct reading acquisition in the same way spoken language was acquired. Linguistic dualism allows them to discuss meaning and fluency apart from linguistic structure. In addition to linguistic dualism, two other assumptions about language have contributed to the great debate. Representationalism, or the idea that language represents thought will be considered next.

**REPRESENTATIONALISM**

Vygotsky stated that the relationship between language and thought was a central concern for both the psychologist and the linguist (1962). He noted that some solved the problem by assuming that there was an isomorphic fit between the two; that is, that language represented thought. The representationalist view posits that words express ideas or fractions of thoughts, and does not differentiate the ideas that are communicated from the linguistic system employed in the process of communication.

Representationalism traces back to Aristotle’s theory of language which has served as the historical basis for traditional grammar. Aristotle studied language from the standpoint of its contribution to the process of logical reasoning. He noted the connection between linguistic forms and their use within the structure of propositional statements. By breaking a propositional statement into its notional subcomponents (i.e. subjects, predicates) whose roles in the sentence were determined by logical relationships, it was
possible to arrive at a methodology for reaching valid conclusions. Thus in the classic example, “Socrates is mortal” can be deduced from the statements: All men are mortal; and Socrates is a man, on the basis of the logical relationship that exists between subjects and predicates and the quantifier all.

While Aristotle was mostly concerned with language as it was used in logical argumentation, the representationalist tradition extended the paradigm to include language use in general. The idea was that a sentence represented a complete thought.20 A much later heir to the Aristotelian tradition, Dionysus Thrax introduced the notional word categories (noun, verb) that continue to serve as the basis of most current-day linguistic analysis. Thus, as noted by Diver, representationalism or the view that words express ideas or fractions of thoughts is the product of a tradition where “one particular kind of use of language [was] identified with the structure of language” (1985, p. 48). Diver goes on to describe how the representationalist paradigm has undergirded and directed the entire Western tradition of linguistic analysis.

What is critical to this study is Diver’s point that representationalism makes no distinction between the kinds of ideas that we communicate through language and the structure of language itself. The categories of direct and indirect object of traditional grammar serve to illustrate what Diver means. According to the Oxford Guide to English Usage, a direct object receives the primary action of the verb, while the indirect object is the “person or thing affected by the action of the verb, but not primarily acted upon” (p. 4). The direct object, then, is the “what” of the action (ate what? hit

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20 The word sentence is a derivative of the Latin “sententia” which refers to the idea being expressed (Diver, 1985, p. 49).
what?); while the indirect object describes the beneficiary, motivator or recipient. It is interesting to note that these definitions make no mention of specific morphological or syntactic indicators that serve to identify direct and indirect objects. Perhaps that is because in English, in those instances where there is only one overt object given and no prepositions are present, direct and indirect objects are both syntactically and morphologically indistinguishable. In the examples “I told her (indirect object)” and “I told a story (direct object),” the indirect and direct object occupy the same syntactic slot immediately following the verb. Similarly, the indirect object “I told her” is morphologically identical to the direct object “I saw her.” This lack of a formal distinction between direct and indirect her in English contrasts markedly from the Latin equivalents of these last two examples, “illam vidi” (I saw her) and “illi dixi” (I told her), where case endings (illam vs. illi) provide prima facie justification for the linguistic categories of direct and indirect object in Latin.

What is apparent, then, is that the grammatical categories of direct and indirect object in English have not been generated by observable linguistic phenomena per se, but rather by the kinds of ideas that we communicate. Both categories describe specific relationships that can occur between participants in an activity and the action itself. Since such relationships are certainly part of the ideas we communicate, it is clear that direct object and indirect object represent message categories in English, at any rate. Since representationalism posits an isomorphic fit between thought and language, it follows that categories of ideas or messages coincide with categories of language -- even in the
absence of overt linguistic data to support this assertion.\textsuperscript{21} Simply put, representationalism makes no distinction between what language communicates and how language works in the process of communication. The result is a greatly simplified view of the whole communicative process as illustrated by the conduit metaphor that follows.

**The Conduit Metaphor**

The view that language represents thought equates the tool (structure of language) with the products (ideas) that it is used to construct. Words and sentences contain or carry ideas; ideas reside in the signals of language, apart from language users. While it is easy to observe that saws and hammers bear little resemblance to the furniture that one constructs with them, it is not as immediately apparent that the marks on a page or sounds that we hear are not, in themselves, ideas. In fact, the way we talk about language predisposes us to accept the representationalist model that ideas are embodied in words. Reddy (1979) terms the notion that words carry ideas the “conduit metaphor” of language, and notes that this view is so prevalent in our metalanguage -- the language we use to describe language -- that it biases our thinking about what language is and the role it plays in human communication (p. 286). He gives the examples of “Get your ideas down on paper,” “Try to get your thoughts across better,” or “Your words are hollow,” as typical examples of the comments made by teachers about student writing. So deeply

\textsuperscript{21} In a very paradoxical way, representationalism indirectly lead to the conclusion that the structure of language was arbitrary since the forms of language did not always coincide with the putative message categories. Huffman (1997) cites Smyth’s (1920) ninety-nine uses of the Greek dative as an example of the type of grammars that result from attempts to hold linguistic structure accountable for all the communicative uses of language. Huffman concludes, “The problem with this approach is that it yields a mere photocopy of the facts, not a means for understanding them” (1997, p. 16). Thus while Smyth lists the various contexts where the Greek dative appears, he can offer no unifying principle or explanation for why this form is used where it is. The conclusion is that the structure of language is arbitrary.
engrained is the representational bias, that most editors would be hard pressed to frame their comments without resorting to some form of the conduit metaphor.

However, the influence extends beyond what we say about language to how we think language operates in the process of human communication. The conduit metaphor presents the job of constructing messages from print, or language in general, as a seamless process where success is automatic since all the information is encoded in the linguistic forms themselves (p. 295).

The impact of the conduit metaphor on reading/writing theory is far reaching. If words contain ideas, and sentences contain whole thoughts, then one must simply identify words and add up the ideas contained in each to construct the intended message. Comprehension becomes a matter of simple mechanical computation, the sum of the lexical and grammatical components of the sentence. The result is that the intended message can be directly accessed by understanding vocabulary and grammar, and conversely, understanding the ideas that an author wishes to “convey” will automatically yield an understanding of how words and syntax have contributed to the process of communication. Furthermore, since the comprehension is a matter of re-coding the graphic or auditory forms back into their ideational equivalents, then misunderstandings must be attributable to poor decoding on the part of the hearer/reader or inept encoding on the part of the speaker/writer. Interestingly, many who argue that meaning is greater than the sum of the lexical and grammatical components of a spoken or written text (Goodman, 1967, 1989; Watson, 1989; Halliday, 1996; Painter, 1996) are nevertheless
staunch representationalists in their linguistic orientation. These researchers fail to note that a computational\textsuperscript{22} view of language is a natural consequence of representationalism.

**Representationalism in the Great Debate**

As noted by Diver, representationalism has been a central tenet of the Western tradition of linguistic analysis. Theories as diverse (and otherwise conflicting) as Langacker’s cognitive grammar, Givon’s functionalism, Halliday’s systemic functional grammar and Chomsky’s generative grammar all base their analyses of language on message categories. Of the major linguistic schools, only the descriptivists attempted to steer clear of “mentalistic” categories. It is not surprising then that such a widely-held notion about the basic nature of language has exerted considerable influence in the field of language education\textsuperscript{23} and played a central role in the debate in early literacy at both the theoretical and practical levels.

At the theoretical level, representationalism pervades both bottom-up and top-down models of the reading process. Bottom-up researcher Karl Haberlandt describes the sentence-level processes of reading comprehension in the following way, “The sentence is the text unit which contains the elementary ideas that a writer seeks to communicate. These ideas are embodied in the phrases and clauses of the

\textsuperscript{22}I have taken the term “computational” from Alan Huffman (1997), but this same idea is elsewhere called a “compositional” view of language (Reid, 1991).

\textsuperscript{23}The view that language represents thought has been a theoretical basis for bilingual education. The assumption has been that altering a child’s language would damage or impede her intellectual development (Cummins, 1984).

\textsuperscript{24}Note the heavy reliance on the conduit metaphor.
sentence, which constitute its surface form. The reader uses sentence level processes in order to translate the surface form of a sentence into its meaning representation” (1988, p. 81). Similarly, Perfetti lists propositional encoding\(^\text{25}\), the construction of logical relations, as a component of reading comprehension which places heavy demands on working memory (1988, p. 111). Both authors reflect a strong computational bias consistent with

a representationalist view of language. Readers must translate, encode or recode the ideas that are inherent in the linguistic forms themselves. Computation is a central aspect of bottom up models of reading with an emphasis on forms as a direct conduit to the intended message.

The underlying representationalism in whole language theory has fostered an emphasis on meaning rather than form. If thought and language are basically the same, then understanding the message will automatically yield an understanding of the linguistic forms. This is the reverse of the bottom up perspective where forms serve as a direct conduit to ideas.

What is obvious is that representationalism offers a simple solution to a theoretical problem created by the dualistic view of language espoused by both bottom up and top down advocates. It must be remembered that linguistic dualism isolates form from meaning; each comprising a separate domain of inquiry in the analysis of language.

\(^{25}\) It is interesting to note that Perfetti uses **encoding** rather than **decoding** in order to infuse a more constructivist orientation to bottom-up theory. Juel (1991) similarly avoids the term **decoding** although her formula for reading comprehension \( R = D \times C \) retains the D but just calls it word recognition. There is an important distinction between Juel’s decoding and
Whatever relationship that exists between linguistic forms and messages that are communicated remains unexamined, outside the scope of linguistic analysis. While the linguist could retreat from the problematic relationship between linguistic forms and ideas, reading theorists could not, since comprehension is, after all, the purpose of reading. Thus for the reading theorist, representationalism serves as a very useful complement to dualism in that it precludes any gap between linguistic structure and the messages communicated through language.

In addition to resolving the theoretical problem inherent in a dualistic approach to language, representationalism has spawned the lopsided pedagogies that have characterized both bottom up and top down early literacy practices. Bottom up methodology emphasizes the recognition and production of written forms as a direct conduit to reading comprehension. Phonics-based approaches present children with nonsensical or unnatural texts with vocabulary controlled for grapheme-sound consistency in order to expedite word recognition skills. In contrast, top down pedagogies assume that if children understand the ideas that an author wishes to convey, an understanding of how words and syntax have contributed to the process of communication will surely follow. Whole language advocates recommend syntactic simplification of texts in order to help children guess the ideas being communicated without much input from linguistic forms. Representationalism allows both groups to gloss over the complexity of the connection between form and meaning and concentrate

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Perfetti’s encoding. Juel refers to the mapping of sound onto graphic forms. Perfetti ‘s encoding refers to the mapping of meaning onto the structures of language or representationalism.
on only one component of the dichotomy. For bottom up practitioners that component is form; for top down the focus is on the ideas being communicated.

Problem Areas in the Representationalist Paradigm

The notion that grammatical structures can be equated with modes of conceptualization supports the argument that children who lack certain grammatical structures lack the underlying cognitive processes. That systemic functional grammarians are aware of this danger is apparent in Claire Painter’s article, “The development of language as a resource for thinking: A linguistic view of learning” (1996). Here Painter, drawing heavily on Halliday (1975), equates the appearance of grammatical structures with the cognitive development of her young son, Steven. She asserts that “material reality can only be known through systems of meaning” which she equates to language.26 Thus, when her son ascribes causative agency to something outside himself (“‘cause it’s an animal, as opposed to “‘cause I want it”), this use of an external conjunctive link signals “new cognitive structuring” for Painter.27

However, Painter realizes that the strong representational flavor of her paper could serve as a basis for “deficit” theories (p. 81) -- an unhappy result that she seeks to

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26 The notion that children can only know material reality through systems of meaning mediated through language belies the fact that children learn a great deal about the world before they speak or even attend to the speech around them. Eye-hand coordination, depth perception and locomotion are certainly part of the material world.

27 Painter’s distinction between “internal” and “external” conjunctive links rests on the idea that internal links refer to self (“‘cause I want it”) and external links refer to something other than self (“‘cause it is an animal”). This once again reveals the representationalist perspective that message categories can be equated with linguistic categories when, in fact, there is no overt linguistic data to support the distinction between internal ‘cause and external ‘cause. The syntactic location and morphology of ‘cause are identical in both cases.
avoid. So, after devoting some thirty pages of text to samples of her son’s recorded speech (over 2 1/2 years’ worth) and her analysis of how each innovation revealed new “cognitive structures” in her son’s thinking (which could then be used to better understand the world around him), she then denies that variations in grammatical structure in children’s speech reflect differences in their cognitive development! The only way Painter can dig her way out of the negative side of representationalism is to resort to the Chomskyan notion28 that all children learn the basic lexicogrammatical system of their native language. They simply vary in the ways “this meaning potential has been deployed and the frequency with which particular choices have been made” (Ibid.).

Painter’s sleight of hand is unconvincing. It is precisely at the level of the lexicogrammar that children vary. And this difference has in some cases reinforced racial biases. Some educators have postulated that children who do not come to school with a mastery of Standard English are somehow mentally deficient (Scott & Smitherman, 1985). Lisa Delpit (1995) accuses white liberal educators of assuming that black children are not fluent in their thinking because of their non-standard dialect. In today’s multi-cultural, multi-dialectic classrooms, teachers can not assume that children who do not demonstrate specific grammatical structures are simply choosing not to

28 Painter does not reference or cite Chomsky. She smuggles in his assumption anonymously by stating “The literature suggests. . .” without a citation. Functional linguistic theory is by and large incompatible with most of the underlying precepts of generative grammar. Painter only resorts to the notion that all children learn their native language because it pulls her out of an ugly corner.
employ them. Neither should we assume that children who lack certain grammatical structures suffer from a deficit in their cognition. However, unless we reject the notion that language directly represents thought, we can not rid ourselves of this deficit model.

**Summary of Representationalism’s Role in the Literacy Debate**

In conclusion, it is clear that a representationalist orientation toward language has contributed in significant ways to issues in early literacy pedagogy. If thought and language are basically the same, then either can serve as a direct conduit to the other. Since words and sentences “carry” ideas, reading within this paradigm is a straightforward and spontaneous process of summing up the ideas contained in the words. The computational bias of bottom-up reading theory underestimates the degree of ambiguity in language and the important role inference plays in reading comprehension. These are topics which will be discussed in detail in later sections of this paper. Suffice to say here that representationalism contributes to the idea that reading comprehension is far more automatic than it actually is.

On the other hand, the underlying representationalism in whole language theory has resulted in an emphasis on meaning rather than form. The assumption is that understanding the message will automatically yield an understanding of the linguistic forms. This is the reverse of the bottom-up perspective where forms are a direct conduit to the intended meaning. In the spirit of making the intended message more accessible to young readers, whole language advocates recommend the use of predictable texts that
enable young readers to guess what is coming. In this way, children will be able to comprehend the intended message with minimal input from the linguistic forms themselves.

In summary, representationalism enables both groups to bridge the gap between form and meaning resulting from their respective dualistic positions. Furthermore, since representationalism makes no distinction between what language communicates and how language works in the process of communication, it allows both groups to gloss over the complexity of the connection between form and meaning. However, the cost of simplifying the theoretical consideration of how language functions in the process of communication is indeed high since representationalism also supports the idea that children who lack certain grammatical structures are somehow deficient in their thinking. It is at this very human level that representationalism does its greatest harm.

NOMENCLATURE

Like representationalism, nomenclature is an assumption about where meaning is situated. William Diver (1975) suggested there were two fundamental pitfalls in the analysis of language regarding the locus of meaning. One was to identify meaning with thought, or what Diver termed the “message” or idea that was being communicated. In the previous section, this assumption was termed representationalism, which served as the

29 Juel notes that the problem with this reasoning is that when presented with a text less predictable than Brown Bear, Brown Bear (Martin & Carle, 1983) many young readers are lost (Juel, 1994, p. 136).
basis of traditional grammar and an underlying precept for both generative transformational grammar and systemic functional grammar. The second common error, according to Diver, was to equate meaning with the scene, or “non-linguistic context” of speech or written text (p. 4). In this sense, the words of language merely give names to what exists in the real world. From this nomenclaturist perspective, languages may vary in the specific names they give (for example dog or perro), but the categories themselves are more or less universal and self-evident.

John Ellis terms nomenclature the “default” stance of linguistic theory, based on the common sense notion that linguistic categories group things together that are inherently alike. “Semantics is about matching words to what exists; syntax is about ordering and structuring the process of communicating these facts” (1993, p. 9). It is the point to which everyone, including Ayer (logical positivism), Vygotsky, Piaget and Chomsky, return. Ellis blames Piaget’s “inherently nonsensical” conclusions about child cognition on his ignorance of linguistic theory and resulting dependence on the default theory. Since Piaget viewed words as naming objects, he only credited as abstract concepts those ideas relating to religion and science. In like manner, Vygotsky’s notion of inner speech as “pure meanings” demonstrates once again the positivist assumption that universal categories could be directly accessed through empirical observation (p. 64).

Arbitrariness of Linguistic Categories

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30 As Ellis points out, all language use involves conceptualization and even a concept as seemingly concrete as cat must be abstracted from objects of different size and color.
Ellis’s observations about Piaget and Vygotsky demonstrate in a very compelling way the “far-reaching consequences” of erroneous assumptions about language (1993, p. 117). Both Piaget and Vygotsky failed to understand Saussure’s most important observation about the fundamental nature of language: that the arbitrariness of language extends beyond linguistic signals to the conceptual organization of meanings as well (Culler, 1986, p. 33). That the link between a particular pattern of sound and its associated meaning is arbitrary is an obvious fact that few linguists would contest. The notion that the concepts themselves are arbitrary, while less universally recognized, becomes readily apparent the moment comparison is made across languages. While the English language organizes the category of flowing water according to size (river, stream, brook), the French words *fleuve* and *rivière* differentiate between destinations (ocean bound as opposed to non-ocean bound) (Culler, 1975, p. 33-34). Similarly, the singular personal pronoun *ta* in Chinese does not differentiate between sex as do *he* and *she* in English. The challenge in learning a new language, then, is not simply to learn new signals, but also to learn a whole new system of linguistic categories.

Following the tradition of Saussure and Whorf, Ellis (1993) argues strongly against using the term coding or encoding in reference to language since coding implies that categories are self evident. For Ellis, the fundamental feature of the categories of language is the principle of “equivalence,” whereby things that can be physically quite

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31 There are some linguists who speculate about sound symbolism, or meaning at the sub-morphemic level; i.e. the *gl* in *glimmer* and *glow* indicates that the word has to do with light (Jannedy, Poletto & Weldon, 1994, p. 17). However, the obvious counter-examples, such as *glut*, challenge the credibility of such theories.

32 In its spoken form, *ta* is the same for both *he* and *she*; however the written character differs for *she* in that it carries a marking for woman.
unlike are treated as if they are essentially alike (p. 119) because it suits the purposes of
language users. While reference is a *use* we put language to, it is not its *structural
basis*. For Ellis, each language is a “unique, highly complex, ordered conceptual system”
(p. 119), where categories represent “not real, but social facts” (p. 6). Ellis’s insight
about the work of analysis and evaluation involved in the process of creating categories is
very similar to Vygotsky’s statement that reality must somehow be reduced and
simplified before we can speak about it (1962, p. 7). The critical difference is that
Vygotsky, like Piaget, took the nomenclaturist position of Ayer in positing the existence
of true “scientific” concepts. For Ellis, “a doctrine of ‘natural kinds’ is the last refuge of
a denotational theory of meaning . . . what this amounts to, on closer examination, is just
a naive belief in the divinity of one’s own language” (W. Haas quoted in Ellis, p. 32).

**Nomenclature and Language Education**

Like linguistic dualism and representationalism, this doctrine of natural kinds or
nomenclature has influenced the field of literacy and language education. In some
instances, nomenclature is used as a rationale for bilingual education. “Learning a second
language, for them [children with a well-developed conceptual base in their first
language], is a matter of translating ideas and concepts that are already firmly established.
They need only learn new labels, unlike younger children, who face the more difficult

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33 Ellis makes a strong case that even in the realm of biology, where linguistic categorization might
reasonably be said to coincide with natural kinds, the defining characteristics of any class are basically
arbitrary. Analysis of DNA might reveal that a member of one animal category actually has more in
common with members of another group. This is especially true in the case of chiroptera or bat, where
some members share characteristics with rodents and others with primates. The selection of the common
trait of membraned “hand” extension has yielded a highly disparate group, much the same as would a
grouping based on the presence of an eye. The generic category bat while serving the communicative
purposes of English speakers has lead to the wholesale slaughter of highly useful animals (Ackerman, 1991,
p 18).
task of having to learn basic concepts in a new and unfamiliar language” (Lessow-Hurley, 1990, p. 62). Lessow-Hurly makes the unfortunate choice of spatial relationships (over, under, behind) as examples of the type of concepts that are easy to translate into a second language -- the very words that in actuality present a second language learners their greatest difficulties!34

In reading theory, nomenclature is a hidden assumption in notions about comprehension such as literal meaning. Even those theories that take a more constructivist approach to reading comprehension tend to locate meaning in the real world situation that language is used to communicate. In particular, what Juel terms the little Bo Peep pedagogy of whole language derives from the assumption that as long as children are able to construct the real world referent of language, an understanding of the structures of language will follow as surely the proverbial lambs’ tails (1994).

Bottom-up theorists often reveal a denotational bent when they postulate “semantic encoding” as the process of deciding which possible referent of a given signal is appropriate in the context (Perfetti, 1988). The polysemic notion that words have more than one meaning derives from the fact that words have multiple referents. Polysemy is a basic assumption in research by Daneman (1988) and Rayner and Duffy (1988) in their consideration of word ambiguity. Once again, we see that both sides in the literacy wars share common, but unstated, presuppositions about the fundamental nature of language.

34 Behind and in front of cause serious problems to English speakers learning Spanish, since in Spanish the default perspective for an object with no salient front or back is that it is facing in the same direction as the speaker. In English, the default point of view for the same object is that it is facing towards the speaker. Thus, a rabbit that is behind a tree (an object with no salient front or back) in English, is said to be in front of the same tree in Spanish (Crupi, 1995).
The practice in early literacy of pairing a word with a picture fosters a nomenclaturist view of language that can later hinder reading comprehension. Adams (1990) observes that children’s resistance “to considering the multiple meanings of words” seriously limits “their capacity to monitor and adjust their interpretation of reading materials” (p. 182). Research by van Daalen-Kapteijms and Elshout-Mohr (1984) similarly concludes that inefficient language users form rigid constructs of word meaning that fit only one context. In both cases, students are operating from a nomenclaturist orientation that equates the real-world referent with the meaning of a word.

Once again, it is clear that there exists a strong link between theory and pedagogy. Like linguistic dualism and representationalism, a nomenclaturist view of language exerts significant influence on issues in early reading pedagogy. As previously stated, the purpose of examining these three basic assumptions about the nature of language was to show how each has contributed to the debate both at the theoretical level and in classroom practice. Linguistic dualism allowed for the separate consideration of form and meaning, fostering lopsided pedagogies that focused on only one side of the dichotomy. Chomskyan dualism contributed to the pedagogical stance that grammar and syntax could not be learned through direct instruction. Representationalism solved the problem of how meaning and form were related by assuming that there was an isomorphic fit between the categories of language and the categories of messages that were communicated. This made reading comprehension a matter of simple computation, with linguistic forms serving as a direct conduit to ideas (the bottom-up bias), or messages translating directly back onto linguistic forms (the top-down bias). However,
in addition to oversimplifying the whole issue of how language functioned in the process of communication, representationalism also contributed to the notion that children who lack certain grammatical structure were deficient in their thinking. The nomenclaturist position equated linguistic meaning with the objects to which words referred, fostering a semantic rigidity that hindered reading comprehension. In all cases, the relationship between unquestioned assumptions about the basic nature of language and serious problems in early reading instruction is clear. It would seem that as Ellis has noted in other fields, early literacy practice has been hampered by poor and ill-formed linguistic theory.

AN ALTERNATIVE: THE INSTRUMENTAL VIEW OF LANGUAGE

How can we characterize the fundamental nature of language in a way that will avoid the pitfalls we have encountered with nomenclature, representationalism and linguistic dualism? If we reject the notion that language simply gives names to self-evident categories; if we do not accept as an initial assumption the notion that language represents or contains our ideas; and if we insist that there is a vital connection between the structures of language and its use in communication; what useful alternative can we devise and how will this new paradigm shed light on the current controversy in reading education?

Reddy (1979) constructs an interesting alternative to the conduit metaphor in his pictorial model of how language works. In this model, individuals live in sealed, self-contained environments that share some common elements (plants, rocks, etc.) but also differ in significant ways. There is no direct contact between members in different sections, but they can pass papers via a machine that links all their individual cells. If a
person in section A wants to communicate some idea or invention, like a rake for
gathering leaves, to the resident in section B, he might just roughly draw it on a paper and
send it to his friend via the communication machine. His friend in section B may not
have the need to gather leaves, nor does she have any way of knowing what materials the
person in section A used. Rather she would use her own available materials, and needs
(perhaps to gather small rocks) to fashion her own device with smaller but stronger
prongs. Over time, as the two communicate back and forth, they may come to some
understanding of what the other’s environment and needs are; but this can only be
achieved through much effort and work, since ideas (the actual rakes each constructs) are
not simply passed back and forth, as the conduit metaphor of language would imply.

The picture that emerges from Reddy’s model is one of language as a rather crude
instrument where “[p]artial miscommunication, or divergence of readings . . . are not
aberrations” and success is not spontaneous (p. 295). The model illustrates nicely Ellis’s
(1993) observation that the highly precise language systems of science and mathematics
are latecomers in the history of human language use and as such are atypical of how
natural languages work. What is striking about Reddy’s model is that the instrument of
communication (the pieces of paper) differs radically from the rakes that each person
constructs from the rather sparse information s/he receives. The shortcoming of Reddy’s
model is the somewhat iconic relationship between signal and meaning, as opposed to the
arbitrary pairing of signal and meaning in actual language.

However, Reddy’s model meshes nicely with the instrumental view of language
that has directed the scholarly inquiry of Columbia School linguists (Diver, 1975 and
1995; Reid, 1991; Huffman, 1997). Columbia School (CS) theory follows the Saussurean
tradition in that the *sign*, a paired signal and meaning, serves as the basic unit of linguistic analysis. Within this instrumental framework, language consists of an inventory of signals and their associated meanings which comprise Ellis' highly complex, ordered conceptual system of categories. This view of language as a self-contained system of signs that do not correspond to pre-existing realities (nomenclature) nor to universal features of thought or logic (representationalism) diverges radically from the linguistic theories and assumptions previously discussed. Three main points which highlight these differences will be discussed here: (1) linguistic meanings are relationally determined by their systemic oppositions to the meanings of other signs; (2) as a tool in the process of communication, the meanings within language differ greatly from the messages language communicates; and (3) imprecision is built into the structure of language through imprecise, rather general linguistic meanings.

**Language as a Conceptual System**

The view of language as a self-contained conceptual system has immediate ramifications as to the basic nature of linguistic meaning. Within a systemic framework, linguistic signs do not exist in isolation, but are part of a conceptual organization in which the linguistic meaning of any one sign is determined in part by its relationship to the meanings of other signs within the same conceptual domain. In English, an example would be the three signs that share the semantic domain of “time relative to the moment of speaking”: *today* is the day concurrent with the moment of speaking; *yesterday* is the

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35 John Ellis is not affiliated with CS linguistics, but comes from a sign-based linguistic background that meshes nicely with CS theory.
day before *today*; and *tomorrow* is the day after *today*. The meaning of both *yesterday* and *tomorrow* are relationally defined by the meaning of *today*.\textsuperscript{36} Similarly the signal -s (plural *s*, *books*) which means “not one” is defined by its relational opposition to the zero morpheme (bookφ) which means “one.”\textsuperscript{37}

It is worth noting that this systemic view of meaning rejects outright both the representationalist and the nomenclaturist assumptions about language. Linguistic structure is not equated to universal concepts of logic nor to features of the non-linguistic context; rather linguistic meanings within a language are related to one another and to features of the real world in ways that are unique to that language and useful to the community of speakers (Ellis, 1993, p. 116). As a result, conceptual categories are not universal across languages. What is specifically encoded in the linguistic structure of one language may be left to inference in another language. For example, English has an entity number system, Farsi does not.\textsuperscript{38} Even within the same language, the amount of information provided by different forms within the same semantic domain can vary. For example, in the English pronominal system, the form *he* provides information about sex, number, discourse role (third person) and the level of focus and control (subject). The corresponding second person pronoun *you* reveals the discourse role (second person), but gives no information about number, sex or level of control. What these examples reveal is that while discourse role, gender, number are certainly topics that are communicated

\textsuperscript{36}The semantic range of all three is determined by the meaning of day, which can be extended from a minimum 24-hour period to any unified time period.

\textsuperscript{37}One analysis of the entity number system is that entity-s means “more than one;” another analysis is that entity-s means “not one” (as no students). In both analyses, the oppositional signals -φ and -s are relationally defined by the meaning of the other signal.
through language, languages vary greatly as to what type and how much information is specifically signaled by overt linguistic structure. It follows, then, that the messages that are communicated through language are very different from the linguistic meanings that make up the conceptual organization of a language.

### The Meaning/Message Distinction

The instrumental view of language requires a sharp distinction between the communicative *tools* within a language and the communicative *tasks* those tools are used to accomplish on an individual occasion. CS thus distinguishes between the *messages or ideas* that human beings communicate and *meaning* within language. Returning to our example of *today*, it is clear that while specific referents vary with the actual moment of speaking, the linguistic value or location of *today* within the conceptual framework of English remains constant. That is, *today*, as I write it, refers to Thursday, August 20th. If I continue to write tomorrow, *today* will then refer to Friday, August 21st. Thus the message or what *today* refers to (August 20, 1998 or August 21, 1998) can be clearly distinguished from the linguistic meaning of *today* (day concurrent with the moment of speaking or writing).

The example of *today* illustrates clearly that language provides only a fraction of the total message. In contrast to the limited semantic content of linguistic meanings per se, messages encompass the whole range of ideas and thoughts that human beings seek to communicate. The kinds of messages and reasons for communicating them are part of the larger picture of human communication, which can not be accounted for by linguistic

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38 Russian language users can certainly communicate messages dealing with the number of entities, but that information is not specified by an affix on the noun akin to the plural `-s` in English.
structure alone. As Huffman observes, “The nature of the tool must be carefully distinguished from the nature of the tasks it performs” (1997, p. 17). He further notes that the variety of messages that can be constructed with these tools is the result of the creativity of human users rather than “ingenuity . . built into the grammar” (Ibid.). Thus the gap between linguistic meaning and the ultimate messages we construct is mediated by what Columbia School terms the human factor. “People, in using language, do what we see them doing in many other aspects of everyday life: they jump to conclusions on the basis of a relatively small amount of information” (Ibid., p. 15). As a tool in the process of human communication, language is a rather imprecise instrument; words do not contain ideas, but rather serve as hints that direct the hearer/reader toward constructing an understanding of what is being communicated. Just as tools do not resemble the final product created with them (e.g. a piano does not contain the pieces one hears played upon it), so language neither mirrors nor contains the thoughts of language users. Rather, language users must engage their inferential ability to creatively construct ideas from the sparse information provided by language itself.

**Imprecision of Linguistic Meanings**

The view of language as a rather crude tool in the process of human communication suggests that imprecision is built into the structure of language itself. CS posits that this imprecision resides within the constructs of linguistic meaning. A single, general meaning accommodates the creative deployment of its corresponding signal in a variety of contexts or messages. Thus the imprecise meaning of *today* can be used for August 20, August 21 or any other day construed as concurrent with the moment of speaking.
The assumption that the conceptual organization of language is monosemic (one meaning per signal) seems to contradict our experience with dictionaries and the wide variety of contexts where a given word may appear. However, closer examination of dictionary definitions reveals that these actually describe multiple uses or messages where a given signal is typically employed, rather than what CS would term its linguistic meaning. For example, *Webster’s New World Dictionary* (1980, p. 1633) lists twenty-two definitions for the word *with*. Included in the list are 1) in opposition to (to argue with a friend); 2) alongside of; 3) in the company of; 4) in support of; 5) by means of, instrumentality (stir with a spoon); 6) an accompanying circumstance (enter with confidence); and so on (Huffman 1994). Huffman hypothesizes that the actual meaning of *with* is closest to the sixth definition, an accompanying circumstance. In all other definitions, the semantic contribution of other words in the sentence constitute a “distracting factor” in determining the meaning of *with*. (Ibid., p. 5). He gives the example of the instrumental use of *with* in: John cut the cake *with* a knife; and the “in the company of” use of *with* in: John cut the cake *with* the bride. The idea of instrumentality in the first example is attributable to *knife*, an implement for cutting, and the presence of the verb *cut*. The same sense of instrumentality is completely absent in the second example, since a bride has an altogether different role in the same context of cutting a cake. Even knife loses its role of instrumentality when the verb changes, as in the example: John showed up a half hour late *with* the knife. In a similar fashion, the idea of opposition in the dictionary example is contributed by the verb *argue*, not part of the meaning of *with*. What the dictionary provides, then, is a list of message types where the word *with* appears. In all cases, the semantic contribution of *with* is the same -- an
accompanying circumstance. Language users must employ what they know about the
participants (cakes, brides, knives) and the activities in which they are engaged (cutting,
arriving, arguing) in order to reach an understanding of the nature of the accompanying
relationship signaled by *with*.

The preceding example highlights once again CS’s distinction between meaning
and message. The linguistic meaning of an given signal must be rather sparse and
imprecise in order to accommodate the variety of contexts where its corresponding signal
is employed. In the case of *with*, the meaning encoded within the linguistic system is
“accompanying circumstance.” It is clear that “an accompanying circumstance” is
certainly a more general and ambiguous semantic contribution than “by means of,
instrumentality,” or “in support of” or “in opposition to.” However, the sparser meaning
is suitable for exploitation in a variety of messages having to do with instrumentality,
cooperation, opposition and so on. What we see is that language itself provides rather
crude instructions that direct the hearer/interpreter toward an understanding of the
intended message. Constructing coherent messages from the limited information
provided by linguistic meanings is akin to crossing a stream by hopping from rock to
rock, rather than a smooth, seamless journey on a superhighway.

The notion of imprecision of meaning extends far beyond the number of possible
referents of a given word to basic communicative function. For example, in the sentence,
“The horse races in the morning,” *horse* functions in the role of noun/subject, *races*
parses as third person, singular verb and the prepositional phrase is adverbial. By adding
a few words to the sentence, the roles change completely: “The horse races in the
morning should be very exciting.” Now *horse* is an adjective, *races* takes on the role of
plural subject and *in the morning* tells us which races and so becomes an adjectival.

What is apparent is that language users are operating on far less specific information than either top down or bottom up reading theorists would have us suppose.

For those steeped in more conventional linguistic perspectives, the question arises, “Where is syntax in all this?” Syntax is a sentence-based phenomenon, and sentences, phrases and other meta-morphemic chunks are not units of analysis in sign-based theory. However, no one would deny that English preserves a more rigid ordering of words than do other more highly inflected languages, such as Latin. CS analyses have shown that word order itself can be a signal in English -- an observable signal without overt morphology. Thus, the creative deployment of linguistic meanings also accounts for sentence-based phenomena which other grammars would place under the direction of rule governance or syntax.

In summary, from the perspective of CS theory, the grammar of any given language consists of an inventory of observable signals whose corresponding meanings serve as tools in the process of human communication. By differentiating between linguistic meaning and the intended messages of speakers/writers, CS offers a radically reduced role for the function of language within the larger framework of human communication, but at the same time a far more constructivist conception of the nature of the communicative process.

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39 Word order signals explain many common usages that have plagued traditional grammar. For example, when a descriptive word precedes the entity (noun) it describes, the descriptor differentiates the referent from others of its kind. When the descriptor follows the entity it describes, it differentiates the referent from itself in some other state. This explains the very different messages implied by the two sentences: (1) I painted the *red* barn; and (2) I painted the barn *red*. In the first, *red* differentiates the barn from others which might be white or blue, and we cannot be sure what color the barn was when I finished. In the
What light does this parsimonious view of language shed on issues raised by the debate within early childhood literacy? To begin with, this instrumental view reframes the central concepts about what language is and how it is learned. Since any given language is an inventory of signals and corresponding meanings used to communicate messages, learning a first or second language is basically the process of apprehending these signals and meanings in order to construct messages. However, this process is a far more challenging project than that which a nomenclaturist or a representationalist orientation would predict, since neither the continuous stream of sound nor the messages that are communicated can be neatly segmented into pre-existing phonological and semantic units. This means that the language learner must solve both sides of the equation simultaneously. That is, she must decide where to make meaningful cuts in the stream of sound and at the same time creatively construct concepts that make sense out of when a given phonological pattern or signal occurs (Reid, 1984). This dual process of phonological and semantic segmentation is neither straightforward nor intuitive.

The inevitable misperceptions and misconceptions that occur during the process of language learning are the source of many humorous errors that delight friends and family of young children. One such tale in my own family involves the announcement of my three-year-old nephew that he wanted to go to “Miami” since his grandmother always brought him wonderful treasures from that mysterious place. His older, and more linguistically sophisticated sister corrected him by saying, “Chuckie, it’s not your Ami! second, we don’t know what the color of the barn was when I started, but it was red when I finished. Word order signals also explain traditional subject-verb-object order.
It’s Grammy’s Ami!” The humor in the account resides in the plausibility of my niece’s analysis. Jenny understood the semantic contribution of my from her experience with my toy, my room, my turn and so hypothesized a similar contribution in Mi-ami. Her grandmother was the only one who talked about Miami so it made sense to Jenny that this place was somehow inexorably related to her grandmother -- her Grammy’s Ami.

The example illustrates how children rely on what they know about language in order to make hypotheses about new input. Since CS theory considers the grammar of any language to be an inventory of signals and corresponding meanings, normal cognitive ability accounts for the process whereby children learn to identify signals and formulate concepts that correspond to the occurrence of these signals in communication. What children learn, in addition, is how to use the meanings of signals to construct and understand messages. This view differs radically from the Chomskyan model of language acquisition discussed in an earlier section.40 Within the CS model, no innate language processing structure in the brain is posited. The pedagogical implication is that language can be taught directly without fear of inhibiting “natural” processes as long as the teaching facilitates the acquisition of signals and meanings.

Columbia School Theory and Linguistic Dualism

In addition to providing a very different perspective on language learning, CS theory resolves the linguistic dualism that underlies the great debate. As noted earlier, both top-down and bottom-up theories share the common premise of linguistic dualism;

40 V. J. Cook succinctly summarizes the argument for an innate language device in the following way, “Let us briefly review the main argument for the innateness of UG [Universal Grammar]. The first step is to recognize the complex and abstract grammatical competence possessed by the native speaker. . . . [O]nce it is conceded that language knowledge is defined in terms of a grammatical competence of this kind, everything else follows” (1988, p. 84).
that is, that the structure and function of language represent separate domains. Whole language advocates concentrate on meaning in the sense of the communicative function of language, or what CS would term the message. Phonics-based theorists focus on the recognition and production of forms or signals as if these were a direct conduit to comprehension. Both positions are a result of a concentration of interest on only one side of the supposed dichotomy. Columbia School theory eliminates this dichotomy altogether by uniting signals and meanings at the basic level of structural organization, the linguistic sign. Thus to talk about meaning, in the linguistic sense, without some corresponding form, or signals without any concern for their corresponding meanings is not possible.

Elimination of Deficit Theory

As noted earlier in this paper, one negative consequence of the representationalist notion that language represented thought was the conclusion that children who lacked certain linguistic structures in their speech were somehow deficient in their thinking. An instrumental perspective on language eliminates this negative conclusion by maintaining a degree of autonomy between language and thought. The meaning/message distinction implies that the ideas we communicate are quite different from the linguistic tools we employ in the process of communication. From a instrumental perspective, children learn language by forming hypotheses about the language that they hear. In this sense, the linguistic system that children acquire reflects the context where they learned language rather than how they think.

Comprehension within the Instrumental Model
As we have previously noted, the restricted meanings of signals do not give a complete rendering of the ideas being communicated. Thus, CS theory would agree with Yetta Goodman’s observation that reading is not a “careful, exact process” in the sense that simply recognizing written signals and their associated meanings, or being able to convert the marks on a page into variations in a stream of sound, will automatically yield an understanding of the intended message. CS builds into the structure of language itself the need for constructive inference as an integral part of the comprehension process. This supplies theoretical justification for whole language’s emphasis on the role of constructive inference in reading comprehension. However, CS takes a very different perspective on when inference operates in the reading process. The whole language notion that readers sample the text to verify their hypotheses implies that comprehension precedes the processing of the text, and inference occurs at the level of recognizing signals. Much like a surfer propelled forward by the force of a wave, the reader lightly skims the surface of the visual input as she is borne forward by the force of the hypothesized message. It would appear from the Columbia School perspective that whole language puts the cart before the horse; or as Saussure noted, “It is often easier to discover a truth than to assign to it its proper place” (Saussure quoted in Ellis, 1993, p. 115). In this case, the misallocation is due to the representationalism that pervades whole language theory. If language faithfully reproduced the thoughts or ideas we communicated, then perhaps we could allow that a less than complete processing of the text might give us sufficient information to infer that portion that we ignored. However, if the marks on the page are in themselves merely hints that direct the reader toward comprehension, it would seem that mistaking a single signal could potentially send the
reader off in the wrong direction. From the instrumental view of language, then, readers
must first identify signals before inference or guessing comes into play. Inference would
be employed after a signal is recognized as the reader narrows down the potential scope
and function of its associated meaning in a way that makes sense within the conceptual
framework established by the previous text. The psycholinguistic guessing game is not a
means for guessing or predicting what word will follow, but rather the process of using
the imprecise meanings of consecutive signals to forge coherent messages. What readers
predict is the ultimate message, not the identity of signals.

Whole language’s mistaken placement of inference also results from its
acceptance of the Chomskyan idea that all children naturally learn their spoken language.
The notion of “naturalness” seems to imply that comprehending spoken language is
effortless and straightforward, whereas reading involves constructing hypotheses and
sampling the text where inference comes into play. The instrumental view of language
posits that inference is central to constructing messages in both spoken and written
language. The difference lies not in how language functions in the communicative
process, but rather in the degree of difficulty or complexity of the messages that are
typically presented in written or oral form.

**Instrumental Perspective on Bottom-Up Research**

CS theory nicely accommodates some bottom-up research findings, but differs
significantly in its application and interpretation. For example, Rayner and Duffy’s
(1988) observation that visual encoding of a text is very thorough, supports the idea that
inference is not a major part of signal recognition. These same researchers also found
that only one fifth to one fourth of the time\textsuperscript{41} that readers fixate on a word is spent on visual encoding or word recognition. This offers some evidence that inference occurs after the signal has been recognized as the reader integrates its semantic input into the larger message. Both these findings seem consistent with the CS view of how the language operates in the scheme of communication.

CS theory also sheds some light on Rayner and Duffy’s findings in the area of word ambiguity. Rayner and Duffy looked for time differences in visual fixation on what they term “equibiased” and “non-equibiased” nouns. Words such as coach, pitcher, palm were categorized as equibiased since each had more than one type of possible referents, none more likely than the others. Non-equibiased nouns were those that could be construed in more than one way, such as boxer, cabinet and band, but which had a clearly dominant or favored interpretation.\textsuperscript{42} When researchers compared the visual fixations on these ambiguous words with those on control words matched for length and frequency of use, they found that readers fixated longer on the equibiased words than the non-equibiased examples or the control nouns. CS theory would concur with the researchers’ speculation that in the case of equibiased words, the longer fixation was due to the formulation of two possible interpretive routes. However, an instrumental perspective can also provide a rationale for results that Rayner and Duffy do not explain. When non-equibiased words were used in their non-dominant sense (He saw the boxer was barking at the cat), Rayner and Duffy report that readers demonstrated “considerably longer

\textsuperscript{41} 50 msec. out of an average of 250 msec.

\textsuperscript{42} The assignment of words to these categories seems arbitrary at best. It is hard to see where band favors one interpretation. Consider the example: Mary was delighted to find out that her wedding band recently cut a very successful album and had become quite famous.
looking times in the disambiguating region of the sentence for the non-equibiased ambiguous condition” (1988, p. 33). It would seem that this long fixation reflects the reader’s correction of her earlier hypothesis.

In fact, the instrumental view that the reader is using the semantic input from consecutive signals to revise and refine her previous interpretation is supported throughout Rayner and Duffy’s article. Work by Frazier and Rayner (1987) shows that readers spend longer time on ambiguous material when disambiguating material precedes it. When disambiguating material follows an ambiguous word, more time is spent on what follows. But Rayner and Duffy have difficulty synthesizing all their separate findings into a cohesive picture of what is happening during the reading process. While they assert that “the processing load is reflected in the pattern of the eye movements and, particularly the duration of the fixations,” (p. 60) they admit that what is occurring during any fixation could be due to a variety of factors (lexical access or text integration with the immediate or larger text), and they note that some results are inconsistent.

However, close inspection reveals that the inconsistencies reported by Rayner and Duffy are a result of the representational model of language that serves as the analytical basis for their research. For example, referencing work by Cutler (1983), they accept the notion that propositional truth is an integral part of the meaning representation of a word. Thus they anticipate that more complex representations would require more processing.

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43It should perhaps be noted that the idea of logical permutations or transformations contains a strong flavor of Chomskyan theory. According to early generative-transformational theory, *Mary read the book* has the same deep structure as *The book was read by Mary*. The second sentence represents a transformation of the first. Studies in image transformations (rotations clockwise, counter-clockwise, mirror-image flip) by Shepherd & Cooper (1982) show that the further an image is rotated from its prototype, the longer it takes to identify it (Pinker, 1994). Thus, within the generative-transformational paradigm, it should take longer to
time or a longer visual fixation. Accordingly, non-factive verbs (e.g. insist) should require longer processing time than factive verbs (notice); non-causative verbs (encounter) more time than causative verbs (frighten).44

It is at this juncture that Rayner and Duffy report “inconsistencies.” While their studies indicate that verbs receive the longest visual fixation, they found that verbal complexity in no way influences the duration of visual fixation -- an observation that runs counter to expectations shaped within a representationalist paradigm of what language is rather than any purely linguistic data.45 The fact that Rayner and Duffy find no time difference in processing the various categories of verbal complexity is evidence that the labels do not coincide with categorical meanings within language, but rather to various kinds of messages that we communicate. It would seem that readers are simply processing word order and the semantic input of lexical and grammatical signals without any complex permutations of logical propositions -- a finding very consistent with an instrumental view of language. In a sense, an instrumental view of language provides an overall perspective on their work, which they themselves miss. Hesitations in eye movements coincide with decision points in the interpretive process, sometimes occurring several fixations after an ambiguous word or cue for an antecedent search.46

44 Rayner and Duffy’s examples include: The girl noticed (insisted) the cake was moldy. The policeman frightened (encountered) the little girl. The non-factive and non-causative verbs are in parentheses (1988, pp. 33-34).

45 That is to say that there is no overt morphology to support the categories factive or causitive verbs.

46 For example, readers do not fixate on such words as the, a, etc., despite the fact that the initiates an antecedent search and a does not.
In summary, CS theory provides a better fit with the data and gives a more coherent picture of what is happening during the reading process than the “descriptions of language” that have directed much bottom-up research. Like their whole language counterparts, bottom-up researchers have uncovered some interesting truths, but have had difficulty in assigning each to its proper place. This is particularly true in the area of word meaning. While Rayner and Duffy and Daneman seem to accept the nomenclaturist position that word meaning is equated to referent, research quoted by Daneman in her article, “Word knowledge and reading skill,” supports the notion of imprecision in linguistic meaning that is similar to CS’s instrumental model of language. Of particular interest is research by van Daalen-Kapteijns and Elshout-Mohr (1981) where college students were asked to come up with concepts for neologisms (invented words that had no conceptual real word equivalent)\(^47\) from the context provided by six sentences. The results showed that higher-verbal subjects (those who scored well on vocabulary tests) maintained a more loosely constructed model of meaning which allowed for the application of parts of the meaning to each successive context. Lower-verbal subjects, on the other hand, seemed to form more rigid constructs of meaning which fit only one context (van Daalen-Kapteijns and Elshout-Mohr in Daneman, p. 154). It would seem that inefficient language users equate meaning with reference or, in other words, they operate on a nomenclaturist view of language. This also explains why better readers can identify words out of context (Perfetti. 1988). Without a context, a word can have no particular referent. Skilled language users are able to abstract the more general linguistic

\(^{47}\) For example, kolper for a window that only admitted a small amount of light (1988, p. 153)
meaning from referential use. Both these findings lend strong support to the Columbia
School notion that the meanings attached to linguistic signals are rather general and
imprecise in order to accommodate strategic exploitation in a wide range of
communicative situations.

As previously mentioned, from a CS perspective, ambiguity of meaning is not
limited to an occasional phrase or word, but built right into the structure of language by
means of rather imprecise linguistic meanings themselves. While Rayner and Duffy
(1988) and Daneman (1988) explore ambiguity in terms of referent of nouns, they deal
with ambiguity of word function (subject vs. object, or noun vs. verb) in rather
awkwardly constructed “garden-path” type sentences. For example, in the sentence Since
Jay always jogs a mile, Daneman highlights a mile as ambiguous as the direct object of
jogs, or the potential subject of a clause to follow as in Since Jay always jogs a mile
seems like a short distance (1988, p. 6). In the second example, either a pause in
speaking or a comma in the written form (Since Jay always jogs, a mile seems like a short
distance.) would eliminate the ambiguity altogether. In creating an artificial instance of
ambiguity in the structural relations between elements in the sentence, the researcher has
failed to note the natural imprecision of the word jogs extends far beyond its transitive or
intransitive interpretation. Until the reader sees a mile, jogs is open to the interpretation
of the action of stimulating rather than running, as in Since Jay always jogs my memory.
In addition, considered without a text, jogs has no inherent word class (noun, verb) that
can be attached to it. In the example, “I go on frequent jogs around the local golf course,”
jogs functions as a noun rather than a verb.\textsuperscript{48} In order to resolve this ambiguity, English includes many grammatical systems (entity-number, verb tense, articles) which not only provide specific information (number, time, differentiation) about entities and activities, but also serve the more basic function of helping us determine what communicative role (noun or verb) a word is fulfilling in a given text. Although Rayner and Duffy assert that readers do not fixate on the small function words while they are reading, from a CS perspective, these are critical to creating a structural framework for interpreting the communicative import of the longer lexical entries.

By relying on a representational model of language, bottom-up researchers tend to use processing metaphors for aspects of reading comprehension that would seem to require more active inference on the part of readers. For example, Perfetti includes semantic encoding and proposition encoding in his verbal efficiency theory (Perfetti, 1988). The term encoding implies an automatic process. Similarly, in Adams’s theoretical model of reading, the mechanical metaphor of “processor,” which she uses to describe visual recognition and the subsequent translation of the visual image into its phonological representation, is carried over into the meaning and context processors where the notion of automaticity would seem less appropriate (Adams, 1990, p.158). From an instrumental perspective, it is precisely at the point of integrating the imprecise meaning of a consecutive signals into a coherent message that creative inference rather than automatic processes would come into play.

\textsuperscript{48} English does include some morphology that indicates communicative function; for example, -ly for adverbs. However, the morphology is not always consistent (noun form -tion in verb mention). The lack of consistent morphology to support word classes has caused CS linguists to question whether noun, verb, etc. are bona fide linguistic categories. While it is certainly true that in given contexts words refer to activities
To summarize, it is apparent that an instrumental view of language reframes the central problems and issues that have been raised by the reading wars. While avoiding some of the problem areas that result from dualistic, representational and nomenclaturist assumptions about the nature of language, the instrumental view presents reading theory with new challenges. In particular, the radically reduced view of what linguistic signals actually contribute to the process of communication has significant impact on reading theory. Constructive inference, a central tenet in the whole language perspective, lies at the heart of the reading comprehension, but it only comes into play once the reader has recognized a signal and gained access to its semantic input. Bottom-up researchers would concur with CS’s insistence that a thorough processing of the visual input is a necessary first step toward comprehension. However, unlike the representationalist models that have directed bottom-up research, Columbia School would not agree that signal recognition automatically attaches a word class (noun or verb) or logical representation that would then make comprehension a matter of straightforward computation. Rather, constructive inference must be employed throughout the process in order to assign a communicative function (i.e. noun or verb in a particular context) to successive signals.

**Pedagogical Implications of an Instrumental View of Language**

Although CS theory adds theoretical support and coherence to much research that has been done by others, the question remains as to what impact an instrumental view of language will have on reading pedagogy. Will CS theory merely change how we think about what is going on in the classroom, or will it provoke changes in what we actually do?
do? It is the position of this paper that an instrumental view of language constitutes a radical shift in our understanding of how language works in both written and spoken language. If language is seen as a crude tool with imprecision built into its structure, then constructing messages from either auditory or visual linguistic input is not a computational task. In separating how language means from what language means, educators must rethink some of the issues that are problematic to reading instruction. Many of the problems that have been termed reading problems are, in effect, general language use problems that are only made manifest by the more complex structure and limited context of written language, but are not unique to that medium. Daneman’s observation that poor readers have more rigid concepts of meaning, and Adams’s comment that children resist multiple senses of word use would seem to imply that the problems these readers experience is not due to the graphic interface, but is a matter of general linguistic knowledge and ability. It may well be that the hours of at-home story reading is actually developing general linguistic sophistication rather producing print awareness or phonic awareness. Carol Chomsky’s 1973 study on the sequential development of linguistic structure in young children supports this claim. She produces convincing evidence that the quantity and quality of out-of-school literacy activities exert a strong influence on how rapidly linguistic development progresses. What is germane to this paper is the fact that the children’s linguistic development involved no interaction with print whatsoever. The children demonstrated their understanding of the linguistic structures through the use of dolls. Reading problems currently exhibited by children in today’s classrooms may have little to do with what is going on in the classroom and a lot more to do with what children are doing in their spare time. Children whose major
medium of entertainment involves comprehending the visual imagery of TV have less experience constructing mental images based on purely linguistic input -- auditory or written. As a result, these children enter the classroom with less linguistic sophistication. It must be recognized that phonics instruction, sound segmentation exercises and word recognition drills can not resolve issues that relate to general linguistic knowledge. This perhaps explains why training poor readers in the behaviors of good readers has had so little effect. The implication for early literacy pedagogy is clear. Much time needs to be spent developing general linguistic proficiency.

Further, an instrumental view of language supports the position that direct language instruction is beneficial both in the area of grammar and vocabulary development, but with a very different focus. In terms of grammar, emphasis would shift away from the notion of correctness (following the rules) to how to use the imprecise tools of language in a way that promotes an understanding of the intended message. While grammar texts based on an instrumental view of language are not yet currently available, such texts would teach English structure within a framework of meaning-based choice rather than rules of formal determination.

For children who speak non-standard dialects of English, the shift in focus from correctness to communicative strategies rids language instruction of its class bias. The similarities and differences between non-standard dialects and school English can become

49 Adams (1990) notes that over time, basal texts have reduced the ratio of words per picture. This is perhaps a tacit recognition on the part of publishers that children are becoming increasingly dependent on visual imagery. Ironically, this trend is counterproductive to linguistic development.

50 A key to Marva Collin’s success in teaching literacy to young inner city children is the scope of literature that her students read. While children in ordinary classrooms are reading simplified basal texts, her
a vital part of language instruction, so that students can appreciate the expressive potential of their own dialects as well as become fluent in school English. Lisa Delpit points to the effectiveness of bi-dialectical comparisons and meta-linguistic awareness as important components in programs that have helped improved the academic achievement of both African-American and Native American children (1995). In effect, an instrumental approach to grammar would guide children toward a more creative understanding of how language works.

Vocabulary development would focus on the imprecision of meaning at the earliest stages of reading instruction. The current practice of pairing a word with a single picture fosters a referential view of language. Adams’s (1990) suggestion that puns, jokes and double entendre be included in the classroom provides further activities that will help children become aware of the many contexts where individual words are used.

In addition, words should not be taught in isolation from other words that share the same semantic domain. From an instrumental perspective, an important aspect of the meaning of any signal is its relationship to other signals. In order for language users to creatively use linguistic forms, they should be aware of what the choices are and the communicative potential of each.

The increased attention to the imprecision of language has further implications in the area of assessment. Once it is recognized that the ultimate message can not be computed from the tool, the practice of using tests that emphasize one right answer becomes questionable. Miriam Cohen’s (1980) story, *The First Grade Takes a Test*... students are reading Shakespeare, Chaucer and Dante at an early age. The increased time spent in literacy activities and the quality of the materials read has produced impressive results.
beautifully illustrates the fact that standardized tests require a uniformity of assumptions about linguistic meanings that an instrumental view of language would not support. In a similar vein, later tests such as the GRE are based on inferences that are by no means universal.51

In addition to its emphasis on general linguistic ability, an instrumental view of language may illuminate an issue that remains problematical in the current research --the value of phonics. Accurate signal recognition and production is a vital part of language use. The question is: What role does phonics play in the ability of readers to rapidly identify graphic forms? Adams is clear that the value of phonics is not that it enables readers to sound out words, although she adds that function may serve as a useful heuristic for identifying new words (1990, p. 54). However, skilled readers are not sounding out words. Her conclusion is that the value of phonics is that it helps children to remember the sequence of graphic forms which leads to rapid and automatic recognition of graphic representations. She cites research that indicates that for the skilled reader semantic and phonological representations occur simultaneously in normal reading so that the sound of the word is not crucial to its identification. The critical role played by the phonological representation is that through sub-vocalization the reader is able to retain a word in the short term memory after the visual image has faded and the reader

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51 For example in a recent GRE practice session, students were to select from five word pairs the one that expressed a similar relationship to an original pair. The example FRUGAL: MISERLY had three equally plausible solutions, based on the notion of intensification to the point of becoming a negative trait: confident: arrogant; courageous: pugnacious; and quiet: timid (Examples taken from a handout at a GRE seminar at Rutgers University Graduate School of Education, Fall 1997). The quiet: timid pair is a particularly culturally-embedded idea. The US cultural paradigm would view timidity as negative, whereas
has begun to visually process the next word (Ibid., p. 159). Sub-vocalization gives the reader more time to integrate the meaning of a word into the larger context, and further gives access to the primary language perceptual mode, sound.

However, since the ultimate goal of phonics is not sounding out words, the question remains as to what aspects of the multifarious and by no means consistent phonics programs currently available are really producing the desired results. When and how much has not yet been resolved. As Adams notes, the question of how to divide the limited hours of classroom time between phonics instruction and exposure to connected text is extremely important for children who bring little literacy experience with them into the classroom. Since many under-prepared children also speak home dialects that differ both grammatically and phonologically from school English, the value of heavy phonics instruction would seem questionable. Adams calculates that their middle-class peers bring in the equivalent of a three- or four-year head start in literacy development. Programs that have had success in improving the literacy achievement of inner city children address this deficit by increased time in reading instruction. For example, New York City school children are showing modest gains in reading as a result of Chancellor Rudy Crew’s shift from what he termed an “aptitude-based” orientation to an “effort-based” approach (New York Times, 1997). Effort-based refers to the conviction that students will put in whatever time is necessary to improve reading skills. This involves after-school programs, Saturday classes and mandatory summer school. In similar

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Asian culture, particularly in regard to females, would not. The example highlights that there is no way to interpret language objectively.

52 Adams calculates that the average mainstream child receives between 1,000 to 1,700 hours of literacy activities at home before entering school. Even in the unlikely event that a teacher dedicates 2 full hours to
fashion, Marva Collin’s success is attributable not only to her high expectations of her students, but also to a curriculum that includes no sports, no specials and a heavy emphasis on reading and literacy activities.

In summary, it would seem that an instrumental view of language could potentially influence many current classroom practices in the area of early literacy. However, as yet, no one has yet done research in the area of reading that was informed by an instrumental perspective of language. In particular, no model of the reading process itself has been framed within an instrumental paradigm. Such a perspective could offer insight in those areas of reading that as yet remain problematical.

CONCLUSION

It has been the purpose of this paper to consider issues in early literacy in the light of underlying linguistic theory. In particular, the contribution of three basic assumptions about language -- linguistic dualism, representationalism and nomenclaturism -- to the debate in early reading instruction have been examined. It is clear that assumptions about the basic nature of language and how it functions within the process of communication have strongly influenced both theory and practice within the field of reading. A radically different paradigm, an instrumental view of language, has also been presented with a view to the role it might play in unifying the findings from both top-down and bottom-up research. Furthermore, the impact of an instrumental perspective on classroom practice has also been briefly outlined. It is hoped that this paper will generate sufficient interest
in CS linguistics to promote research framed within its instrumental paradigm in those areas of early literacy that as yet remain unresolved.
REFERENCES


