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Articles

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SphoTa – A unique Indian concept

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Bangalore

We would like to examine in this paper the views of Indian Grammarians with regard to word, meaning, the relation between the two, and the way meaning is understood. We would particularly like to point out a unique concept in the Indian tradition, viz., SphoTa, in the cognition of meaning.

Modern linguists are at variable in their understanding of 'what a word is'. Some linguists have defined it as a minimal unit which can be uttered in isolation. By minimal, they mean, a unit that does not consist of parts which are also uttered in isolation. Some have found it expedient to distinguish between the morphological word, the lexical word, and the semantic word. Accordingly, English *table* and *tables*, are two different morphological words but they are two forms of the same lexical word. In the same way, *table* in the construction, *the book on the table*, and *table* in the construction, *the table in the book* are two different semantic words corresponding to a single lexical word.

The morphological words of a language are specified by their morphological constructions. They are the smallest units that can be said in isolation. The lexical word is the basic unit of the lexicon or dictionary of a language and it is also the basic unit of syntax, the unit whose combinations are specified by syntactic structure. The term lexeme introduced by Benjamin Lee Whorf in 1938 has often been used for the lexical word. For the semantic word, some have

used the term *sememe*, first used in 1908 by the Swedish linguist Adolf Noreen and introduced into American linguistics by Leonard Bloomfield in 1926. We may think of a sememe as an element of meaning.

Indian grammarians have laboured, from the early times, to precisely define a `word'. Although sentence was the basic unit of speech, Indian grammarians had, for practical purposes, abstracted words from sentences and from these words still smaller units called sounds. In the Indian tradition, `word' was designated by the term *padam*. It was defined by Panini as a morphological unit ending in either *sup* `nominal affixes' or tiṇ `verbal affixes' (A 1.4.14 *sup* tiṇ antam padam). As far as Vedic language is concerned, *padam* is also defined phonologically by the presence of generally an *udatta* accent (A 6.1.158 anudāttam padam ekavarjm); a few words however bear a svarita accent. Words which are otherwise homonyms are distinguished, one from the other, by the accent (e.g. várah `choice': varáh `suitor').

Word is also characterized as a unit of meaning. Vākyapadīya states that the term *pada* is so designed as meaning is understood by it (padyate anena arthah iti padam). In this context, the term *śabda* seems to be more current in the tradition. It is applied in grammar only to such words that possess sense (Mahābhāsya 1.1 pratitapadārthako loke dhvanih sabdah). It is a phonetic unit which conveys meaning (Sṃgāraprakāśa 1. yenoccāritena arthah pratīyate sa śabdah). The definition of `word' provided by the Indian grammarians appears to be language specific in that it holds good only for Sanskrit, the language described by them. Word in the understanding of modern linguists is however more universal as it is applicable to several languages.

Words consist of phonemes; however, `a phoneme' is meaningless... but a word has not only a *form* expressed as a particular combination of phonemes, but *meaning* also' (Bloch & Tager 1942p.53). A Statement in Bhartrhari's Vakyapadīya (II.169) is revealing in that the Indian grammarians too had known the concept of phoneme and that they were organized variously to form words (varNasamghatajam padam). However, phonemes cannot be attributed any meaning. Bhartrhari states that though the difference between words, kūpa `well', yūpa `sacrificial post', and sūpa `soup' is statable in terms of a phoneme, we can not assign any meaning to it since the /k/ in kūpa is also found in the word kalaśa `jar', but there is no meaning common to these two words. The phoneme /k/ in kūpa may then be said to distinguish it from the words yūpa and sūpa. It may be noted that the word kūpa loses its meaning if it is uttered without the initial consonant. The tradition has also recognized arrangement of phonemes in forming words. In Śabarabhasya, Upavarsa is said to have declared that the phonemes *g, au*, and *visarga* in that order constitute the word gauh (gaur ityatra kah śabdah? gakaraukaravisarjanīiya iti bhagavan upavarsah).

Regarding the nature and relation of meaning with words, the Mīmamsa school with which the Grammarians are in agreement consider it `natural' while the Nyaya school takes it as `conventional'. The significative power according to the former is inherent in the words themselves (autpattikastu śabdasyarthena sambandhah). This is also expressed by the term `nitya' (Vak.1.23 nityah śabdarthasambandhah). A word is *nitya*, the meaning is *nitya* and the relation between the two is also *nitya* `permanent'(nityah śabdah nityo'rtho nityah sambandhah ityesa śaastravyavastha). Meaning is conveyed by a word as a whole and not by its parts individually. Sounds

as we have seen above have no signification when considered individually detached from a word. Thus, when the word *gauh* is dissolved into its components, viz. g, au, and visarga, the meaning does not follow from any of them. They do not coexist. They are momentary and are lost in the air as soon as they are uttered. How then is meaning conveyed?

The Mīmamsakas contend that the last phoneme with the help of the impressions left by the previous ones, conveys the meaning. This way of explaining the understanding of the meaning was put forward by them to dispense with the necessity of postulating an entity over and above the phonemes. Since the sounds are lost in the air as soon as they are uttered, the Grammarians consider it necessary to posit a concept called *sphoTa* over and above the phonemes which make up a word. For them, it is this entity which is the bearer of the meaning. It is an indivisible entity which already exists in everybody. The speaker manifests it when he utters the sounds by the movements of the vocal organs. When the hearer hears these sounds, this indivisible entity which is in him also is awakened and he understands the meaning which the speaker wants to convey and which is eternally associated with the word which has been awakened.

We may now briefly outline the development of the concept *sphoTa* in the Indian tradition. *SphoTa* has been defined by Maadhava in his Sarvadarśsanasaŋgraha as that from which the meaning bursts or shines forth (sphuTtati sphuTībhavanty asmad artha iti sphoTo'rtha pratyayakah). Alternatively, it is taken as an entity that is manifested by the spoken sounds (sphutyate vyajyate varnair iti sphoTo varNabhivyaŋgyah). Thus, on the one hand, it is manifested

by the word sound; on the other, it simultaneously reveals word meaning.

NāgeśabhaTTa identifies this theory with a sage called SphoTāyana, mentioned by PāNini in one of his rules (A 6.1.123 avan sphotayanasya). This tradition is however unknown to Bhartrhari who considers Audumbarayana, mentioned by Yaska, as having a view similar to subsequent sphoTa theory. The original conception of *sphoTa* seems to go back to the Vedic period when *vāc* 'speech' was considered to be a manifestation of the all-pervading Brahman, and the Pranava was regarded as the primordial speech from which all forms of *vāc* were supposed to have evolved.

In the Grammatical tradition, Patanjali may be said to provide the point of departure for the development of *sphoTa* theory. At the beginning of his Mahabhasya, he asks the question, "what is the word 'cow'"? and answers, "it is that which, when uttered, brings us knowledge of creatures with dewlap, tail, hump, hooves and horns". He emphasizes the fact that a word is a word only when it has a meaning. Here, he seems to be arguing against the Mimamsaka view that a group of sounds when spoken is a word even when there is no meaning or when meaning is not understood. Patanjali concludes that even though the sounds cannot co-exist at the time of utterance, they can do so in the mind of the speaker as well as in the mind of the hearer. He disginguishes between *sphoTa* and dhvani. *SphoTa* is the permanent element in the word and may be considered the essential word. Dhvani is the actualized and ephemeral element. For him, *sphoTa* is permanent, unchanging and is manifested by the changing sounds (dhvani) uttered by the speaker and heard by the listener.

Bhartrhari gives a systematic philosophical analysis. In his Vakyapadiya 1.44, he states, "in the words, which are expressive, the grammarians discern two aspects – the one (the sphoTa) is the cause of the real word while the other (dhvani) is used to convey the meaning. The process is explained as follows: At first the word exists in the mind of the speaker as a unity or *sphoTa*. When he utters it, he produces a sequence ofr different sounds so that it appears to have differentiation. The listener, though first hearing a series of sounds, ultimately perceives the utterance as a unity- the same *sphoTa* with which the speaker began – and then the meaning is conveyed.

Bhartrhari uses several technical terms: *śabda/ sphoTa, dhvani* and *nada*. By *śabda* and/or *sphoTa* he refers to that inner unity which conveys the meaning. The *dhvanis* are described as all-pervasive and imperceptible particles, which when amassed by the movement of the articulatory organs become gross and perceptible sounds and are then called *nāda*. These *nādas* function to suggest the word, *sphoTa* or *śabda*. Because these *nādas,* which are gross and audible, have division and sequence, it is naturally assumed that the suggested word also has parts when in reality it is changeless and sequenceless.

Mandana Miśra establishes in his SphoTasiddhi the existence of the inner word as distinct from its sounds in terms of logical necessity and consistency. His opponent in this task was the skillful Mimāmsā philosopher Kumārila Bhattta. Kumārila maintains that Patañjali's definition of *śabda* as interpreted by the grammarians is not correct. In his view, it is the fact of being audible that is the criterion for *śabda*, and

the phonemes alone meet this requirement; so it is the phonemes that are commonly accepted as *śabda*. Anything over and above the phonemes (such as sphoTa) does not deserve to be called *śabda*, for there is no such common usage.

Mandana rejects this criticism as frivolous misinterpretation. He says that the signifying power is the criterion for *śabda*. It does not mean that a word ceases to be a word when it fails to communicate a meaning to an unlearned child. According to the Grammarians, the key point is that the word is capable of conveying meaning regardless of its being understood or not understood in specific instances. And because the phonemes that constitute a word do not have the capacity individually they cannot be called *śabda*. *Śabda*, maintains Mandana, cannot refer to the individual phonemes because in themselves they convey no meaning. In common experience the whole word is the unit of language and that is taken to be meaning-bearing.

Kumārila counters by allowing that phonemes may indeed leave lasting traces or impressions (samskāras), and through the traces left by the perceptions of the earlier phonemes and the last phoneme, the unitary meaning of the word may be conveyed. The last phoneme, when helped out by the traces of the previous phonemes, conveys the meaning. This view cannot hold, says Mandana, because the traces left by the phonemes are the same even when their order is reversed. How is it then that the meanings of the words `now' and `won' are not identical?

In his commentary of kārikā 18 of the SphoTasiddhi, Mandana explains the process by which the *sphoTa* is

cognized: Each sound individually reveals the whole *sphoTa*. However, the other sounds do not thus become useless because there is a difference in the revelation. All the previous sounds bring about in the listener whose mind is free from any particular residual impression, cognitions in which the word figures vaguely and which sow seeds in the form of residual impressions capable of producing a later clear cognition of the word. The last sound produces a clear cognition in which figures, as it were, clearly the image of the *sphoTa* caused by all the seeds in the form of residual impressions left by the vague cognitions of the previous sounds. The *sphoTa* is a unity that already exists in the mind of the speaker. He utters sounds in order to manifest it, and once manifested, the *sphota* conveys the meaning.

The speaker's efforts to utter the phonemes will differ according to the *sphoTa* that he wants to manifest. Even though the phoneme may be the same (for example, the /w/ in `won' and `now') the physical effort involved in vocalizing it will vary according to the position it occupies in the word. Thus the overall physical effort in saying `won' will be markedly different from that involved in saying `now', even though the same three phonemes are involved in each case. Consequently, the *sphoTa* theorist has a basis for claiming that the *sphoTa* manifested by the two vocalizations would be different, as would the meanings revealed.

For the philosophy of grammar, the division of speech into words and sounds is a convenient fiction made for pedagogical purposes to teach words with precision and economy of effort. The basic division of sentences into words and words into bases with their respective suffixes is to be

phenomenal and not ultimately real. The Mīmāmsakas and the Naiyayikas accepted individual words and their independent meanings. The BhaTTa school accepted the abhihitānvaya theory of verbal comprehension, according to which the words in a sentence escape their isolated meanings and the syntactic connection among them is found through secondary meaning. The Prābhākara school held that the words themselves conveyed their individual meanings and the syntactic relation, the anvitābhidhāna theory. The Nyāya school espoused the association theory of verbal comprehension and held that the syntactic connection among word meanings is obtained through the samsargamaryādā `the power of mutual association'.

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Spatial vs. symbolic cognition: The case of Williams syndrome

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INTRODUCTION

Williams syndrome (also called William-Beuren's syndrome or infantile hypercalcemia), a rare neurodevelopmental disorder of genetic origin, was first reported in the 1950's-70's. (Creery, 1953; Williams, Barratt-Boyes & Lowe, 1961; Beuren, 1972). This syndrome has recently received renewed attention from cognitive neuroscientists because unlike other neurodevelopmental disorders, such as Down's syndrome and autism, marked by across-the-board impairment in all cognitive domains, Williams syndrome subjects present an unusual cognitive profile and relatively well preserved language and face-processing abilities, despite difficulty in spatial cognition (Bellugi, Marks, Bihrle & Sabo, 1988; Lenhoff, Wang, Greenberg & Bellugi 1997). The strict nativist approach to the understanding of brain-behaviour relationship (supported by adult neuropsychological models) sees Williams Syndrome as a prime example for positing a modular view of cognition. For the nativists, the uneven performance in cognitive-linguistic tasks is an indication of coexistence of spared and impaired domain-specific modules underlying different

cognitive functions. The empiricist approach on the other hand stresses that difficulties in various cognitive capacities arise due to the interaction between domain-general learning mechanisms applied to representation of socio-cultural inputs. Neither nativist nor empiricist approaches and the corresponding models can explain why in William's Syndrome, seemingly unrelated skills such as language and face processing cluster, and more ostensibly related skills such as facial recognition and visuo-spatial processing do not.

During the last decade, theories and models of cognitive modularity in general, and hemispheric specialization in particular, have been challenged (Friederici, 1990; Davidson & Hugdahl, 1995). Psychological and cognitive functions are no longer viewed as made up of unitary processes (reading, writing, object recognition) but rather as being composed of several sub-processes organized either in succession or in parallel or interactively (e.g., Sergent, 1995). The focus has shifted from discovering the architecture of cognitive modules to examination of how the processing components of the models actually work, in normally functioning people as well as in cases of acquired brain damage (Coltheart, Langdon & Haller, 1996). Greater emphasis is being placed in recent years on developmental processes of modularization within an alternative approach to brain-behavioural relationship called "neuroconstructivism" (Karmiloff-Smith, 1998). Attempts are being made to study closely, within-domain dissociations (e.g., probing which aspects of language are intact and which ones are not in Williams Syndrome) as a function of age (e.g., Paterson, Brown, Grodd, Johnson & Karmiloff-Smith, 1999). Scholars of human communication have shown empirically

that speech related gestures facilitate cognitive growth by allowing 'motor-cognition' to mediate in message construction (Hadar, Wenkert-Olenik, Krauss & Soroker, 1998a); that gestures integrate propositional and non-propositional knowledge in the representation of meaning (Hadar & Butterworth, 1997); that gesture is capable of being involved in innately driven tasks (e.g., number) as well as non-innately driven learning (e.g., a board game) and therefore it is likely to be a general mechanism of cognitive growth (Golden-Meadow, 2000).

There is no general consensus among researchers from different disciplines as to the best way of studying the relationship between language and cognition whether in children or adults, with or without brain damage. Further, as pointed out by Barsalov (1992 cited in Dodd, Campbell & Worall, 1996), the interplay between data collection and theory development is often complex and multivariate. At present, we do not have data from Williams Syndrome subjects. However , we believe that the synthesis of recent research presented in this paper will contribute to theory making and to the development of testing procedures for children with neurodevelopmental disorders. The need for this has been emphasized more than a decade ago. To cite Hooper and Boyd (1986:P.15) who commented, "relatively in its infancy, the field of child neuropsychology is in much need of theoretical direction from a neurodevelopmental perspective... the adult models have provided little in the way of basic understanding of the neuropsychological functioning of the developing child". The rest of the paper is organized under the following headings: Dominant perspectives about Williams Syndrome

(WS henceforth); Rethinking linguistic abilities in WS; Gesture, cognition and communication, and Implications.

DOMINANT PERSPECTIVES ABOUT *WS*

That *WS* has received renewed interested in recent years is evident by the fact that in countries such as the U.K., U.S.A., France and Belgium WS research foundations, parents' organizations and clinics got started only in the decade of 80's. This interest has something to do with the collaborative efforts of geniticists, cognitive neuroscientists, pediatricians and neurologists. Such collaborative efforts have generated a vast amount of research and resulted in development of diagnostic tools. For instance, it has been claimed recently that *WS* can be diagnosed on the basis of a test known as Fluorescent In Situ Hibridization (or FISH) for the deletion of elastin gene that is found to be absent in about 98% of the diagnosed patients (Lowery et al, 1995). With the availability of better diagnostic tools, some researchers feel that the incidence of *WS* is likely to turn out to be higher than what has been reported in the literature (one in 20,000 to 25000 live births). It is instructive therefore to examine the dominant claims about brain-behaviour relationships in this phenotype based on adult neuropsychological tests adapted for use with children. Since it is outside the scope of this paper to provide an exhaustive review of the studies of WS with regard to genetics, brain-morphology, neurochemistry and cognitive-linguistic features, salient findings have been summarized in Tables 1 and 2 below. This information has been synthesized from the studies of Bellugi et al (1988); Wang et al (1992); Jernigan et al (1993); Karmiloff-Smith (1995); Grant et al (1997); Lenhoff et al (1997); Rae et al (1998); Rossen and Sarnat (1998); and Steinlin et al (1999).

Non verbal cognition	❖ IQ in the range of 50-90 ❖ Serious deficits in spatio-constructive skills ❖ Serious deficits in problem solving and planning ❖ Intact face processing capacities ❖ Intact social cognition (empathetic and sensitive to others' mental state)
Verbal cognition	❖ High vocabulary scores ❖ Fluent speech production ❖ Relatively intact syntactic capacity alongside aberrant semantics ❖ Complex narratives with extensive use of prosody ❖ Intact short-term phonological memory

Table I: WS: Cognitive-Linguistic Profile

Incidence	❖ One in 20,000-50,000 live births
Clinical features	❖ Elfin like features; heavy orbital ridge; temporal dimples ❖ Full cheeks; flat nasal bridge; flared nostrils ❖ Flared nostrils; star like iris pattern; irregular dentition
Cause	❖ Hemizygous submicroscopic deletions of contiguous genes on the long arm of chromesome at band 7q11.23 ❖ Elastin gene (ELN); Lim Kinase 1 gene (LIMKI); DNA replication factor (RFC2); syntaxin IA (STXIA); Frizzled gene(FZD3); Calcitonin gene related peptide (CGRP)
Diagnostic test	❖ Fluorescent in-situ hybridization or FISH
Medical signs and symptoms	❖ Supra valvular aortic stenosis (SVAS); hypertension ❖ Vascular and connective tissue abnormalities ❖ Premature wrinkling; poor muscle tone ❖ Hyperacusis (abnormal sensitivity to sounds) ❖ Strabismus ❖ High levels of blood serotonin ❖ High levels of Calcium ❖ Hernias ❖ Delayed physical and mental development; gait problems
Brain morphology	❖ Abnormal clustering of neurons in the visual cortex ❖ The WS brain is 80% of normal volume ❖ Total cerebral matter is reduced ❖ Anterior regions are smaller than normal controls but larger than Down's Syndrome brains ❖ The dorsal hemispheres show cortical malformation ❖ The limbic structures of the temporal lobe are small but proportionally similar to normals ❖ Frontal cortex is of near normal proportion relative to posterior cortex, although both are reduced in size ❖ No lateralized focal lesions ❖ Neocerebellar volume is near normal in contrast to that in Down's Syndrome but decreased levels of N-acetylaspartatesymptoms
Lateralization	❖ Symmetrtical electrophysiological responses from right and left hemispheres during language talks ❖ Greater activity in left hemisphere during face processing task unlike normal controls

Table II: WS: Neurobiological Profile

How are these strengths and weaknesses accounted for? The vascular and connective tissue disorders, facial dysmorphology, poor muscle tone, premature aging and mental retardation have all been attributed to the genetic defects (listed in Table –I1), although the genetic understanding of WS is far from complete. As far as the performance on the behavioural tests is concerned, up until recently, there has been a general consensus that the non-verbal spatial cognition is severely impaired in these subjects as evident in their poor performance on tasks involving visuospatial orientation, spatial transformation, spatial arrangement etc (see figures 1 & 2). This has been attributed to poorly functioning right hemisphere and possible deficits in cerebro-cerebellar connections. Since there is no evidence of focal cerebral lesions in these patients, it has been hypothesized that the cytoarchitectonic anomalies in the form of exaggerated horizontal organization and clustering of neurons, decreased myelination and abnormal cell density particularly in the visual cortex might be responsible for the impaired spatial cognition (Karmiloff-Smith et al 1995).

How could the poorly functioning right hemisphere help *WS* patients recognize and discriminate unfamiliar faces? Researchers attributed this ability to asymmetrical lateralization (i.e., unlike in normal individuals, in WS individuals the left hemisphere is subserving this function in addition to linguistic abilities). Further, the intact limbic structures in the temporal lobe are also thought to mediate aspects of social cognition in these patients. The chromosomal deletion seems to produce anatomical changes (e.g. abnormal clustering of neurons in the visual areas leading to impaired visuo-spatial deficits, but it appears to spare a network that includes structures in the frontal lobes, the temporal lobe and

parts of the cerebellum. This preserved network may serve as a neurological scaffolding for the unexpectedly strong language abilities (see table –1) in these patients (Lenhoff et al 1997).

What emerges out of these dominant ideas is that there is a clear-cut dissociation between nonverbal spatial cognition, and verbal (symbolic) cognition in WS patients and that different brain regions are involved in processing tasks underlying these two aspects of cognition. For instance, Bellugi et al (1988) commented:

"We focus on spatial cognition, because this is one aspect of cognition that is the polar opposite of language, both in terms of the processing operations that are brought into play as well as one of the most basic divisions in the functional operations of the brain...our studies with three *WS* children suggest they may also share a highly consistent neuropsychological profile that is discontinuous from normal and not characteristic of other syndromes – impaired general cognitive functioning, unusual peaks and valleys of abilities in spatial cognition, preserved linguistic abilities".

Through the synthesis of recent research findings from different disciplines, in this paper, we have attempted to challenge this opinion. In the next section, we will present some studies designed to address the question of whether the linguistic abilities are really intact in WS subjects or whether there are some within-domain dissociations in the functioning of the 'linguistic module'.

RETHINKING LINGUISTIC ABILITIES IN *WS*

There was a suggestion that *WS* patients do well on linguistic tasks because their auditory-verbal short term memory is much better than their spatial short term memory (see Vicari et al 1996). Grant et al (1997) explored this notion in their study designed to examine the relationship between language and phonological short term memory that was based on seventeen English speaking subjects diagnosed to have *WS* (mean age 18.7 years). They made use of a non-word repetition test to avoid results from being confounded by differences in familiarity of the stimulus words. The results of this study suggested that in the course of language acquisition, *WS* individuals build up normal representations of phonotactic probabilities in their native language endorsing the view that phonology is largely intact in these patients. However, unlike normal subjects, WS patients continue to rely heavily on their superior ability to retain phonological material in the short term memory to support word learning without making an effort to access lexical representations directly from the semantic memory. Stated differently, the lexicon of the subjects with WS is not influencing the acquisition of new words.

Stevens and Karmiloff-Smith sought to delineate the processes underlying vocabulary acquisition in a group of eleven *WS* subjects (age range 8.7 to 31.2 years; mean age is 20.0 years) relative to two groups of controls classified as younger (mean age 3.6 years) and older mean age (9.7 years). These researchers cited evidence reported by earlier investigators that unlike in normal children and Down Syndrome (DS henceforth) children, in *WS* children naming precedes pointing by several months. In normal children,

vocabulary spurt occurs after a period of slow learning and is constrained by strategies such as exhaustive sorting (separation of a set of objects from various categories into groups of objects of a similar basic level category) and fast mapping (novel words map onto objects for which the child does not already have a name). This study made use of four different experiments spread over a period of 18 months involving the same stimuli with the same subject. The results indicated that all the WS subjects were found not to obey certain taxonomic constraints implying that the organization of the lexical storage may be aberrant in these children. The authors stated that measuring the vocabulary size alone can give a distorted picture about the normalcy of language in this group of patients and that equivalent behaviour outcomes can stem from different brain structures and processes.

Karmiloff-Smith et al (1997) conducted two experiments in which she examined the receptive language abilities of a group of twenty English speaking *WS* subjects and expressive language abilities (use of morphosyntactic rules involving grammatical gender) of fourteen French-speaking adolescents and adult *WS* subjects. Eighteen monolingual French children served as controls for the second experiment. The results revealed that the neither the comprehension nor the use of morphosyntactic rules is intact in both the groups of patients. Specifically, with the experimental children, she noted difficulties in assigning grammatical gender across several sentence elements; difficulties in understanding embedded sentences. While commenting on the results of this research, Karmiloff-Smith stated that it appears that the WS subjects may have good vocabularies, but poor system building capacities and that they also seem to be following a different developmental path

in the acquisition of language compare to normal children – a path which is more like second language learning.

In a subsequent study, Karmiloff-Smith (1998) commented that researchers have not paid sufficient attention to the discrepancy between vocabulary mental age and syntactic mental age, the former being considerably higher in these subjects. Further, the vocabulary scores in WS patients camouflage the fact that they learn the lexicon in a different way from normally developing children. She also argued that researchers should also take note of the dissociations found within the syntax itself (e.g. problems in phrase structure; difficulties in processing embedded relative clauses and subcategorization frames – i.e., the distinction between transitive and intransitive verbs and so on).

More recently, Paterson et al (1999) reported two different experiments. Experiment -I involving 13 infants with WS (mean age: 31 months); a group of 22 infants with DS (mean age is 30 months) and a group of 16 normally developing infants matched to the experimental group according to mental age, and another group of 14 normally developing infants matched according to chronological age. This experiment was designed to assess sensitivity to numerical changes in a series of pictures of everyday objects. Experiment II involved 71 infants (mean age 30.4 months) of which 15 had WS; 22 with DS; 17 mental age matched controls and 17 chronological age matched controls. The aim of this second experiment was to assess vocabulary development using a well established technique that makes use of coloured photographs of everyday objects. Looking time for named vs. unnamed stimuli were also noted. Drawing on the often reported results based on WS adolescents or adults

on impaired numerosity and good vocabulary scores, these researchers predicted that WS infants would replicate these findings with the results being superior to those of DS subjects and more like normal controls. Such a finding, they argued, would establish validity to the assumption that initial states can be derived from end states for any aspect of cognition and the use of adult neuropsychological models can be justified for children with developmental neurological impairments. The results of these experiments revealed that there are double dissociations, in that, for numerosity judgments, WS infants do well in infancy, but poorly in adulthood whereas, for vocabulary, they do poorly in infancy than in adulthood. These results highlight the importance of tracing cognitive deficiencies back to their origins in infancy and not focus on middle childhood or beyond simply because these older subjects can participate in standard neuropsychological tests. This study also demonstrated that the DS infants may lack the initial domain-specific pre-requisites. For the WS infants on the other hand, the subsequent process of learning that explains the phenotypic outcomes of end state. It thus appears that cognitive modules, where they exist are not innately specified, instead they are likely to be a product of a developmental tragectory and not it's starting point.

Drawing on the connectionist perspectives to brain-behaviour relationships, Karmiloff-Smith (1998) talked of a neuroconstructivist approach that seeks more indirect and low level causes of neurodevelopmental disorders than impaired cognitive modules. Neuroconstructivism accepts some sort of innately specified starting points, but posits that the interaction is not between static genes and dynamic environment; rather, on the gene side, the interaction lies in

the outcome of indirect, but cascading effects of interacting genes and their environment, and on the environment side, the interaction comes from the infants progressive selection and processing of different kinds of input. In other words, the child's way of processing environmental stimuli is likely to change repeatedly as a function of development, leading to the progressive formation of domain-specific representations.

The research reviewed in this section clearly shows that the language of WS subjects is far from being intact and that there is no justification in assuming the presence of an initial state of innate unimpaired language module in these patients, along side a damaged module responsible for spatial cognition. The dominant understanding that language involves auditory-verbal processes of symbolization (symbolic cognition) that the processes underlying speech production has little or nothing to do with motor cognition has been challenged by recent research pertaining to non-verbal (and co-verbal) communication. The next section provides a brief discussion of this research.

GESTURE, COMMUNICATION AND COGNITION

Fully developed sign language varieties such as the American sign Language (ASL), British Sign Language (BSL) or Australian Sign Language (AUSLAN) which are passed on from one generation to another generation of sign users convey grammatical relations by manipulating spatial relations. The questions of cerebral specialization in congenitally deaf sign users (non-brain damaged) as well sign language-aphasics (whose left hemisphere is damaged) assume a great deal of importance in the context of discussions of cognitive modularity.

Bellugi, Poizner and Klima's (1983) study based on three deaf signers who became aphasic after a damage to their left hemisphere demonstrated that while non-language visuospatial abilities (block design, drawing pictures, solving puzzles etc) remain unimpaired, their use of sign (ASL in this case) is seriously impaired. Depending on the location and extent of damage, the nature of impairment to the sign expression varied between being a lexical impairment to morphosyntactic impairment. The authors concluded that hearing and speech are not necessary for the development of hemispheric lateralization for language development and that the left hemisphere has the innate predisposition for language irrespective of the modality in which it is expressed.

Poizner et al (1984a) discussed a study involving three left hemisphere damaged sign aphasics and one right hemisphere damaged deaf signer. The subjects were tested using a series of tests for apraxia and pantomime recognition. Patients with damage to the left hemisphere, all of whom were aphasic for sign language exhibited dissociations between their capacities for sign language and their non-linguistic motor skills. The language deficits of these patients seemed to be related to the specific linguistic components of sign language rather than to any underlying motor disorder or disorder to comprehend symbols. After confirming this result in yet another study, Poizner et al (1984b) concluded that the two hemispheres of congenitally deaf signers can develop separate functional specializations for non-language visuospatial processing and for language processing even though sign language is conveyed in the large part via visual-spatial manipulation.

Damasio et al (1986) described a unique experiment involving a hearing signer who is also proficient in ASL. Sign language expression was observed during a left carotid injection of a barbituate (the Wada test) both before, and after the right hemisphere lobectomy was performed. The results of this study confirmed that anatomical structures of the left hemisphere sub-serve language expression in visuospatial as well as auditory modalities.

Poizner and Kegl (1992) undertook a major review of research pertaining to neural basis of language and motor behaviour with respect to ASL. By involving a variety of brain lesioned signers (right hemisphere lesioned signers, left hemisphere lesioned sign language aphasics, signers with distinct motor disorders like limb apraxia and Parkinson's disease) they were able to make a distinction between representational and non-representational movements and their relation to cognitive capacities of these patients. Specifically, the 3-D computer graphic analysis of motor movements in these disorders revealed that the disorder of signing in Parkinson's disease does not appear to be at the representational level, but rather, at a motor implementation level. For the left lesioned signers, all of whom were aphasic for ASL, strong dissociations emerged between their capacities for sign language and their non-language gesture and motor capacities. All the signers performed normally on a test of pantomime recognition and yet showed impairment in the comprehension of ASL. In one or two cases of right hemisphere lesioned signers, they did notice linguistic and visuospatial interactions in that some of the spatial disturbances in one patient did affect her signing ability. The authors opined that on the whole the studies they reviewed clearly established the fact that processing visual-gestural

language is also mediated by the anatomical structures in the left hemisphere and that the specialization of the left hemisphere for language appears independent of the language modality. They have stated that more studies are needed to obtain a clearer understanding of neural substrate underlying linguistic use of limb movement. For a more recent study of hemispheric organization in deaf signers for visuospatial vs. linguistic processes see Hickok, Kirk and Bellugi (1998).

While all the studies reviewed above seem to suggest that there seems to be something like symbolic (representational) cognition that is mediated primarily by structures in the left hemisphere of a majority of (oral and sign) language users, it is important to remember that little or no attempt has been made by most of these researchers to examine the task related and subject-related variables. There has been a lot of rethinking on the question of functional asymmetry. For instance, Segalowitz and Berge's (1995) review of electrophysiological studies in infants and early childhood revealed that there exists a distinction between simple dominance, exclusive dominance and complementary dominance; that the clinical and experimental work based on adults makes use of simple and exclusive dominance and ignores the issue of complementary dominance; that the complementary pattern of dominance displayed by infants may change as they grow older with the direction of change depending on the specific details of the information processing under question. While this tripartite distinction may not be relevant for all kinds of functions, it may be very crucial when we begin to pay attention to specific modes of information processing. Sergent (1995) illustrated this point in relation to the issue of face processing. He pointed out that this task involved not just recognition of physiognomic features or

attributes, but also semantically derived stored biographic memories about the individual faces. While the right hemisphere plays a special role in the initial storing of facial information, both the hemispheres are equally important for permanently stored facial information. If the dependent variable is accuracy, then one can expect right hemisphere superiority, but that evidence is available to show that left hemisphere is involved in the processing of faces in experiments using latency as the main dependent variable. While unilateral brain damage subjects display right hemisphere dominance for face processing, split brain patients display that both the hemispheres are equally involved in processing faces.

During the last decade, researchers involved in the investigation of the relationship between communication (including both verbal and nonverbal aspects) and cognition have discovered that numerous body movements, especially hand gestures, head nods and posture changes accompany and shape speech production process not only in face-to-face communication, but also during news casting on the radio and intercom conversations. Hadar (1989) for instance argued that the cognitive processes underlying speech could manifest in two parallel modalities – voice and gestures and that these co-verbal processes facilitate lexical selection and regulate prosodic features. While he initially distinguished between lexical movements representing iconic coding where the form of the hand movement depicts some aspects of the word's meaning and motor movements which do not have a straight forward message and therefore are context dependent, subsequent research (see Hadar 1992) a more elaborate

typology of coverbal gestures was proposed. This typology is illustrated in figure – 1:

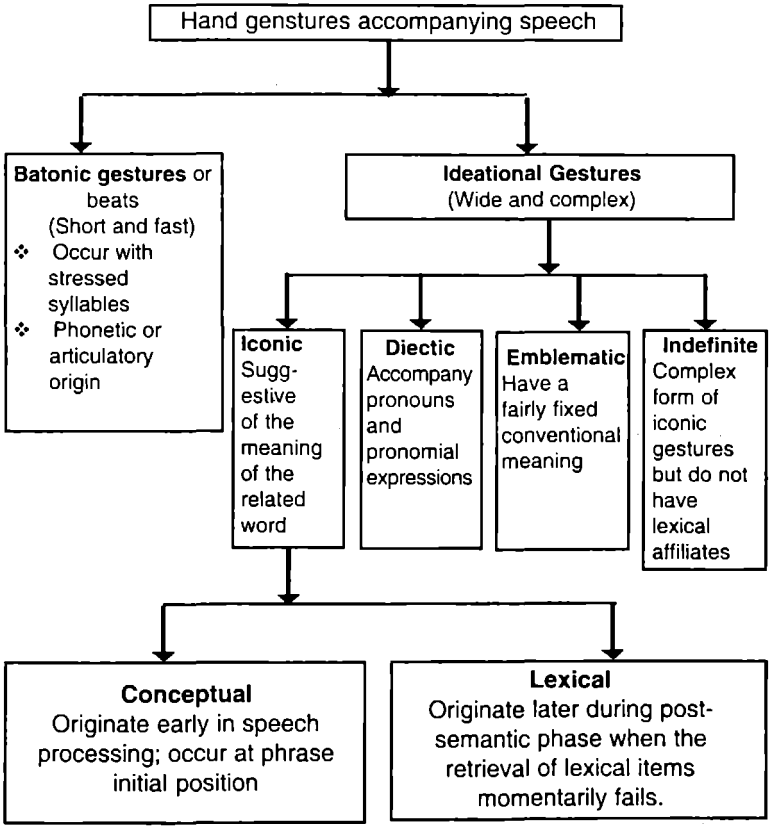

Figure –1: Typology of coverbal gestures

Hadar and Yadlin-Gedassy (1994) studied the structure, location and processing stages in which gestures occur in two right handed left hemisphere damaged Hebrew speaking aphasics and a group of unimpaired control subjects. Patients with primarily lexical problems produced gestures with greater semantic specificity compared to patients with conceptual deficits. The results suggested that gestures reflect

an effort to facilitate speech processing in the impaired components, but the specific mechanisms (abstract motor schemata, kinesthetic-proprioceptive representations, visual imagery etc.) underlying the various gestures was not clear.

In a subsequent study, Hadar and Butterworth (1997) argued that if the gesture production is coordinated with idea sized units, it must originate in the preverbal processes underlying message construction; whereas, if it is coordinated with a single word, then it may originate in the later stages of speech processing (post-semantic) where words are being planned. Further, aphasia (being a disorder affecting central symbolization processes) should affect gestures only where preverbal processes are affected. Incorporating these arguments they proposed a model relating iconic gestures to speech production process. This model made a prediction that while patients with semantic difficulties will produce more pre-verbal (conceptual) gestures while those with deficits in retrieving phonological word forms will produce more post-semantic (lexical) gestures which will be assisted by imagistic information.

These predictions were borne out in a subsequent study reported by Hadar et al (1998a) involving three groups of brain-damaged aphasic patients and matched controls. The aphasic patients were differentiated into conceptual group with relatively good naming but poor comprehension abilities; semantic group where the problem was mainly naming and a phonological group with problems in repetition. In all the cases, non-verbal abilities were fairly well preserved as evident in their test scores. The results lent support to Hadar and Butterworth's (1997) model. Specifically, ideational

gestures which originate early in the processing of communication intention (conceptual gestures) arise during prelinguistic message construction and they tend to be indefinite, sort of ill-shaped iconic gestures, whereas, those which arise in the later stages of speech processing during lexical retrieval (lexical gestures) tend to be iconic and it is these gestures which facilitate lexical retrieval. On the whole the results suggested that the conceptual mechanisms are normally responsible for holding gesture onset until the communicative intention reaches sufficient clarity for lexical selection to take place. If there is a deficit in conceptual processing (as in some clinical types of aphasia), gesture may be released even before the lexical selection has been made; there will then be more conceptual processing after the item has been selected resulting in a mis-match between gesture shape and speech content.

Hadar et al (1998b) reported yet another study, this time involving two groups of patients, four with damage to the right hemisphere (no aphasia), four patients with damage to left hemisphere (aphasics) and a group of non-brain damaged controls whose native language is Hebrew. A series of visual imagery, visuospatial and linguistic tasks were administered and the responses were videotaped and analyzed for ideational content, timing in relation to speech and physical properties. The aphasic group produced large number of ideational gestures compared to the visuospatial group with normal controls showing an intermediate value. It was noted that while the composition of the ideational gestures was similar among aphasics and the controls, visuospatial group produced less iconic gestures. That is, they produced less number of gestures which show in their form the content of a

word or a phrase. The authors concluded that gestures facilitate word retrieval as well as reflect the transfer of information between propositional and non-propositional representations during message construction. In other words, conceptual and linguistic operations during the speech production process probably get re-encoded in a visuospatial format to produce ideational gestures. The next step is to look at the kind of words (grammatical class) facilitate or inhibit gestures along side their production.

Hadar and Krauss (1999) undertook an exhaustive analysis of 408 lexical affiliates (the speech unit related to an iconic gesture) spontaneously produced by both healthy adults and three groups of 17 brain damaged subjects who participated in their earlier (Hadar et al 1998b) study. Among the seven different categories of lexical affiliates (concrete nouns, abstract nouns, manual verbs, other verbs, adjectives, quantifiers and prepositions), the category with the highest proportion of lexical affiliates was verbs, especially the manual verbs; followed by concrete nouns and then prepositions. Even in their speech samples, the patients exhibited greatest proportion of lexical items which were verbs then concrete nouns and then prepositions. The results also revealed that non-propositional representations (visual imagery, motor schemata and spatial representations) were responsible for greater proportion of iconic gestures in the aphasic groups compared to those with visuospatial deficits. In all the groups, the category with the highest proportion of lexical affiliates was verbs. Based on these observations, the authors made certain modifications to their earlier model representing the relationship between iconic gestures and speech production process.

Research reviewed in this section underscores the futility of viewing language as being a purely linguistic activity involving storage, processing and transformation of verbal messages; speech production is mediated not by processes underlying symbolic representational knowledge located in a module in the left hemisphere, instead, the language user is constantly deploying mechanisms that draw on visual imagery, motor cognition as well as symbolic cognition in communicating with others. The importance of studying gesture in attempting to know what a child 'knows' but is not able to verbalize has been illustrated very well by Goldin-Meadow (2000) who stated thus:

"Gesture and speech form complementary components of a single integrated system, with each modality best suited to express its own set of meanings. Gesture reflects a global-synthetic image. It is idiosyncratic and constructed at the moment of speaking ... in contrast, speech reflects a linear segmented, hierarchical linguistic structure, utilizing a grammatical pattern that embodies the language's standard form and drawing on an agreed upon lexicon of words. Taken together gesture and speech offer the possibility of constructing multiple representations of a single task. These representations prove to be useful particularly in domains that lend themselves to visual thinking (e.g. mathematics)... some tasks that elicit gestures are likely to have components that are innate (e.g. number) whereas others have components that are not (e.g. a board game). The fact that gesture is found in both situations (in children) may mean that it has the potential to be involved in innately driven as well as non-innately driven learning—i.e., to be a general mechanism of cognitive growth" (P. 237).

IMPLICATIONS

For quite some time researchers have been expressing discomfort about the received notions regarding the limited role of right hemisphere in language (see for instance the set of articles edited by Perecman (1983) and have offered alternative conceptualization of the role of cortical and sub-cortical structures in language functions (e.g. Lem 1992). These conceptualizations have not been able to contribute to theory / model building or construction of neuropsychological tests that draw on the whole-brain view of language use. We have undertaken this critical review of research with a hope to help concerned professionals to evolve new ways of conceptualizing neurodevelopental disorders like the *WS*. The research reviewed in this paper has clearly pointed out that the often reported dissociation between language and spatial cognition in WS is in part, a result of (1) unquestioned acceptance of the notion, hemispheric specialization (without making distinction between dominance vs. capacity) of cognitive functions, (2) the assumption that cortical structures alone subserve higher mental functions, (3) the belief that speech production has little or nothing to do with non-verbal / co-verbal behviours that accompany speech (4) reliance on assessment procedures that endorse cognitive modularity which ignore the differences in processing demands of different tasks (5) assumption that individual differences in cognitive skills are of little relevance to the diagnosis or treatment issues. Some of the issues raised in this review should contribute not only to a better understanding of WS, but to model-building in pediatric cognitive neuropsychology in our context.

At the clincial level, some of the points we have raised have a direct bearing on test construction. It has been noted (Obrzut and Hynd, 1986) that the research procedures used in child neuropsychology are valid provided they show (1) that the degree of impairment of the assumed responsible underlying brain function is commensurate with the severity of the child's problem, (2) that the types of difficulty encountered are face-valid expressions of deficiency in the hypothesized basic function, (3) that the child has been used as his / her own control and (4) that wherever possible, new technologies are used to measure brain-behaviour correlates keeping in mind variables relating to the task parameters, the subject and the expected response. We feel that one cannot say with certainty that all these criteria are being met in the assessment of children with developmental neurological disorders, WS or any other such neurodevelopmental syndromes.

The standard neuropsychological tests that are currently being used are for the most part confined to English language, meant for monolingual adult patients and are primarily word-based models. Existing adaptations (for e.g. Halstead-Reitan neuropsychological test battery or the Luria-Nebraska neuropsychological test battery for children) contain test items that are specifically designed to localize brain dysfunction such as motor functions, acoustic-motor organization, tactile and visual functions, receptive and expressive language functions and so on. It is not possible for instance, to assess separately, the various levels of processing within a task like visual processing of faces taking into consideration the various task-related, subject-related and procedure-related variables.

One may ask whether it is possible at all to assess a patient's ability to perform in tasks of varying linguistic processing load where all other factors are kept constant except the degree of processing ? In the context of a discussion pertaining to aphasia, Kennedy (1996) commented that she is not aware of a single model in aphasiology that outlines the language processing and its operation across a range of tasks. But she cited a developmental model that Karmiloff-Smith developed some ten years hence. Karmiloff-Smith (1986) proposed four levels of representation in the language processing system. From lowest to highest developmental order, these levels include: (1) linguistic representations which cannot be operated upon separately (no assessment procedures available); (2) primary explication – the process by which the representations can be accessed internally (real time lexical decision tasks); (3) secondary explication – the process by which representations can be accessed consciously (word-picture matching) and finally (4) tertiary explication – where links or commonalities across codes can be drawn (semantic similarity judgments). It must be noted that these levels do correspond to some of the mainstream models of speech production in psycholinguistic research.

We would like to conclude this paper by stating that a better characterization of WS demands that we develop neuropsychological tests that can be adapted to individual cases; tests that make a distinction between automatic processing from intentional or conscious processing; tests that specify the aspect of language that is being assessed; aspect of processing load of the task (e.g. in the case of a lexical decision task the processing load is relatively less compare to a task involving semantic similarity judgment); tests that

specify the level of response expected and the decision making involved; tests that tap metalinguistic as well as non-linguistic or paralinguistic aspects of communication; tests that draw on the differential strengths and weaknesses of a multilingual patient with respect to the various languages with which he / she is familiar with. All of this calls for much interdisciplinary research.

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Verbal fluency measures: A comparative study of the performance of young and older English speaking adults

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Introduction

It is used to classify elderly adults as fitting into stereotypical patterns of behavior but research has shown that they are heterogeneous as far as their language skills are concerned. Generally there appears to be a slight decline in comprehension skills from the third to the fifth and into the seventh decade of life. This decline may be linked with stresses that operate on the individual's cognitive and / or linguistic systems including reduction of redundancy, organization, the presence of external or internal noise or increasing demands on working memory (Au and Bowles, 1991).

Although linguistic behavior is thought to remain stable among healthy adults in later life, age-related sensory and cognitive changes can impair linguistic performance. Both earlier and current research with basic lexical and semantic processes suggests that the semantic component of language is more compromised by chronological aging than are other skills such as syntax and phonology (Au and Bowles, 1991' Bayles and Kazniak, 1987; Benjamin, 1988).

Review of Literature

Verbal fluency measures usually constitute part of the battery for adult language testing. Two types of time limited word production tasks are involved: semantic fluency and phonemic or formal fluency. The former requires subjects to name items from a given semantic category while in the latte subjects have to produce words beginning with a given letter. Both the tasks require an access to the lexical memory and retrieval of lexical items following the instructions given. However, search strategies differ according to the semantic and phonological nature of the particular task (Cardebat et al, 1966).

Verbal fluency measures have been carried out to study productivity as well as semantic organization. Phonological word fluency tasks have been considered to involve the following:

a) the ability to retrieve from verbal memory;
b) adequate word knowledge from which to select'
c) immediate attention to initiate the generation of words;
d) executive ability to coordinate this process and working memory (Ruff, Light, Parker and Levin, 1990).

It has also been observed that word fluency can vary with different letters. Borkowski, Benton and Spreen (1967) found that the letters J and U yielded fewer words on fluency tasks as compared to the letters F, S, P and T. This was attributed to the fact that there were fewer words that begin with J and U as based on Thorndike-Lorge norms reported

for English language. On the other hand, F, S, P and T have relatively high frequency rates as found in normal subjects. Normative data for different cultures and age groups have been established by various investigators.

Semantic fluency tasks can easily be adapted into different languages. It has been used in studies of bilingualism (Roberts and Le Dorze, 1997), to evaluate semantic abilities in children (Gaddes and Crockette, 1973) and neurologically impaired persons (Wertz, 1979). Martin and Fedio (1983) have used fluency tasks in assessing language deterioration in dementia while other like Adams, Reich and Flowers (1989) have used it with aphasic subjects. Two well known aphasia tests in English (Goodglass and Kaplan, 1983; Kertesz, 1982) use an animal naming task while naming foods and items in a supermarket is an established method of assessing language deterioration (Martin and Fedio, 1983).

Word fluency measures are considered to be most sensitive for disclosing cerebral dysfunction. Data obtained from patients with focal lesions have provided a basis to infer that the left frontal areas are involved in phonological verbal fluency (Benton, 1968). Benton reported that those patients who had frontal lobe lesions displayed poorer performance on verbal fluency than patients with lesions in other areas. A later study provided evidence that lesions in the left hemisphere were more disruptive to fluency than those in the right hemisphere. With regard to semantic fluency, Joannette, Goulet and Le Droze (1988) compared the performance of patients with right- sided brain damage to normal subjects and reported that the former were impaired to a greater extent. The right hemisphere was thus inferred to play an important role in semantic fluency.

Aim:

The present study was aimed at comparing phonemic and semantic fluency measures in young and older English speaking individuals. It was hypothesized that age would not significantly impact performance on phonemic and semantic fluency in terms of speed and accuracy.

Methodology

Participants:

The participants included two groups of English speaking volunteers. One group comprised 31 healthy young individuals, male and female, in the age range of 18-28 years (Mean age = 21.8 years). The second group consisted of 34 older individuals, male and female in the age range of 65-98 years (Mean age = 76.9 years). Of these, 16 were in the 65-74 age group (Group 1), 10 in the 75-84 age group (Group II) and 8 were +85 years and above (Group III). All the subjects fulfilled the following criteria:

a) Had no significant history of neurological disorders, head injury, psychiatric illness or alcohol abuse.
b) Had normal / corrected vision and could see well enough to read a typed sentence.
c) Had no known hearing impairments. The older subjects were administered a speech discrimination test in which they had to discriminate speech well enough to obtain 80% accuracy on a Phonetically Balanced (PB) word list (ISHA, 1990).
d) Used English as their primary language of communication as determined using a Language history and use questionnaire.

e) Had at least 12 years of education in the case of young subjects, and a minimum of 8 years of education in the case of the elderly subjects.
f) Were active, alert and lived independently or with their families.
g) Did not report any memory problems.

Stimuli:

The test stimuli comprised 3 letters (F, A, S) and 2 categories (ANIMALS and FOOD) for the phonemic and semantic fluency measures, respectively.

Procedure:

A stopwatch with a provision to measure in micro milliseconds was used for the investigation. The stimuli were presented individually after the following instructions were provided:

"I will give you a letter of the alphabet, you will then have one minute to say as many words as possible that begin with that letter. For example, if I say the letter 'B' you should say "book, bull, boat" and so on. Do not give proper names. Please begin after I say the letter".

The instructions were modified for the second subtest as follows:

"I will give you a category. You will then have one minute to say as many words as possible that belong to that category. For example if the category is "vehicle" you could

say "car, bus, brain" and so on. Do you have any questions? Please begin after 1 say the category".

All the responses were recorded using a Philips portable stereo tape recorder with an external microphone. The order of the presentation of the test stimuli was randomized.

Scoring:

Phonemic and semantic fluency was measured in terms of the number of words generated in one minute. The number of correct responses for each stimulus was determined by analysis of the samples and recorded on the subject's data sheet. The number and type of error responses were also noted. This included out-of category errors, nonwords/errors, comments and questions about the task during the test.

Results and discussion:

Results of the descriptive statistics revealed that on the phonemic fluency tasks, the performance of the younger group was better than that of the older group. On the letter F, younger subjects obtained a mean of 16.16 (S.D. =4.3) while the other group scored 14.29 (S.D. = 5.83). the younger group achieved a mean score of 14.84 (S.D. =5.64) on the letter A while the older group obtained 11.35 (S.D. =4.93). On the other letter S, younger subjects were ahead with a mean of 19.3 (S.D. = 4.3) whereas the older group obtained a mean of 15.21 (S.D. =5.22). It may be noted that the variability on this task was relatively high but confined between 4.3 and 5.83 for both the groups.

To determine whether the differences observed were statistically reliable, one way Analysis of Variance was carried out. This was followed by application of Duncan's test in order to establish which combination of groups differed in performance. The results of the one way Analysis of Variance and Duncan's test for each of the three stimuli that were employed to test phonemic fluency are reported below.

i) Letter F

The letter F yielded significant differences in verbal fluency scores between the younger and older groups on ANOVA ($F(3,61) = 5.338$; $p<0.05$).

To study the difference in performance between pairs of individual groups on this measure, Duncan's post hoc test for homogenous subsets was applied. Mean scores of three age groups fell into one subset with the older group- II scoring highest (16.6), followed by the younger group (16.39), and followed next by the older group-I (15.5). The older group-III made up the other subset with a mean score of 9.0. The latter thus differed significantly from the other groups at $p<0.05$ levels.

ii) Letter A

For the letter A, a significant difference between the means of the different age groups was found on the ANOVA: ($F(3,61) = 4.68$; $P<0.05$). On Duncan's post hoc test, two different subsets emerged at $p<0.05$ level. The younger group with a mean score of 15.03 together with the older groups- I and –II with mean scores of 12.5 each, merged into one subset.

The scores of the older group- III (7.63) fell into the other subset, indicating that it differed significantly from the other age groups. The trend of individual age groups showed that phonemic fluency of A decreased as age increased. It was also observed that on this letter of the alphabet both younger and older groups appeared to score lower.

iii) Letter S

ANOVA yielded a significant difference between the means of the younger and older groups for verbal fluency on the letter S ($F(3,61) = 7.829$; $p<0.05$).

To study the difference between individual age groups, Duncan's post hoc test was utilized. The younger group attained the highest mean score of 19.0 followed by the older group-I with a mean score of 17.81, both being placed in one subset. In the other subset were the mean scores of older group-II and older group –III, 14.1 and 11.38, respectively. All the age groups differed significantly from each other at $p<0.05$ level. The man scores of individual groups showed a clear trend of verbal fluency decreasing steadily as age increased. All the age groups except older group –II attained their highest scores on the phonemic fluency task on 'S'.

The three letters it appears presented similar degree of difficulty to the younger and older groups. S was found to be most facilitative, F was next in other while A was least of the three.

Qualitative differences in responses between the younger and older groups wre not readily apparent. Both

groups used more concrete nouns. For instance, for the prompt F older subjects' responses generally included the following: father, fall, fog, fan, fish, food, fellow, fry, family, fool, fire, fame. Younger subjects more often produced words such as fun, fair, festival, feast, figure, freebies, freedom, finger chips, fragrance, franchise, foreign.

4.3.1.2 Semantic Fluency

Semantic fluency measures were obtained for two categories namely, ANIMAL and FOOD. The number of words that the subjects could generate in one minute in response to each spoken category was taken as a measure of semantic fluency.

Results revealed the following:

i) In the ANIMAL category, younger subjects had a mean of 20.48 (S.D. =3.64) while the older group attained a mean of 15.53 (S.D. =3.79). Variability was moderately high but approximately equivalent in both groups.

ANOVA revealed that the difference between the means of the groups for ANIMAL category was highly significant ($F(3,61) = 19.01; p<0.05$).

Duncan's post hoc test was applied for multiple comparisons between age groups. The younger group fell in a separate subset with a mean score of 20.48. The older groups –I and –II appeared in the second subset with mean scores of 16.75 and 17.20, respectively. The older group –III was placed in the third subset and had a mean score of 11.0. All the age

groups differed significantly at $p < 0.05$. The trend of scores indicated that as age increased, the verbal fluency scores decreased except for the older group –II who scored higher than the older group –I.

ii) for the FOOD category, while the younger group achieved a mean of 22.52 (S.D. =4.82), the older group obtained a mean of 17.91 (S.D. =5.88). The groups were not homogeneous as deduced by the fact that variability was on the higher side with the older group showing larger standard deviations.

Responses to FOOD category were analyzed using one way Analysis of Variance. The significant difference between the means was indicated by the F statistic ($F(3, 61) = 10.365$; $p<0.05$).

Two subsets resulted on applying Duncan's test. Three age groups including the younger group, older groups-I and –II fell into one subset with mean scores of 22.45, 19.75 and 19.9, respectively. The older group –III obtained a mean score of 11.75 and stood alone in the other subset. The latter thus differed significantly from the other age groups. The trend is similar as it was for the ANIMAL category. However, overall scores were higher for this category than for the former.

Thus, on all the verbal fluency tasks, the older group of subjects was found to perform significantly poorer than the younger group. Most often the differences were owing to the performance of the older group –III.

Thus, on all the verbal fluency tasks, the older group of subjects was found to perform significantly poorer than the younger group. Most often the differences were owing to the performance of the older group –III.

Some differences in the quality of responses of the two experimental groups were observed. In response to FOOD older subjects generally showed preference for items that comprised their daily diet including vegetables, meats, and fruits. Younger subjects named Western food, exotic restaurant food, desserts and delicacies. On the other hand, ANIMAL did not elicit obvious qualitative differences in responses. Both groups named mammals, replies and birds in response to the prompt.

Error Analysis

The audio taped samples were analyzed for number of errors and error types including repetitions, out-of-category errors or non-words. This was done in an attempt to examine whether the subjects were able to monitor their output and their general accuracy. Also the number of comments offered and questions asked during the task were noted in order to check their ability to apply themselves to the task. It was expected that older subjects would show more repetitions on account of their commonly reported memory problems in remembering the words they had already generated. A greater number of errors as well as comments from this group were anticipated in the light of their well-known propensity for verbosity. Table 4d displays the results of the analysis.

Stimuli	Subjects	Number and types of error responses			
		Repetitions	Out-of-Category/ Non word	Comments	Total
F	Younger	1	0	11	12
	Older	20	2	30	52
A	Younger	2	1	14	17
	Older	14	5	26	45
S	Younger	1	0	5	6
	Older	20	2	21	43
ANIMAL	Younger	5	13	26	44
	Older	17	3	37	57
FOOD	Younger	1	6	24	31
	Older	11	0	22	33

Table 1: Number and types of errors made by younger and older subject on the verbal fluency tasks in English

As is apparent from the table, the older subjects produced more repetitions than the younger subjects on both the phonemic and semantic fluency tasks. Out-of-category errors/ nonwords occurred in both groups to almost the same extent, except in the case of ANIMAL. The greater number of errors in this case were on account of one younger subject generating the names of insects and micro-organisms. The older subjects made a larger number of comments than the younger subjects, which is obvious on the phonemic fluency tasks. In the case of A both the groups not only demonstrated lower fluency scores but also high number of error responses. On the semantic fluency tasks, both the younger and older groups commented equally.

The older group therefore appeared to have difficulty monitoring their output resulting in a substantial amount of repetitions on both the phonemic and semantic fluency tasks. Comments and questions were obviously greater in the older group of subjects for the phonemic task. However, on the semantic task both groups showed almost comparable numbers of comments and questions in excess of 20. It is possible that both the groups demonstrated verbosity here as a reaction to their perceived lack of productivity.

Conclusion

In the present study it was found that as age advanced significant deterioration was found in performance on phonemic and semantic fluency tasks. Apparently deterioration results when time constraints are applied or imposed. That older adults gave fewer responses than young adults on fluency tasks has also been observed by a number of other researchers. Howard (1980), Riegal and Birren(1966), Schaie and Parham (1977), Schaie and Strother (1968) amongst others, attribute the phenomenon to the older persons requiring longer time for retrieval of particular words. However, according to Obler and Albert's (1981) findings, some elderly individuals when given more time for semantic fluency tasks, could perform as well as young subjects. There are opposing view points as well. Drachman and Leavitt (1972) and Eysenck (1975) in their studies on verbal fluency measures, did not find age differences.

Further research may throw more light on the intricacies involved in verbal fluency measurements and their theoretical implications.

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Adjectives and adjective complements in Telugu[1]

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Introduction

We know that the syntactic analysis, in a way, depends on the identification of different functional elements that constitute a sentence. Each element is distinguished from the rest based on its exclusive syntactic function. Thus, the complement, as one of the syntactic elements, has a function in which it completes a reference to another syntactic element. Depending on the specific syntactic needs of a language, we need to recognize different types of complements. This paper, without relying on any theory, provides a brief description of adjectives and adjective complements in Telugu.

Members of adjective class in Telugu

To begin with, let us look into those words that can be distinguished as members of adjective class in Telugu. For this, we need to employ three distinct but necessary criteria, i.e. semantic, syntactic, and morphological.

Semantic criterion

Adjectives, semantically speaking, are any words that add more information about nouns (or pronouns) by restricting their range of meaning. Consider the examples (1) and (2):

1. *Takkari nakka*
   cunning jackal
   'a cunning jackal'
2. *adi musalidi ayyiMdi.*
   it old became
   'It became old.'

In example (1) the adjective *Takkari* is restricting the meaning of the noun *nakka* and in example (2) the adjective *musalidi* is restricting the meaning of the pronoun *adi.*

Further we should note that adjectives in Telugu, depending on the meaning to be expressed, can have their meaning modified by what could be called intensifying words such as *cālā*, *ati*, and *mahā* as shown respectively in examples (3), (4), and (5):

3. *avi cālā cinna iLLu.*
   those very small houses
   'Those are very small houses.'
4. *ati cakkani ammāyi*
   exceedingly pretty girl
   'an exceedingly pretty girl'
5. *ā ceTTu modalu mahā lāvu.*
   that tree base extremely large
   'The base of that tree is extremely large.'

Now consider the examples given in (6-11):

6. *cinna kukka*
   small dog
   'a small dog'

7. *tappipōyina kukka*
   stray dog
   'a stray dog'
8. *vīdhi kukka*
   street dog
   'a street dog'
9. *amāyakulaina ammāyilu*
   innocent girls
   'innocent girls'
10. *aMdamaina ammāyilu*
    beautiful girls
    'beautiful girls'
11. *baMdīlaina ammāyilu*
    captive girls
    'captive girls'
12. *caccipōyina jaMtuvulu*
    dead animals
    'dead animals'
13. *alasipōyina jaMtuvulu*
    tired animals
    'tired animals'

Here, the words *cinna*, *tappipōyina*, and *vīdhi* as given in (6), (7), and (8) respectively are restricting the meaning of the noun *kukka,* the words *amāyakulaina, aMdamaina* and *baMdīlaina* as given in (9), (10), and (11) respectively are restricting the meaning of the noun *ammāyilu,* and the words *caccipōyina* and *alasipōyina* as given in (12) and (13) respectively are restricting the meaning of the noun *jaMtuvulu*. Though, in this case, *cinna*, *tappipōyina*, *vīdhi*, *amāyakulaina, aMdamaina, baMdīlaina, caccipōyina,* and *alasipōyina* are used to restrict the meaning of a noun, they all, however,

cannot equally be assigned to the adjective class in Telugu. The reason is that four of them, i.e. *tappipōyina*, *vīdhi*, *baMdīlaina*, and *caccipōyina* do not collocate with any one of the intensifying words. Thus, the following expressions given in (14-21) are fine for *cinna*, *amāyakulaina*, *aMdamaina*, and *alasipōyina*, but totally unacceptable for *tappipōyina*, *vīdhi*, *baMdīlaina*, and *caccipōyina*:

14. *cālā cinna kukka*
very small dog
'a very small dog'
15.**cālā tappipōyina kukka*
very stray dog
16.**cālā vīdhi kukka*
very street dog
17. *cālā amāyakulaina ammāyilu*
very innocent girls
'very innocent girls'
18. *cālā aMdamaina ammāyilu*
very beautiful girls
'very beautiful girls'
19.**cālā baMdīlaina ammāyilu*
very captive girls
20.**cālā caccipōyina jaMtuvulu*
very dead animals
21. *cālā alasipōyina jaMtuvulu*
very tired animals
'very tired animals'

Syntactic criterion

Syntactically adjectives can occur in noun phrases and also in clauses containing linking verbs.[2] Let us first consider the following examples (22-25):

22. *nā **pāta** baTTalu ekkaDa unnāyi?*
    my old clothes where are
    'Where are my old clothes?'
23. *nenu mī **kotta** iMTini cusānu.*
    I your new house (acc) saw
    'I have seen your new house.'
24. *ivi **mettani** diMDLu.*
    these soft pillows
    'These are soft pillows.'
25. *doMga atanni **cinna** kattitō poDicāDu.*
    thief he (acc) small knife-with stabbed
    'The thief stabbed him with a small knife.'

Here the underscored strings of words, i.e. *nā pāta baTTalu, mī kotta iMTini, mettani diMDLu*, and *cinna kattitō*, are representing noun phrases in which the words shown in ***bold italics***, i.e. *pāta*, *kotta*, *mettani*, and *cinna*, are adjectives. Adjectives thus occurring in noun phrases are called **attributive adjectives**. Normally attributive adjectives occur pre-nominally. However, we find some of the attributive adjectives occurring post-nominally if the noun phrases in which they occur are accusative and the clauses to which they belong to have verbs such as *cēyu* 'to make' and *uMcu* 'to keep' as exemplified in (26-27):

26. *āme vāTini aMdaMgā cēsiMdi.*
she they (acc) beautiful made
'She made them beautiful.'
27. *atanu dānni cālā shubhraMgā uMcutāDu.*
he it (acc.) very clean keeps
'He keeps it very clean.'

The structure of a noun phrase that optionally includes both a demonstrative, such as *ā* 'that' and *ī* 'this', and an adjective can normally have the schema as shown in (28):

28. **(demonstrative) + (adjective) + noun**

The example given in (29) is illustrative of the schema shown in (28):

29. *ā amūlyamaina vajraM*
that priceless diamond
'that priceless diamond'

But in a context where the adjective takes the focused status, the structural schema shown in (28) gets modified as shown in (30) given below:

30. **(adjective) + (demonstrative) + noun**

This structure can be illustrated by the example (31) where it is shown with an underscore:

31. *amūlyamaina ā vajraM ekkaDō paDipōyiMdi.*
priceless that diamond somewhere fell-down
'That priceless diamond fell down somewhere.'

Adjectives that occur in clauses containing linking verbs are distinguished from attributive adjectives and are called **predicative adjectives** (for further information on predicative adjectives in Telugu, see Vijayanarayana 1995, 2005). Consider the following examples (32-41) given below:

32. *adi nāku* ***maMcigā*** *anipiMciMdi*.
    that I (dat) nice sounded
    'That sounded nice to me.'
33. *ā taruvāta atanu mā aMdariki*
    that after he we (gen) all (dat)
    ādarshavaMtaMgā *uMDipōyāDu*.
    idealistic remained
    'After that he remained idealistic to all of us.'
34. *amala kamala kanna* ***aMdaMgā*** *uMdi*.
    Amala Kamala than beautiful is
    'Amala is more beautiful than Kamala.'
35. *ī kāru* ***pātadi/pātagā*** *ayyiMdi*.
    this car old became
    'This car became very old.'
36. *ippuDu āme* ***oMTarigā*** *migilipōyiMdi*.
    now she lonely remained
    'Now she remained lonely.'
37. *ī pani* ***kaSTaMgā*** *anipistuMdi*.
    this task difficult seems
    'This task seems very difficult.'
38. *āme* ***amāyakaMgā*** *agupaDutuMdi/kanapaDutuMdi*.
    she innocent looks
    'She looks innocent.'
39. *ī diMDLu* ***mettanivi*** *kāvu*.
    these pillows soft are-not
    'These pillows are not soft.'

40. *āme nāku* ***ārōgyavaMtaMgā*** *kanipiMciMdi.*
she I (dat) healthy appeared
'She appeared healthy to me.'
41. *atanu* ***lāvugā*** *tayārayyāDu.*
he fat became
'He has become fat.'

The underscored words in (32-41) are illustrative of linking verbs in Telugu and the words shown in ***bold italics*** are predicative adjectives. It should be noted that if the linking verb *avu* 'to be' and the predicative adjective are used in clauses expressing positive proposition, the former can only be realized covertly. In this respect, compare the examples given in (42) and (43) below which respectively represent positive and negative propositions:

42. *idi tēlikaina pani.*
this easy business
'This is an easy business.'
43. *idi tēlikaina pani kādu.*
this easy business is-not
'This is not an easy business.'

Simple adjective phrases

When we talk of simple adjective phrases in Telugu, they either consist of a single adjective or an adjective modified by one of the intensifying words. Thus the schema for a simple adjective phrase can be represented as shown in (44):

44. **(*cālā/ati* etc) + adjective**

Notice, in this schema the intensifying word, because it is optionally used into the adjective phrase, is shown in brackets. In the following examples (45-50) the underscored items are illustrative of the simple adjective phrases in Telugu:

45. *ī karra tēlikagā uMdi.*
this wood light is
'This wood is light.'
46. *ivi sunnitamaina viSayālu.*
these sensitive matters
'These are sensitive matters.'
47. *nuvvu bhayaMkaraMgā kanapaDāli.*
you frightful must-look
'You must look frightful.'
48. *ī karra cālā tēlika.*
this wood very light
'This wood is very light.'
49. *ī viSayaM ati sunnitamanadi.*
this matter extremely sensitive
'This matter is extremely sensitive.'
50. *ī rākSasi ākāraM*
this demoness shape
mahā bhayaMkaraMgā uMdi.
exceedingly frightful is
'This demoness' shape is exceedingly frightful.'

Morphological criterion

Adjectives in Telugu do not have a distinctive morphology which can really help us in differentiating them from other class of words. However, some of the adjectives, because of the derivational or syntactic necessity, show inflectional

variation for person-number-gender. Some attributive adjectives end in derivational affixes such as *-aina, -gala, -lēni,* and *-ina* as shown in the following examples:

51. *balamaina gālulu*
    strong winds
    'strong winds'
52. *muccaTaina raMgulu*
    attractive colours
    'attractive colours'
53. *dayagala rāju*
    benevolent king
    'a benevolent king'
54. *telivigala abbāyilu*
    clever boys
    'clever boys'
55. *telivilēni abbāyi*
    stupid boy
    'a stupid boy'
56. *dayalēni maniSi*
    unkind man
    'an unkind man'
57. *kuLLipōyina guDLu*
    rotten eggs
    'rotten eggs'
58. *pālipōyina mukhaM*
    pallid face
    'a pallid face'

Some of the attributive adjectives that end in *-aina* will also show inflectional variation. Attributive adjectives occurring in accusative noun phrases belonging to clauses containing

verbs such as *cēyu* 'to make' and *uMcu* 'to keep' end in *-gā*. Predicative adjectives occurring in conjunction with the linking verb *avu* 'to be', in most cases, will have the inflectional ending. Predicative adjectives occurring in conjunction with the linking verb *avu* 'to become' will have either the inflectional ending or *-gā* ending. Predicative adjectives occurring in conjunction with other linking verbs always end in *-gā*.

Adjective complements

Adjective complements are adjectives (or adjective phrases) that complete a reference to the subject or the direct object of the predicator within a clause. In the former context, adjective complements are called **subject complements** and in the later context, they are called **object complements**. Subject complements are predicative adjectives (or predicative adjective phrases) that occur between subjects and predicators in the **subject + subject complement + predicator** clause pattern. As an illustration, consider the dependent clause shown in square brackets in example (59):

59. *atanu [dānni cālā ākarṢaNīyaMgā*
he it (acc) very attractive
kanapaDēlā] *cēsāDu.*
to look-such as made
'He made it such as to look very attractive.'

Notice, this dependent clause, which in fact is a sentential object of the main predicator *cēsāDu*, basically consists of three syntactic elements, i.e. subject represented by *dānni,* subject complement represented by *cālā ākarSaNīyaMgā*, and

predicator represented by *kanapaD(u)*. Also notice that it is the conjunction *ēlā* that joins this dependent clause to the main clause of the sentence.

Unlike subject complements, object complements are attributive adjectives (or attributive adjective phrases). They occur between direct objects and predicators in the **subject + direct object + object complement + predicator** clause pattern. Now consider the example given in (60):

60. *atanu dānni cālā peddadigā/peddagā cēsāDu.*
he it (acc) very big made
'He made it very big.'

Notice, in this clause, subject, direct object, object complement, and predicator are respectively represented by *atanu, dānni, cālā peddadigā/peddagā,* and *cēsāDu.*

Remember, adjectives as subject complements are found in clauses containing predicators represented by linking verbs and on the other hand adjectives as object complements are found in clauses containing predicators represented by the verbs such as *cēyu* 'to make', *uMcu* 'to keep', *mārcu* 'to change' and *bhāviMcu* 'to consider'. Obviously, attributive adjectives which occur pre-nominally in noun phrases have to be distinguished from the rest of the adjectives because they can not attain the status of adjective complements.

Abbreviations

acc = accusative; dat = dative; gen = genitive

Notes

1. An earlier version of this paper was presented at the 6th International Conference on South Asian Languages (ICOSAL – 6), held during January 6-8, 2005, organized by the Department of Linguistics, Osmania University, Hyderabad, in collaboration with CIIL, Mysore, University of Hyderabad, CIEFL, P.S. Telugu University, Telugu Akademi, and CHI, Hyderabad, India.

2. For the purpose of this paper, we ignore the fact that in Telugu more than one adjective can occur in a given syntactic context and we also ignore the fact that few adjectives such as *maMci* 'good', *cinna* 'small', and *pedda* 'big' can be used in their reduplicated form in the context of plural nouns.

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Miscommunication due to cross dialectal variation in Telugu

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Introduction:

Communication is said to be effective and successful if there is match between the speaker's intention and the hearer's interpretation. The basic socially significant unit of interaction is referred as activity type or activity in terms of which meaning is assessed (Gumpez, 1982). The term activity is used to emphasize that although we are dealing with the structured ordering of message elements that represents the speakers' expectations about what will happen next, yet it is not a static structure but rather reflects a dynamic process which develops and changes as the participants interact. The meaning of the utterance varies during the interaction based upon the constraints laid by the activity type on the interpretations enabling the participants to make use of their background knowledge i.e. their attitudes towards each other, socio cultural assumption concerning role and status relationships as well as social values associated with various message components.

The interpretation of an utterance is effected by conversational implicatures based on conventionalized co-occurrence expectations between context and surface style. That is constellations of surface features of message forms are the means by which speakers signal and listeners interpret. What the activity is, how the semantic content is to be

understood and how each sentence relates to what precedes or follows. These features are referred to as contextualization cues (Gumperz, 1982 P.131). For the most part they are habitually used and perceived but rarely consciously noted and are never talked about directly. Therefore, they must be studied in process and in context rather than in the abstract. A contextualization cue is any feature of linguistic form, the code, dialect and style switching processes, some of the prosodic phenomenon as well as choice among lexical and syntactic options, formulaic expressions, conversational openings, closings and sequencing strategies. Unlike words, that can be discussed out of context the meaning of the contextualization cues are implicit. They are not discussed out of context. Their signaling value depends on the participants, tacit awareness of their meaningfulness. When all participants understand and notice the relevant cues, interpretive processes are than taken for granted and tend to go unnoticed. However, when a listener does not react to a cue or is unaware of its function, interpretations may differ and misunderstandings may occur. Sometimes miscommunication is possible between individuals with different dialect backgrounds whether it is social or regional. In such a type of situations when the persons do communicate successfully, it is clear that much more is involved than the mapping of internal structures or linguistic rules on to external sequences or conversely (from the listener's point of view) mapping external sequences onto internal structures (Milroy, 1977).

In this paper, certain conversations from Telugu were taken and analysed. The miscommunications resulting because of the differences in the interpretations of the speakers

and listeners were classified based upon the factors conducive to the miscommunication. The changes in the interpretations during the process of interaction leading to the successful communication were also discussed.

Cross dialectal variation in grammatical structure

It is generally believed that the differences between standard and non standard varieties are relatively superficial and can be accounted for in terms of rule addition or rule loss. Some examples of syntactic differences within British English are cited by Hughes and Trudgill (Milroy, 1977) which include differences in tense and aspectual system and in the formal distribution of individual verbs such as `have' and `do'. The question of genuine communication problems arising from structural differences of this kind is not often seriously discussed. However, in a study of the Hiberno-English perfect John Harris refers to frequent misinterpretations by Hiberno-English speakers of such standard English utterances as

How long are you staying here?

This type of structure is often interpreted as being equivalent to standard English.

How long have you been staying here?

Harris goes on to argue convincingly that there is no semantic isomorphism between any given set of Hiberno-English and Standard English sentences which exemplify the range of

perfect constructions. For example, the three sentences

a. Joe has sold the boat
b. Joe has just sold the boat
c. Has Joe sold boat

exemplify the simple perfect tense-aspect form in standard English. However, they are quite anomalous even in educated Hiberno-English and would be translated as follows:

a. Joe has the boat sold
b. Joe is just after selling the boat
c. Did Joe sell the boat?

The non-isomorphism is semantic as well as formal since for example Hiberno-English (c) is not only a translation of Standard English (c) but is also equivalent to the same standard English string. Thus Hiberno English cannot distinguish between `Has Joe sold the boat' and `Did Joe sell the boat'? However an action completed in the recent past is expressed by a construction of the (b) type. Cross dialectal miscommunications are very commonly reported which seem to be located in the disparity between the two versions of sentence (b) and these may be seen as symptomatic of a deep structure disparity between the grammars of the two dialects. This suggests that dialect grammars may sometimes be more different than is commonly supposed.

For instance, in standard Telugu, the negative verb stem lee 'to be not' is declined to PNG markers in the following way.

	Neg.existential	Neg.potential with the verb ceyyu 'to do'	Neg.marker with the verb ceyyu 'to do'
1st person (sing)	leenu	ceyya leenu	ceyya leedu
2nd person (sing)	leevu	ceyya leevu	"
3rd person masc.sg.	leeDu	ceyya leeDu	"
Non.Masc.Sg.	leedu	ceyya leedu	"
1st person (pl)	leemu	ceyya leemu	"
2nd & 3rd person (pl.)	leeru	ceyya leeru	"

In the non standard dialect PNG markers are added even in those places where lee is used as a negative marker after the verbs.

Non Standard dialect:

ceyya leenu	I did not do
ceyya leevu	you did not do
ceyya leeDu	he did not do
ceyya leedu	she did not do

Due to the difference between standard and non standard dialects in this aspect miscommunication occurs when people belonging to two different dialects happen to interact with each other. Following data is taken from the conversation between a worker who belongs to Medak district of Telangana of Andhra Pradesh (B) and the Mistress of the house (A) who hails from Hyderabad city and is standard dialect speaker.

Speaker A:	pani ceeSEEvaa?	Have you done the work
B:	ceeya leenu	I did not do (non-st. dialect)
		I cannot do (st. dialet)
A:	endukani?	Why can't you do?
B:	ceesta (non past)	I shall do it.

The speaker A has understood B's answer wrongly because in her dialect the verb *leenu* is used to express incapability whereas B actually intends negation. The negative marker *lee* is systematically declined to person and number in B's dialect whereas only *du* is added to the negative stem *lee* in A's dialect. Contextual cues (linguistic) also could not resolve the problem of communication because the response given by 'B' is quite appropriate to the context from the point of view of A's internal grammar. Therefore A has further probed by asking ***endukani***? Why can't you do? With the response to this question from B, A could get the clarification.

b. When the participants are in interaction with each other, one has to interpret through inferential process what has been said which in turn generates expectations about what is to come. This process is always context bound. The inferential process starts based on the knowledge of the physical setting, the participants and their background. These initial hypotheses are subject to modification by our perception of information signaled in both the form and the content of speech. Apart from the segmental features constituting words, phrases and clauses prosodic features like intonation, change in loudness, stress, variation in vowel length utterance chunking by pausing also play an important

role in the inferential process. Let us examine the following conversation during which the speaker A who belongs to East Godavari area and the speaker B who belongs to Telangana region, born and brought up in Hyderabad city.

Speaker A :	enni	pustakaaluu	istaa?
	how many	books	gave
	How many books did I give?		

Speaker B :	(after a while)	reNDiccav
		Two you gave
		You have given two.

A's question is misunderstood by the listener because taa- stands for the non-past tense (present and future) whereas in the speech of A it is meant for the past tense. However, there was successful communication in spite of the difference in their internal grammar. Though the listener B has taken some time to get the speaker's intention exactly, she has responded appropriately. In this case, the listener B has made use of the prosodic cues. The speaker A has lengthened the final vowel of pustakaaluu separating it out with the following verb. This has helped the listener not to interpret the verb istaa as Non-past tense. If the speaker's intention were to be non past tense, the speaker would have used ani `having said' after pustakaalu instead of lengthening the final vowel as in the case of the following sentence.

enni	pustakaalani	istaa
how many	books	can I give?

Though at the morphological level there is no difference between past and non past in the speaker A's internal grammar, the listener B could easily interpret it as the past tense. She has equated *istaa* with her *icca*.

Variation in the formulaic expressions.

Conversationalists have conventional expectations about what to count as normal and what to count as marked kinds of rhythm, loudness intonation and speech style. By signaling speech activity, a speaker also signals the social presuppositions in terms of which a message is to be interpreted. Notions of normality may differ even within a speech community. When this is the case and especially when participants think that they understand each other's words, and share the identical grammatical structure in communication resulting in mutual frustration can occur.

In the following conversation between husband (with middle class American background) and wife (British), the wife wrongly interprets the husband's utterance as she does not know the normal American speech style in that particular context. (Gumperz, 1982)

Husband:	Do you know where today's paper is?
Wife:	I'll get it for you
Husband:	That's O.K. Just tell me where it is. I'll get it.
Wife:	No, I'll get it.

The husband is using a question which literally interpreted inquires after the location of the paper. The wife does not reply directly but offers to get the paper. Here "I'll" accented and this could be interpreted as "I will if you don't". The husband counter suggests that he had intended to ask for information not to make a request. He also stresses "I'll". The wife then reiterates her statement, to emphasize that she intends to get it. The "I'll" is now highly stressed to suggest increased annoyance.

In Telugu also same phenomenon is found in the following conversations. In the following two instances the speakers A1, A2 belong to coastal area and the listeners B1, B2 to Telangana area.

Instance 1: A woman visits to console the daughter-in-law of the house, after the death of the girl's mother-in-law.

A1	mii	attagaarini	pampinceesEEv
	your	mother-in-law	caused to send

You have sent your mother-in-law.

B1 It was misunderstood and no response was given for some time.

The speaker's intended meaning was wrongly understood. It was interpreted as the speaker is holding the listener responsible for the departure of listener's mother-in-law.

Instance 2: A family friend visits the elder brother, after knowing that his younger brother has been transferred from the town

A2: mii tammuDini bayaTiki pampinceeSEEv
your younger brother outside caused to send

B2: It was misunderstood and no response was given.

It was wrongly interpreted by the listener. He felt that the speaker is holding the listener responsible for his brother's transfer.

In both the instances the utterance pampincu does not connote the meaning of "being instrumental to make them to go or leave". This is only a formulaic expression used in specific contexts. The listeners B1 and B2 in the above instances have misunderstood the speakers due to the lack of knowledge of these formulaic expressions. However, the participants in both situations could continue the conversation further in a positive way. In such cases more than the contextual information potentially available to an observer the 'relevant context' which Schegloff (Duranti, 1997) has used, plays an import role. What contextual conditions are relevant to the utterance produced by the participants are to be considered. In the above conversations, the participants were on friendly terms, the speakers did not make a visit with the intention to insult the listeners. This kind of characterization or description of the context helps the listeners to understand the speakers' utterances.

Variation in the Semantic range of words:

In this section variation in the semantic range of words resulting in different interpretations of the utterances causing miscommunication are discussed.

i) This is a conversation between a boss (B) and subordinate (A). The listener (B) belongs to higher social class which is said to have been more exposed to Sanskrit. The speaker (A) belongs to lower social class.

Speaker A was narrating to B about the incident when he had shown the photo of B, his boss, to his people.

A: mi fooToo cuupistee vaaLLantaa naginDru saar
Your photo was shown they all laughed sir
They all laughed when your photo was shown.

B: Resulted in miscommunication. For sometime the conversation could not progress.

The listener in this case, has interpreted the utterance as follows. "When his photo was shown they all laughed at it" (made fun of it)" because in his dialect navvu means `to laugh' *santooSapaDu* stands for `to feel happy'. After thinking for a while about the context that is the social role of the participants the listener has interpreted the meaning of the utterance navvu as `to feel happy' because keeping in view of the social roles and relationships between the participants, the speaker would not have reported back to B if somebody has made fun of B.

ii) The word pooyaaDu means `to go' in Telangana region. *PooyaaDu* means `to die' in coastal region. They have *veLLEEDu* `to go' and *pooyaaDu* `to die'. In the following conversation speaker A is a coastal speaker. Listener B is a Telangana speaker.

A: ii madhya vaaDu pooyaaDu
Recently he died

B: ekkaDiki
where

A: vaaDu canipooyaaDu

Here because of the confusion in the meaning, B did not get the actual message and conversation progressed in a different direction. Then it was clarified by A by choosing a lexical item which they normally do not like to use.

iii) The conversation was between a mother-in-law (speaker A) belonging to Machilipatnam, Krishna district and newly entered daughter-in-law who is born and brought up in Hyderabad city.

A: ippuDee mii amma keliki pooyindi
just now your mother stirred and went
B: misunderstood the utterance and said:
eemi kelikindi
What did she dig out
A: kuura
curry

In the dialect of A *keluku* meant `to stir' also whereas in the dialect of B it meant `to dig out some issues'. In the above said context, another lexical item *kaliyapeTTu* is used in B dialect. After further probing she could understand the intention of the speaker.

iv) The conversation between husband (speaker A) belonging to Machilipatnam and wife (listener B) who was born and brought up in Hyderabad city.

A: inka vaagaku
Don't talk

B: very much annoyed

vaagu is understood by the listener in a derogatory sense as it stands for talking irrelevantly, continuously. In the speakers dialect it stands for `talking'. After constantly hearing in different contexts the listener could understand the intended meaning of the speaker.

If all the above instances are observed, it is clear that the successful communication and comprehension involves much more than the knowledge of phonological, syntactic and semantic rules. More information is introduced into the communicative situations by a combination of linguistic and real world knowledge. The listeners would exert special efforts to understand the conversation through questioning in order to get the accurate message or make use of perceptual strategies or contextualisation cues which are again a combination of linguistic and real world knowledge of components.

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Reflexivization in Telugu children

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Introduction:

The devices available to mark reflexivization differ across languages, Spresenting children with different problems to solve during acquisition. Reflexivization in English deals with himself, myself, ourselves, each other etc, which are nominal in nature. While Dravidian languages like Telugu, Kannada and Tamil have both nominal and verbal devices. Dravidian has Reflexivization which is bipartite in nature is dealt with in this paper.

Reflexivization in Dravidian has been discussed by Subbarao and Saxena (1987), Amritavalli (1989), Yedurajan (1991). In this type of reflexivization there is reduplicated pronominal form and suffix kon/kol in the verb with appropriate agreement features. The verbal reflexive/ reciprocal which is kol/kon in Dravidian has several other functions such as inchoative marker and self benefactive.

Amritavalli (1989) treats reflexive constructions as intransitive since verbal reflexive functions as a detransitivizer. Subbarao and Saxena (1987) claim that there is no reflexive pronoun as such in Dravidian. The reflexive meaning is imparted either by a reduplicated bound anaphor together with a verbal reflexive such as kon/kol or solely by a dative subject construction.

The studies which discussed the verbal reflexive in Telugu, a Dravidian language are mentioned below, Arden (1973) discussed about reflexive verbs which denote that the action is formed for the benefit of the subject. According to Krishnamurti and Gwynn (1985) kon the verbal reflexive gives the meaning to do something for oneself. The reflexive can be used to denote reciprocal action.

Bipartite structure in reflexivization and emphatic reflexive is discussed by Subbarao & Lalitha (2000). The emphatic forms are pronominal. The emphatic particle ee is added to the subject NP. There is no verbal emphatic in Telugu.

The anaphors in Telugu are bipartite and reduplicated in structure. The nominal anaphor can optionally be dropped when the verbal device is overtly present and it cannot be dropped when it is not present. The reduplicated form has an alternant which is a simplex form which can occur when the verbal device is present.

The first part of the reduplicated pronominal indicates the case of the object NP and the second part reflects the case of the subject NP. Verbal reflexive is infixed in the verb. This is obligatory when there is coreference between subject and object. Pronominal reduplication in the nominal part and the verbal reflexive as the verbal part of the bipartite reflexivization is the structure discussed in this paper.

Acquisition studies focusing on referring expressions show divergent results. The devices used for referring expressions are either very early or very late (under three vs

seven years). The results typically show children's early mastery of reflexive pronouns, but a delay in their mastery of other overt pronouns (Lust, 1986; Deutsch, Koster & Koste, 1986; Chien & Wetler, 1990; Jakubowicz, 1994).

Acquisition of Hebrew by young children examines that some relationships would be manifested morphologically earlier than others, for instance, marking of reflexivity for every day actions like washing or dressing might emerge well before use of passive forms (Berman 1982).

The study which deals with binding properties of reflexive element in normal children and specific language impaired (SLI) children discusses the morphological complexity of reflexives. The research findings indicate that the multimorphemic reflexives are morphologically complex which should be distinguished from single morpheme reflexives. (Steven & Phil 1996).

No acquisition work has been done on reflexivization. A mention has been made by C.Nirmala (1981) while discussing Telugu language development in children whose age range was 1.6 – 3.0. The youngest child of 1.6 has acquired the verbal reflexive kon.

Methodology

Subjects

36 children with age ranging from 2;0-5;0 were chosen for the elicitation mode. This period was divided into 3 groups i.e. 2;0-2;11, 3;0-3;11 and 4;0-411. Each group was

represented by 12 children with one month difference between the children. Children from 1 to 12 belong to 2;0-2;11 age group. Children from 13 to 24 belong to 3;0-3;11 age group. Children from 25-35 belong to 4;0-411 age group.

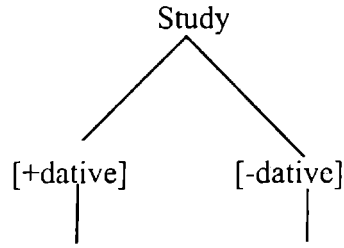
Method

The elicitation mode was recorded on a cassette tape recorder. Here the child was asked to imitate the target sentence immediately after the investigator produced it. Care has been taken to produce the target sentence clearly only once so that the child could repeat it as she/he comprehended it.

Material

The experimental design administered for the imitation task consisted of four types of syntactic constructions. Each construction consisted of three sentences which makes a total of 12 target sentences. (The first two types are dative constructions. The last two types are non-dative constructions). The study focuses on the verbal

reflexives with both plus dative and minus dative constructions shown in the diagram below



a. [+verbal reflexive] c. [+verbal reflexive]
b. [-verbal reflexive] d. [-verbal reflexive]

The sentence indicating the first type (a) is as follows:

a.1. naaku neenee powDar puusu konnaanu
me+dat I+emp powder apply vr+ PNG
'I myself applied powder'.

This is a dative construction with emphatic reflexivization. This is a bipartite structure. reduplication of the indirect object with dative marker and nominative subject with the emphatic marker along with verbal reflexive.

The sentence corresponding to the second type is as follows:

b.2. aameku aamee waNTa ceesindi
she+dat she+emp meal did+PNG
'She cooked the meal herself'.

This structure does not have the verbal reflexive. There is reduplication like earlier structure. The emphatic

reduplication without verbal reflexive indicates that the subject performs the action on her own without any help.

The sentence indicating the third type is as follows:

c.3.	nannu	neenu	tiTTukonnaanu
	me+acc	I	scold+vr+past+PNG
	`I scolded myself'.		

This is actual reflexivization. There is a reduplicated pronoun with VR kon. The direct object with the accusative marker and the nominative subject corefer with each other. The VR with the verb is obligatory because there is coreference between subject and object.

The sentence showing the fourth type is as follows:-

d.4.	neenu	waaDini	tiTTEEnu
	I	he+acc	scold+PNG
	`I scolded him'.		

This is a simple basic sentence in Telugu.

Data and Analysis

	2.00			3.00			4.00		
Syntacti c Construc-tions	CR	AR	UGR	CR	AR	UGR	CR	AR	UGR
I	19.44%	47.22%	30.55%	13.88%	50%	36.11%	11.11%	63.88%	25%
II	27.77%	44.44%	27.77%	22.22%	58.33%	19.44%	25%	55.55%	9.44%
III	27.77%	47.22%	25%	30.55%	47.22%	19.44%	41.66%	41.66%	6.66%
IV	75%	22.22%	2.77%	50%	47.22%	2.77%	66.66%	30.55%	2.77%

Table

The table presents the responses of children in the imitation task. 2, 3 and 4 are the different age groups. I, II, III and IV are different types of syntactic constructions.

CR - Correct Response
AR - Altered Response
UG - Ungrammatical Response

The table very clearly shows that all the children belonging to all age groups indicate the order of better performance from type IV to type I i.e. the fourth type has been performed the best by all the children. The least performance is of the first type. Third type is better than second.

The response treated as correct response is without deleting any element. Altered response is the one which changes the sentence structure without resulting in ungrammaticality. Ungrammatical responses are those which result in the process of simplifying the construction i.e., deleting the subject NP of the reduplicated pronominal.

The table also indicates only one instance of UG response in performing the fourth type by the children of all age groups. The ungrammaticality increases from type IV to I and Correct Response increases from I to IV .

This study examines that all the children did not acquire the nominal and verbal devices of reflexivization simultaneously. The acquisition of verbal device is earlier to the nominal device because very few instances where children have deleted the VR kon. This can be supported by the spontaneous data showing VR acquired very early. Many children simplified the reduplicated pronoun, which is the nominal device of reflexivization by deleting the pronominal either with dative or accusative marker resulting in grammatical response. The reason for simplifying the reduplicated structure may be because it is morphologically complex.

The first and second type which are emphatic reflexivization are complex compared to the other type. The reason for the complexity may be that there is an extra argument i.e. direct object. According to theta theory the verb has to assign a theta role to this extra argument.

The percentage of responses of emphatic reflexivization very clearly indicates that the first type of syntactic construction is relatively complex compared to the second type. The only difference between the two constructions is that the first type is with [+VR] whereas the second type is [-VR]. Even though VR is acquired very early by the children, it can be presumed that the verb paradigm +VR is complex to verb paradigm –VR.

Conclusion:

This study very clearly shows that the simple structure which is free of any type of reflexivization is least complex. The structure with both nominal and verbal reflexive is complex. Complexity increases from type I to IV. It should be emphasized that both the nominal and verbal devices of reduplicate reflexivization are not acquired simultaneously. Acquisition of verbal device precedes the nominal device However, it was also observed that the children simplified the complex reduplicated structure by deleting one of the pronominals.

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(Language-) Technology as a double-edged sword

(Some observations on the social nature and consequences of Language Technology) *

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Introduction

This paper acknowledges the wonderful and unimaginable advances in the area of Information Technology (IT) in general and fascinating work being done in the area of Language Technology (LT) in particular. However, it makes an attempt to draw the attention of Information Technologists including the Language Technologists to the social nature and consequences of the use of IT/LT in the present day society. We chose this theme for our paper since it does not find place in the literature on IT/LT, at least in the Indian context. The reason for this lies in the very concept of 'Technology' in general and 'IT' in particular.

Conception of 'Technology': Technology is generally perceived as a socially neutral branch of knowledge concerned with the application of knowledge for practical ends in a given field: Information Technology, Bio-Technology, Communication Technology, Fashion Technology, Food Technology, Educational Technology, Language Technology and so on. This kind of 'technical' understanding of the concept of Technology is divorced from the social reality. The social reality concerning Technology consists of two inter-related facts: (1) Technology is a mode of interaction with Nature. (2) Technology is a mode of formation of social relations (and mental conceptions) among human beings.

Karl Marx, who spent most part of his intellectual life in the study of the social nature of Technology as part of his overall study of modern society, defined Technology as follows: "Technology discloses man's mode of dealing with Nature, the process of production by which he sustains his life, and thereby also lays bare the mode of formation of his social relations, and of the mental conceptions that flow from them" (Marx, 1867: 352).

A critical history of Technology would testify Marx's conception of Technology.

Let us discuss the connection between Technology and the formation of social relations as well as mental conceptions that flow from those relations.

Technology is the sum total of instruments of labour or production at a given point of time in the human history. History of human beings witnessed many kinds of means of labour: beginning from the wooden plough to the tractor and 'Computer' being the latest instrument of labour. Production may be production of articles or so-called 'services'. Social relations between human beings form on the basis of their relations to the instruments of labour or production, that is Technology. For example, if some human beings have legal or effective control over a given form of Technology (say IT/ LT), they form one class: the class of owners or Capitalists in the present day world. If some human beings do not have legal ownership or effective control over a given form of Technology, they constitute another class: the class of Non-owners or Working Class. Working Class includes not only manual workers but also workers engaged in mental labour.

(For example, Computer Professionals or Language Technologists are also part of the Working Class but occupy a higher position than the manual workers owing to the inherently higher value of their labour-power.

The two social classes have conflicting interests¾economic, political and cultural. Let us confine our discussion, due to constraints of time, only to the economic interests. Technology is the means by which Capitalist Class extracts from the working class surplus labour, whose value is higher than what it pays. This is called 'Surplus Value'. Further the Capitalist Class introduces relatively new Technology that would on the one hand reduce the number of workers and on the other hand facilitates extraction of more Surplus Value than before. The Capitalist Class is not stupid to introduce relatively new Technology unless it reduces 'labour costs'. There are many studies that testify this fact. For instance, a Non-Marxist study on women employees in Insurance and Banking industries in the West observed thus, "One of the chief goals of using new technology is to reduce the unit labour requirements of each business operation" (Werneke, 1985: 410). Another study observed that managers in many enterprises do not accept technological change "unless it is defined as a way of replacing labour and reducing labour costs" (Meiksins, 1996:107).

The reduction of labour costs implies reduction of number of workers to be employed. In other words, unemployment. The supporters (conscious or unconscious) of Capitalism, however, argue that although new Technology affects the employment where it is introduced, it would create employment opportunities at the place where this new

technology is being manufactured/developed. But, one must not forget that "Employers define the new technology as a way of replacing expensive, recalcitrant skilled workers" (Meiksins, 1996:106). So, whatever applies at the place where new Technology is introduced also applies to the place where new technology is created/developed. Thus, in the contemporary society based on Capitalism, any Technology including IT/LT will serve the interests of the Capitalist Class (consisting of not only private capitalists but also the State, which is a collective Capitalist) and adversely affect the lives of the Working Class whenever and wherever it is used.

Use of Computers in Language related activities: Motives and Effects: As we have indicated above, the motive for the use of computers in language related activities is to reduce the 'labour costs'. Let us begin with some observations on the newspaper industry. In the past, the sub-editors or editorial staff in a newspaper house used to perform only one function: Rewriting or Editing of the news filed by the Reporters. After the introduction of Computer Technology, the function of the sub-editors increased. Now a sub-editor is expected to (1) rewrite or edit the news filed by the Reporters. (As he does this on a computer, a sub-editor could do more number of items than before; (2) proof read the whole thing (thus performing the function of a proof-reader who does not have separate existence from the person of the sub-editor); (3) do page makeup (thus performing the function of a lay-out artist who does not have a separate existence from the person of the sub-editor). If it is a regional language newspaper, which often receives news in English, the sub-editor has to first translate the entire thing and perform the other three functions mentioned above.

Now let us examine some forms of Language Technology, their uses, beneficiaries and the victims in the present day society:1

No.	Language Technology	Uses	Beneficiaries	Victims
(1)	Optical Character Recognition	Data entry and checking, office automation for text entry, mail sorting, bank cheque reading, forms processing.	Banks, Offices, Postal dept., Insurance companies.	Workers employed by the beneficiaries.
(2)	Machine (Aided) Translation	Gathering of information in the fields of technology, economy, military etc., translations between languages.	Defence industry, Publishing houses.	Professional translators.
(3)	Document Image Analysis	Locating and recognising the title, author, abstract and key words in articles; sorting of mail, fast storage, recall, distribution of documents.	Business houses, Postal dept, revenue dept., income-tax dept.	Library personnel, Office employees in public and private sectors.
(4)	Dialogue Modelling or Voice-interactive System, or Spoken Language Dialogue.	Typical spoken conversations.	Telecommunication industry, Airline corporations.	Workers employed by the beneficiaries.

(5)	Text Creation and Editing.	Creating and Editing of various texts.	News Media, Publishing houses.	Those employed by the beneficiaries.
(6)	Speaker Recognition Technique.	Verifying the identity of speaker, voice dialing, banking by telephones, telephone shopping, data base access services, voice mail security control for confidential areas, remote access to computers, forensic purposes.	Banking industry, Telecommunication dept., Forensic depts.	Those employed by the beneficiaries.
(7)	Document Processing.	Creation, storing, rendering, distribution, acquisition and retrieving of multimedia documents.	Mass media companies.	Those employed in mass media.
(8)	Text Interpretation.	Extracting information automatically for a useful database or index.	Mass media, publishing houses, libraries, defence industry.	Those employed by the beneficiaries.
(9)	Spoken Generation.	Task-assisted instruction giving (e.g. equipment repair), telephone information services, animated information (e.g. animated algorithms), spoken translation, summarization of phone transcript.	Manufacturing industries, Telecommunications dept, film industry, Offices.	Those employed by the beneficiaries.

10)	Speech Recognition.	Response from the common database of information.	Transport industry: both surface and air.	Those employed by the beneficiaries.
(11)	Computationally oriented Semantics.	Data base query.	Airways, Railways etc.	Those employed by the beneficiaries.
(12)	Written Language Recognition.	Recognizing written language (e.g. addresses, cheques, forms)	Postal dept., banks, census dept., insurance companies.	Those employed by the beneficiaries.
(13)	Grammar Formalism/	Unification Grammar Formalism.	Industrial Laboratories .	Those employed by the beneficiaries.
(14)	Multilingual Speech Processing.	Information services beyond national boundaries or across language groups (spoken translation, dubbing, subtitling, registration for conferences,	Telephone companies, Tourism dept.	Those employed by the beneficiaries.
(15)	Controlled Languages or Checkers.	Consistency, readability, translatability and irretrievability of information: Technical documents including instructions, procedures, descriptions, reports and cautions, manuals.	Tractor companies, Aircraft companies, and several other industries.	Those employed by the beneficiaries.

How to tame Technology? As the relevant literature has not addressed the question of social nature and consequences of Language Technology in general or from the perspective of the Working Class in particular, we have made an attempt to draw the attention of the Language Technologists to it. In other words, we have cautioned or reminded that Technology (in this context IT/LT) is a double edged sword: it is not only a sharp weapon to conquer the brutal forces of Nature which subject human beings to many physical sufferings but it also has a sharp edge to cut the throats of fellow human beings in terms of exploitation, domination, oppression, competition, unemployment and many other forms of social sufferings. To put it in a lighter vein, a knife can be used not only to cut vegetables but also to cut the throats of fellow human beings. So the question is, 'who is using that knife?'¾the sane person or insane person? Same kind of questions may be raised with reference to (Language-) Technology too:

- Who makes (Language-)Technology decisions in our society?
- Who benefits from the (Language-)Technology decisions?
- How could the (Language-)Technologies be used to better the lives of every one?

Based on the above-discussed conception of Technology, we can answer these questions.

It is the Capitalist Class that makes Technology decisions in our society.

It is the Capitalist Class that benefits from the Technology decisions.

Technologies could be used to better the lives of every one only when Capitalism as a social system (that permits private ownership/control over means of production) is abolished and every one participates in the social process of production (of articles as well services of all kinds) and decisions concerning the use or non-use of certain technologies are collective taken by the Working Class. But this is a long-term goal and solution. Well, then, do we have any tentative or short-term programme? The first step toward any solution, either short term or long term, is to reconceptualise Technology, along the lines discussed above. Next step is to choose areas of research that benefit common people, or people with physical disabilities and so on. (But every product of the application of any technology in the Capitalist society becomes a commodity and it is extremely difficult for us to develop any thing that would not ultimately be converted into a marketable commodity by the Capitalist Class). Yet another step is to express solidarity to the struggles of the victims of Technologies.[2]

Notes

* Originally presented at the National Workshop on Application of Language Technology in Indian Languages, Centre for Applied Linguistics and Translation Studies, University of Hyderabad, held during March 6-8, 2003.

1. The contents of this table are based on several articles appeared in Cole et al, 1997. However, the interpretation and the remarks in the last column are mine.
2. For a discussion of short term and long term perspectives on the question of combating Capitalist technology, see the special issue of Monthly Review,vol.48, No.3, 1997on 'Capitalism and the Information Age'.

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Mulk Raj Anand's 'The Lost Child': A stylistic analysis

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Abstract

Mulk Raj Anand is a master craftsman who experiments in both subject matters and language. His language has the Indian flavour and can be considered to be a distinct variety of Indian English. The present paper modestly analyses the clause structures in one of his short stories to highlight the ways in which the linguistic features are exploited to project the literary qualities of the text and how the text can be used to create the linguistic and cultural contexts for pedagogic purposes in the classrooms, as it has abundant instances of many types of clause structures. In deed the text has the maximum number of complex clauses to the extent of 80%, while the simple and compound structures are used to the tune of 16% and 4% respectively. These complex clause structures appropriately delineate the unfulfilled typical childhood desires, aspirations attitudes and aptitudes of a boy and his agony when he is lost in a fair. The simple and compound clause structures are strikingly used to project the crucial moment of the story textually.

1.0. Introduction

Mulk Raj Anand is a founder triumvirate of Indian English fiction. He is a committed artist. When R.K. Narayan was completely faithful to the standard Queen' s English and his limited regional canvas of the life of Malgudi as a microcosm of Indian life, and Raja Rao dwelt upon the Indian philosophical approach to human existence and experimented with the new variety of language called Indian English in his inimitable style, Mulk Raj Anand as a writer of social

consciousness created his own distinctive way of championing the causes of the unsung heroes in their own dialects. The present paper tries modestly to analyze how the language of Mulk Raj Anand brings out the literary qualities of his short story 'The Lost Child', the first 'fiction-fact' of his real experience as a five year old boy published first in "The Great Short Stories of the World" and then in more than 165 anthologies.

2.0. Clause structures

Every sentence becomes an utterance when it is used in a text and acquires its communicative value. Every utterance consists of one or more clauses. Each clause has simple, compound and / or complex structure.

2.1. Simple clause structure

When a clause has only one main or independent clause giving complete meaning on its own, it is called a simple clause as in

1. It was the festival of Spring. (1)

(Examples are quoted from the short story under analysis and the number provided in parenthesis is that of the serial number of the utterance in the text.)

2.2. Compound clause structure

When a clause consists of two or more main or independent clauses linked with a coordinating conjunction

showing their equal ranks providing complete meaning, it has a compound clause structure of co-ordination as in

2. The child was simply carried away by the rainbow glory of their silken colours, and he was possessed by an overwhelming desire to possess them all. (40)

2.3. Complex clause structure

Complex clause structures are possible in many ways. Firstly when a clause consists of at least one main or independent clause and one subordinate or dependent clause linked with a subordinating conjunction displaying their unequal ranks, it has a complex clause structure of subordination as in

3. The boy wept, because he could not see his parents. (Example is mine, as there is no instance of this typical, common type of complex structure in the text under analysis). Secondly quote structure or direct speech structure has a complex clause structure as in

4. "I want that toy", he pleaded. (8)

Thirdly a complex clause structure may have a relative clause or adjectival clause. It may be a defining relative clause when it contains the essential information for clarity as in :

5. The child seemed irresistibly drawn by the implacable sweetness of the scents *that came floating on the things of the languid air.* (36) (emphasis mine) or non-defining relative clause when it provides additional information as in:

6. The child searched for his parents, *who had gone somewhere.* (example mine) Fourthly a complex clause structure may have an adverbial clause of time, condition, purpose, reason, result, concession, place and manner as in:

7. He ran hotly again, this time to a shrine to *which people seemed to be crowding.* (68) (adverbial clause of place)

8. As he came to *where they had stopped to wait for him,* (adverbial clause of place) he could not suppress the desire of his heart, *even though he well knew the old, cold stare of refusal in their eyes.* (7) (adverbial concessive clause)

9. The child followed them in the air, with his gaze, *till one of them would fold its wings and sit down,* (adverbial clause of time) and he could catch it. (17) and

10. The poor child struggled to carve a way between their feet, but, knocked to and fro by their brutal paws, he might have been trampled underfoot, *had he not shrieked at the highest pitch of his voice, "Father, mother".* (71) (Adverbial conditional clause)

11. But he well knew his parents would never buy him the balloons, *because they would say he was too old to play with such toys. (41)* (adverbial clause of reason) Fifthly a complex clause structure may have nominal relative clause as in:

12. *What the child really needs finally* is his father and mother. (example mine)Sixthly a complex clause structure is possible with a nonfinite clause, a subordinate clause which

contains a particle or an infinitive, but which does not contain a finite verb. A non-finite clause begins with a subordinating conjunction as in:

13. While searching for his parents, the child wept. (example mine) or does not begin with a subordinating conjunction as in:

14. Thinking to humour his disconsolate mind by a gift of sweets, the man took him to the counter of the sweet shop. (87) and

15. The man wanted to make the child happy. (example mine)

The non-finite clause that consists of a particle and nothing else may be a defining non- finite clause as in:

16. The name of the boy *lost in the fair* is not given in the story. (example mine) or non-defining non- finite clause with a present participle showing

i) simultaneous events as in

17. One little boy ran between his parents' legs, *brimming over with life and laugher as the joyous, smiling morning, with its open greeting and unashamed invitations to come away into the fields, full of flowers and songs.* (4).

ii) showing reason as in

18. But *knowing his parents had forbidden him to hear such coarse music as the jugglers play,* he proceeded further. (45)

iii) showing one action after another as in

19. A shower of young flowers fell upon the child as he entered the grove and *forgetting his parents,* he began to gather the raining petal in his hands, but lo! he heard the cooing of the dove and ran towards his parents, *shouting: "the dove!".* (25)

or non-defining non-finite clause with 'having' and past participle showing result as in

20. *Having run to and in a sheer rage of running for a while,* he stood defeated, his cries suppressed into sobs. (65)

or non-defining non-finite clause with past participle showing earlier event(s) as in

21. "Come, child, come", called his parents, as he lagged behind, *arrested by the toys in the shops that lined the way.* (5)

or non-defining non-finite clause, which has a different subject from the subject of the main clause as in

22. Some walked, some rode on horses and others sat, *being carried in bamboo and bullock carts.* (3)

2.4. Combination of clauses in a complex clause structure

A complex clause may have only one clause as in

23. Men, women and children carried in a whirling motion, *shrieked and cried with dizzy laughter.* (47)

It may have two or more clauses with the following combinations:

i) compound + complex as in

24. An old banyan tree outstretched its powerful arms over the blossoming jack and jamun and neem and champak and serisha and cast its shadow across beds of golden cassis and crimson gulmohur (compound), as an old grandmother spreads her skirts over her young ones. (complex) (23)

25. But he half knew (compound), as he made the request that it would not be heeded (complex), because his parents would say he was greedy. (33) (complex).

ii) complex + compound as in

26. They had left the dust road on which they had walked so far to wend its weary way circuitously to the north (complex), and had entered a footpath in a field. (12)

27. In the field it was a flowering mustard-field, pale, pale like melting gold, as it swept across miles and miles of even land, a river of yellow light, ebbing and falling with each fresh eddy of wild wind (complex), and staying at places into broad, rich tributary streams, (compound) yet running in a constant sunny sweep towards the distant mirage of an ocean of silver light. (13) (compound)

iii) complex + complex as in:

28. This time, before his overpowering love of his anticipated sensation of movement had been chilled by the

fact of his parents' eternal denial (complex), he made a bold request: "I want to go on the roundabout, please father, mother." (complex). (51)

29. One bold black bee, having evaded capture, sought to tempt him by whining round his ear, (complex) and nearly settled on his lips, (compound) when his mother made a cautionary call: "Come, child, come; come on the footpath". (complex). (19)

3. An analysis of clause structures in "The Lost Child"

The clause structures of the short story are analyzed based on the above discussion. The story has eighty-nine clauses and their structures are as follows:

Total	Simple	Compound	Complex			
			complex	compound +complex	complex +compound	complex +complex
89	14	4	25	23	16	7
%	16%	4%	28%	26%	18%	8%
				80%		

It is clear from the above figures that the complex clause structures are used to the maximum extent of 80%, while the simple clause structures are in vogue to some extent of 16% and the compound counterpart to a less extent of 4%.

The story narrates the psychological feelings and emotions of a child. He is neither an infant so that he can depend on his parents entirely nor a grown up boy who has

ability to act independently in critical situations. He is a typical child-boy who has his own desires and aspirations. He enjoys the festive occasion of a fair sensuously as Keats has described his experiences in his magnum opus "Ode to a Nightingale". He is very much interested in playing with toys, butterflies, flowers, koels and doves. He wants to touch a butterfly, a black bee and the raining petals of young flowers, hear the whining of a black bee, the cooing of the doves and the music of a juggler, smell the fragrance of the distant fields, the sweet perfume of the pollen of the blushing blossoms of jack, jamun, neem champak and serisha and the implacable sweetness of the scents of a garland of gulmohur, taste the burfi that was his favourite sweet and see the rainbow glory of the silken colours of yellow, red, green and purple balloons, the toys in the shops and the little insects and worms. In brief he wants to enjoy his childhood as a typical child, but he knows that he cannot have or do whatever he wants, as his parents will neither fulfill his desires nor appreciate his feelings. Even then he cannot miss his sensational experience on a roundabout. So when he tries to make his request to his parents for a trip on the roundabout, he realizes that he is lost in the crowd and now he wants nothing else but his mother and father.

The story has four parts. The first part '"To the Fair" describes the arrival of the crowd including one little boy with his parents to a fair. It consists of twelve clauses. The opening clause "It was the festival of Spring." is simple, suggesting textually that visiting a fair is an important, special event in our life. Another simple clause "His father looked at him red-eyed in his familiar tyrant's way." (9) brings out the very typical authoritative attitude of a strict father. The remaining ten clauses are complex that project textually how

people hurry up to reach the fair mechanically and how the boy pleads with his parents unsuccessfully to buy a toy for him.

The second part "In the Fields" delineates the setting of the story and how the child and others react to their surroundings. While others concentrate on their journey to the fair happily and busily without time to stand and stare the beauty of the fields, the boy is enchanted by the objects of Nature and yearns to have childhood experiences leisurely. But his parents cannot allow him to have that luxury, as they are determined to reach the fair with others in time. This part has seventeen clauses. Only two clauses are simple and the rest are complex. These two simple clauses namely "He ran towards them." (22) and "The raining petals dropped from his forgotten hand." (26) project textually, effectively the sudden response of the boy to the call of his parents and his great excitement at the sight of the dove respectively. The remaining clauses portray textually the natural scenery of the story and the emotional contrastive responses of the boy and other characters to it.

The third part "The Fair" pictures the natural desires and impulsive responses of the child to the various items of the fair, normally a very busy place with full of commercial activities and entertainments. The boy longs to buy in vain the items sold by a sweetmeat-seller, a flower seller and a seller of balloons. Further there is a juggler whose coarse music he is forbidden to hear. When many men, women and children enjoy their trip on a roundabout, a very common type of entertainment in the fair, he cannot do so and undergoes a psychological pressure because of the restrictions imposed

by his parents. So he dares to seek permission of his parents for a trip on a roundabout. This kind of excitement and sensation of the boy is textually projected with twenty clauses consisting of two simple, three compound and seventeen complex clause structures. The two simple clauses "This child went towards the juggler." (44) and "There was a roundabout in full swing." (46) describe the immediate natural attention of the child to the entertainments. The three compound clause structures "The child was simply carried away by the rainbow glory of their silken colours, and he was possessed by an overwhelming desire to possess them all." (40), "So he walked further." (42) and "The ring seemed to go fiercely at first, then gradually it began to move less fast." (49) portray the emotional reactions of the child to the situations. The remaining complex clause structures aptly expose the awesome complicated experiences of the boy.

The fourth and last part "Lost" brings out the trials and tribulations of the boy who has lost his parents suddenly and his helpless efforts to go back to his parents and his ironical refusal to the other things that he has yearned for earlier. The pathetic turmoil of the lost child is skillfully described with thirty-eight clause structures consisting of eight simple, one compound and twenty-nine complex clauses. Mulk Raj Anand appropriately uses seven simple clauses to expose how the child searches for his parents in the opening paragraph of the section projecting strikingly his sudden and quick actions and the extreme change of his mood as follows: "There was no reply. (52) He turned to look at his parents. (53) They were not there, ahead of him. (54) He turned to look on the side. (55) They were not there. (56) He looked behind. (57) There was no sign of them. (58)" One more

simple clause "His light frame seemed heavy as a mass of lead." (64) comments on his physical fatigue, the result of his mental shock. A compound clause "Near the entrance of the temple, however, the crowd became very thick: men jostled each other – heavy men, with flashing, murderous eyes and hefty shoulders." exposes the complicated, desperate situation of the lost boy. The remaining complex clauses paint the turmoil and melancholy of the lost child textually emphatically.

4. Pedagogic paradise

It is well known that a text is a pretext to create a context to teach the linguistic features to the taught and a resourceful teacher will make use of the material available or prescribed imaginatively to make the teaching and learning process effective and efficient. The short story "The Lost Child" is the most suitable material to teach the clause structures. The kinds of sentences namely simple, compound and complex and the types of clauses namely nominal, adjectival, relative and adverbial clauses, finite and non-finite clauses, defining and non-defining clauses and direct speech or quote structure and indirect speech or reported structure may be explained with the utterances of the story amply in proper linguistic and cultural contexts.

5. Conclusion

The above discussion has modestly explained how Mulk Raj Anand has consciously made use of clause structures to project the literary qualities of his story and how it can be used for pedagogic purpose.

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Appendix

Analysis of clause structures in Mulk Raj Anand's "The Lost Child"

Abbreviations

Clauses: s= simple; cd = compound; cx = complex; cdcx= compund+complex; cxcd=complex+compound; cxcx= complex+complex; nf= non-finite; drc= defining relative clause; ndrc=non-defining relative clause; pr.p= present participle; pp= past participle; pre.p:s= present participle: simultaneous; pr.p:o = present participle: one action after another; pr.p:r= present participle: reason; pp:e= past participle: earlier events; h.pp=having and past participle: results; cxq= complex quote structure (direct speech); adcp= adverbial clause of place; adct= adverbial clause of time; adcr = adverbial clause of reason; adcc = adverbial clause of concession; adccc = adverbial conditional clause; i= infinitive; pv= passive voice rcn = nominal relative clause; readj = adjectival relative clause.

To the Fair

1. [It was the festival of Spring.(s)]

2. [From the wintry shades of narrow lanes and alleys emerged gaily clad humanity, (ndrc) thick as a crowd of bright- coloured rabbits

issuing from a warren, and entering the flooded sea of sparkling silver sunshine outside the city gates (nfnd pr.p:o) sped towards the fair. (cxco)]

3. [Some walked, some rode on horses, others sat, being carried in bamboo and bullock-carts.(nfnd pr.p:s)(cdcx)]

4. [One little boy ran between his parents' legs, brimming over with life and laughter as the joyous, smiling morning, with its open greetings and unashamed invitations to come away into the fields, full of flowers and songs. (nf pp) (cx).]

5. ["Come, child, come", (cxq) called his parents, as he lagged behind, arrested by the toys in the shops that lined the way. (nf pp:e) (cxcx)]

6. [He hurried towards his parents, his feet obedient to their call, his eyes still lingering on the receding toys. (ndrc pr.p:s) ((cx)]

7. [As the came to where they had stopped to wait for him, (adcp) he could not suppress the desire of his heart, even though he well knew the old, cold stare of refusal in their eyes. (adcc) (cxcx)]

8. ["I want that toy", he pleaded. (cxq)]

9. [His father looked at him red-eyed in his familiar tyrant's way. (s)]

10. [His mother, melted by the free spirit of the day, was tender, (ndrc) and giving him her finger to catch, (nf pr.p) said : "Look, child, what is before you". (q) (cxcdcx)]

11. [The faint disgust of the child's unfulfilled desire had hardly been quelled in the heavy, pouting sob of a breath, "M-o-th-e-r", when the pleasure of what was before him filled his eager eyes. (drc – adct) (cx)]

12. [They had left the dust road on which they had walked so far to wend its weary way circuitously to the north, (adcp) and had entered a footpath in a field. (cxcd)]

In the Fields

13. [In the field it was a flowering mustard-field, pale, pale like melting gold, as it swept across miles and miles of even land, a river of yellow light, ebbing and falling with each fresh eddy of wild wind, (nf pr.p) and staying at places into broad,(cd) rich tributary streams, yet running in a constant sunny sweep towards the distant mirage of an ocean of silver light.(cd) (cxcdcd)]

[14. Where it ended, (adcp) on a side stood a dense group of low, mud walled houses put into relief both by the lower forms of a denser crowd of yellow-robed men and women and by high pitched sequences of whistling, creaking, squeaking, roaring, humming noises that rose from it, across the groves, to the blue-throated sky like the weird, strange sound of Siva's mad daughter.(drc) (cx)]

15. [The child looked up to his father and mother, saturated with the shrill joy and wonder of this vast glory, (nf pp:e) and feeling that they, too, wore the evidence of this pure delight in their faces, (nf pr.p:r) left the footpath and plunged headlong into the field, prancing like a young colt, his small feet chiming with the fitful gusts of wind (nfpr.p) that came winnowing from the fragrance of more distant fields.(drc) (cxcd)]

16. [A group of dragon-flies were bustling about on their gauzy, purple wings, intercepting the flight of a lone black bee or butterfly in search of sweet perfume from the hearts of flowers. (nfpr.p:s) (cx)]

17. [The child followed them in the air, with his gaze, till one of them would fold its wings and sit down, (adct) and he would try to catch it. (cxcd)

18. [But it would go, fluttering, flapping, and hovering in the air, when he had almost caught it in his hand. (nfpr.p:s) (cdcx)]

19. [One bold black bee having evaded capture, (nfnd:r) sought to tempt him by whining round his ear, and nearly settled on his lips, when his mother made a cautionary call : (adct) " Come, child, come; come on the footpath". (q) (cxcdcx)]

20. [He went towards his parents gaily, and walked abreast of them for a while, (cd) being, however, soon left behind, (nf ndrc pr.p:r) attracted by the little insects and worms, along the footpath (nf ndrc pp) that were coming out teeming from their hiding-places to enjoy the sunshine.(drc) (cdcx)]

21. ["Come, child, come", (q) his parents called from the shade of a grove where they had seated themselves on the edge of a well. (adcp) (cx)]

22.[He ran towards them. (s)]

23. [An old banyan tree outstretched its powerful arms over the blossoming jack and jamun and neem and champak and serisha, and cast its shadows across beds of golden cassis and crimson gulmohur, (cd) as an old grandmother spreads her skirts over her young ones.(cx) (cdcx)]

24.[The blushing blossoms freely offered their adoration to the sun, however, in spite of their protecting chaperon, by half uncovering themselves; (nfpr.p) and the sweet perfume of their pollen mingled with the soft, cool breeze that came and went in little puffs,(drc) only to be wafted aloft by a stronger gush. (nf-i - p v) (cxcd)]

25. [A shower of young flowers fell upon the child as he entered the grove (cx) and forgetting his parents, (nf pr.p) he began to gather the raining petals in his hands, (nf i) but lo! he heard the cooing of the doves and ran towards his parents, (cd) shouting ; " the dove!".(q) (cdcxcdcdcx)]

26. [The raining petals dropped from his forgotten hand. (s)]

27. [A curious look was in his parents faces, till a koel struck out a note of love (adct) and released there pent-up souls. (cxcd)]

28. ["Come, child, come", they called to the child, (cxq) who had now gone running in a wild caper round the banyan tree (rcadj) and, gathering, (nfnd pr.p:s) they took the narrow, winding footpath (cd) which led to the fair from the mustard -field. (adc:p) (cxcdcx)]

29. [As they neared the village, the child could see many other footpaths (cx) full of throngs,(rcadj) converging to the whirlpool of the fair,(nfnd pr.p) and felt at once repelled and fascinated by the confusion of the world (cd) he was entering. (adcp)]

The Fair

30. [A sweetmeat –seller hawked, "Gulab-jaman, rasgula, burfi, jalebi," at the corner of the entrance, (cxq) and crowd pressed round his counter at the foot of an architecture of many-coloured sweets, (cd) decorated with leaves of silver and gold. (rcadj). (cxcdcx)]

31. [The child stared open-eyed, and his mouth watered for the burfi (cd) that was his favourite sweet. (rcadj) (cdcx)]

32. ["I want that burfi", he slowly murmured. (cxq) (cx)]

33. [But he half knew (cd) as he made the request that it would not be heeded, (cx) because his parents would say he was greedy.(cx) (cdcxcx)].

34. [So, without waiting for an answer, (nfnd pr.p:r) he moved on.(cd) (cdcx)]

35. [A flower seller hacked, " A garland of gulmohur, a garland of gulmohur". (cxq) (cx)].

36. [The child seemed irresistibly drown by the implacable sweetness of the scents that came floating on the things of the languid air.(rcadj) (cx)]

37. [He went towards the basket where the flowers lay heaped (adcp) and half murmured, (cd) " I want that garland",(cxq) but he will knew his parents would refuse to buy him these flowers (cd) because they would say they were cheap.(cx) (cxcdcdcx).

38. [So, without waiting for an answer, (nfndpr.p:r) he moved on. (cd) (cdcx)]

39. [A man stood holding a pole with yellow, red, green and purple balloons (nfndpr.p:s) flying from it. (rcadj) (cx)

40. [The child was simply carried away by the rainbow glory of their silken colours, and he was possessed by an overwhelming desire to possess them all. (cd)]

41. [But he well knew (cd) his parents would never buy him the balloons, (rcn) because they would say (adcr) he was too old to play with such toys. (rcn) (cdcxcxcx)]

42. [So he walked further. (cd)]

43. [A juggler stood playing a flute to a snake (nfnd pr.p:s) which coiled itself in a basket, (rcn) its head raised in a graceful bend like the neck of a swan, while the music stole into its invisible ears like the gently rippling of a miniature water-fall. (cx) (cxcdcx)]

44. [This child went towards the juggler. (cd)]

45. [But knowing his parents had forbidden him to hear such coarse music as the jugglers play, (nfndpr.p:r) he proceeded further. (cd)]

46. [There was a roundabout in full swing. (s)]

47. [Men, women and children, carried in a whirling motion , (nfndpp) shrieked and cried with dizzy laughter.(cd) (cxcd)]

48. [The child watched them intently going round and round, a pink blush of a smile on his face, his eyes rippling with the same movement, his lips half parted in amaze, (nfndpr.p:s) till he felt (adct) he himself was being carried round.(rcn) (cxcx)]

49. [The ring seemed to go fiercely at first, then gradually it began to move less fast. (cd)]

50. [Presently, the child, rapt, his finger in his mouth, (nfndpp:e) beheld it stop. (cx)]

51. [This time, before his over-powering love of his anticipated sensation of movement had been chilled by the fact of his parents' eternal denial, (adct) he made a bold request: " I want to go on the roundabout , please father, mother". (cxq) (cxcx)]

Lost

52. [There was no reply.(s)]

53. [He turned to look at his parents.(s)]

54. [They were not there, ahead of him.(s)]

55. [He turned to look on the side.(s)]

56. [They were not there. (s)]

57. [He looked behind. (s)]

58. [There was no sign of them. (s)]

59. [A full, deep cry arose within his dry throat, and with a sudden jerk of his body he ran (cd) from where he stood, (adc:p) crying in red fear, (rcpr.p:o) "Mother,father". (cxq) (cdcx)]

60. [Tears rained down from his eyes, heavy and fierce, his flushed face was convulsed with fear. (cxcd)]

61. [Panic-stricken, he ran to one side first, then to the other, before and after in all directions (nfndpp:e) knowing not where to go. (nfnd pr.p:r) (cx)]

62. ["Mother, father", he wailed, with a moist, shrill breath now,(cxq) his throat being wet with the swallowing of his spittle. (nfndpr.p:r) (cxcx)]

63. [His yellow turban came untied, and his clothes, wet with perspiration, (rcadj) became muddy (cd) where the dust had mixed with

the sweat of his body. (adc:p) (cdcx)] 64. [His light frame seemed heavy as a mass of lead. (s)]

65. [Having run to and in a sheer rage of running for a while, he stood defeated, his cries suppressed into sobs. (nfndhpp:r) (cx)

66. [At little distances on the green grass he could see, through his filmy eyes, men and women talking. (cxrc) (cx)]

67. [He tried to look intensively among the patches of bright tallow clothes, but there was no sign of his father and mother among these people,(cd) who seemed to laugh and talk just for the sake of laughing and talking.(cxrc) (cdcx)]

68. [He ran hotly again, this time to a shrine to which people seemed to be crowding. (adcp) (cx)]

69. [Every little inch of space here was congested with men, but he ran through people's legs, (cd) his little sob lingering, "Mother, father".(cxq) (cdcx)]

70. [Near the entrance of the temple, however, the crowd became very thick: men jostled each other – heavy men, with flashing, murderous eyes and hefty shoulders. (cd)]

71. [The poor child struggled to carve a way between their feet, but, knocked to and fro by their brutal paws,(nfndpp:e) he might have been trampled underfoot,(cd) had he not shrieked at the highest pitch of his voice, (adccc) "Father, mother".(cxq) (cdcx)]

72. [A man in the surging crowd heard his groan, and, stopping with very great difficulty, (nfndpre.p:r) lifted him up in his arms.(cd) (cdcx)]

73. ["How did you get here, child? Whose baby are you?" (cxq) the man asked as he steered clear of the mass. (adc:t) (cxcx)]

74. [The child wept more bitterly than ever now and only cried, (cd) "I want my mother, I want my father". (cxq) (cdcx)]

75. [The man tried to soothe him by taking him up to the roundabout. (nfnd pr.p:s) (cx)]

76. ["Will you have a lift on the horses?", (cxq) he gently asked as he approached the ring. (adc:t) (cxcx)]

77. [The child's throat tore into a thousand shrill sobs and he only shouted, (cd) "I want my mother, I want my father." (cxq) (cdcx)]

78. [The man headed towards the place where the juggler still played on the flute to the dancing cobra. (adcp) (cx)]

79. ["Listen to that nice music, child," he pleaded. (cxq)]

80 [But the child shut his ears with his finger and shouted his double-pitched strain,(cd) "I want my mother, I want my father" (cxq) (cdcx)]

81. [The man took him near the balloons, thinking the bright colours of the balls would distract the child's attention and quieten him.(nfndrc pr.p:r) (cxcd)]

82. ["Would you like a rainbow-coloured balloon?' he persuasively asked. (cxq)]

83. [But the child turned his eyes from the flying balloons (cd) and just sobbed, (cd) "I want my mother, I want my father". (q) (cdcdcx)]

84. [The man, still importunate in his kindly desire to make the child happy, (ndrc) bore him to the gate where the flower-seller stood. (adcp) (cxcx)]

85. ["Look, Can you smell these nice flowers, child ? Would you like a garland to put round your neck?" (q) (cx)]

86. [The child turned his nose away from the basket and reiterated his sob,(cd) "I want my mother, I want my father". (q) (cdcx)]

87. [Thinking to humour his disconsolate mind by a gift of sweets, (nfndrc prp:r) the man took him to the counter of the sweet-shop.(cx)]

88. ["What sweets would you like, child?" (q) , he asked. (cx)]

89 [The child turned his face from the sweet-shop and only sobbed, (cd) "I want my mother, I want my father". (q) (cdcx)]

OPiL 32(126-140): 2006

NEWS OF THE DEPARTMENT

Seminars/Workshops organized

National Workshop on Linguistics and Communcation Disorders
January 5-6, 2007

The characterization, assessment and remediation of communication disorders require the linking up of different disciplines including psychology, sociology, neurology and computer sciences. Speech-language clinicians cannot mechanically apply a given discipline's concepts and methods to solve clinical problems. Specific clinical contexts and specific languages require application of particular concepts and methods from different disciplines. In countries where clinical linguistics has evolved as a full-fledged sub-discipline of linguistics, there has been an active mediation on the part of linguists. This mediation has been in the form of tutorials in journals of common interest or books specially designed for practicing speech-language pathologists or designing of assessment tools. This has happened primarily in relation to English language.

To promote such a dialogue on communication disorders in Indian languages, the Centre of Advanced Study in Linguistics, Osmania University, Hyderabad, organized a two-day National Workshop on Linguistics and Communication Disorders during January 5-6, 2007 at Seminar Hall, University College of Arts & Social Sciences. Neurologists, Speech-Language Pathologists, Psychologists and Linguists from different parts of the country are going to

deliberate on communication disorders such as aphasia, dementia, mental retardation, specific language impairment and LK syndrome.

Visiting Faculty

1. Prof.C.Ramarao/s visit from 1st to 30th August 2006

2. Dr.E.Mani Rao, Speech Language Therapist at the Royal Hospital for sick children as part of the NHS Supported Community Child Health Services in Greater Glasgow, Scotland, UK, spent two week (23.12.2006 to 6.1.2007) at the CAS in Linguistics as a Visiting Scholar. She gave a series of six lectures on Child Language Disorders:

27.12.2006	Topic-1: Introduction to Phonological Disorders
28.12.2006	Topic-2: Phonological Disorders: Analyzing disordered speech
29.12.2006	Topic-3: Perception vs. Production in Phonological Disorders
02.01.2007	Topic-4: Introduction to Specific Language Impairment (SLI)
03.01.2007	Topic-5: Speech and Language: Characteristics of children with SLI
04.01.2007	Topic-6: Language & Cognition: Insights from SLI

These lectures organized at the New Seminar Hall of the University College of Arts & Social Sciences, Osmania University, were attended by M.A. students and research scholars in Linguistics as well as sixty B.Sc & M.Sc. (Audiology & Speech Language Pathology) students; 20 each from the Southern Regional Centre of the AYJ National Institute for the Hearing Handicapped, Secunderabad, Helen

Keller Institute for Rehabilitation, Secunderabad and Sruthi Institute for Research and Training in Speech and Hearing (part of the Sweekar-Upkaar Trust), Secunderabad.

Her lectures on the topic of Phonological disorders covered issues such as phonological development, phonological processes and their impact on speech intelligibility, techniques of analyzing disordered phonological systems, role of perception in phonological development assessment batteries in English and issues connected to literacy difficulties experienced by children with phonological disorders.

The second set of lectures on specific language impairment (SLI) covered issues of Definition and diagnosis and Psychological vs. linguistic approaches, assessment batteries for English speaking children for assessing expressive and receptive language abilities, contribution from linguistics, Implications of research on SLI to our understanding of cognition and the question of modularity. The lectures were interactive. Several students participated by asking questions and seeking clarification of the concepts discussed.

During her residency at Osmania University, Dr.Mani Rao also shared with some of the faculty members findings based on her doctoral research conducted at the City University, London on the nature of phonological disorders among Marathi-Hindi speaking children.

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Joint Advisory Committee meeting:

The Joint Advisory Committee meeting of CAS and ASIHSS was held on 14.3.2006.

Academic activities of the Faculty:

Publications of the Faculty

K. Nagamma Reddy

1. A bibliography of M.B.Emeneau (joint paper with B.Ramakrishna Reddy) International Journal of Dravidian Linguistics, Vo.XXXIV, No.2, pp.227-255.

2. Pronouncing Dictionary for Telugu, Osmania Papers in Linguistics, Vol. 31, 2005. pp.50-63. (Brought out in 2006).

3. Dravidian Phonology: Contribution of Prof.M.B.emeneau. (Endowment Lecture International Journal of Dravidian Linguistics, Vol.2, Thiruvananthapuram pp.37-70.

4. Women's education and development. Osmania Journal of Social Sciences: Bi-annual Journal of the Faculty of Social Sciences, Vol.VI, No.1, June, 2006, Pp. 102 -111.

5. Innovations in the languages of India in News Media. 2006. In Feserstriete for R.P. Saxena, Deportment of Languages and Literature, Nagpur University, Nagpur, Pp.121-128.

6. Linguistic (Segmental, Suprasegmental And Grammatical) Functions of LengthTelugu. Indian Linguistics Vol.67 Numbers 1-4, 2006.Pp.183-190.

D. Vasanta

1. Syllabic Constraints in the Phonological errors of Children with prelingual hearing loss: A Perspective from Telugu. In Zhu Hua & Barbara Dodd (Eds.), Phonological Development and Disorders in Children: A Multilingual Perspective Clevedon, UK: Multilingual Matters

2. The role of semantic transparency in the Processing of Telugu Compounds. International Journal of Dravidian Linguistics XXXV:2, 107-116.

B. Vijayanarayana

1. Co-edited (with P.C.Narasimha Reddy, G.Umamaheswara Rao, and M.V.Ramanaiah) Bhaasha: International Journal of Telugu Linguistics, Vol.1:1, 2006.

K. Ramesh Kumar

1. Co-editor. Gondi Bharati (3rd Class text book in Gondi languages). Hyderabad: Sarvasiksha Abhiyan.

2. Co-editor. Adiwasi Oriya Bharati (3rd Class text book in Adiwasi Oriya language). Hyderabad: Sarvasiksha Abhiyan.

Papers Presented in Seminars/Conferences

K.Nagamma Reddy

1. Segmental, Suprasegmental and Grammatical Functions of Length in Telugu. Presented at International

Conference on Frontiers of Speech and Music, Held at Lucknow.

2. Participant Workshop on Telugu Free Software, organized under the Joint Auspices of Society for Computer Applications in Indian Languages (SCIL), Literacy House (AMS).

3. Duration Studies of Declarative Telugu sentences in different emotions/attitudes, Joint paper with P.N.Girija and A.Sridevi of University of Hyderabad, Dept of Computer & Informational Sciences, Artificial Intelligence Lab.

4. Syllable structure and quality adjustment in Telugu. Platinum Jubilee All India Conference of Linguists, Department of Applied Linguistics, University of Hyderabad (in collaboration with Central Institute of Indian Languages, Mysore and Dravidian University, Kuppam).

5. Pronunciation Dictionaries for Telugu and Tamil, paper presented at the Conference on Lexicography, Annamalai University, Annamalainagar.

6. An Acoustic Study of Fricative Consonants in Telugu. Presented at the 34th All India Dravidian Linguists Conference, Thiruvananthapuram.

V.Swarajya Lakshmi

1. Presented a paper on Variation in Language and Communication Problems in Telugu, in a National Seminar

on Language and Interfaces, held by University of Delhi, Delhi, during March 24-25, 2006.

Extension activities

Aditi Mukherjee

Co-ordinated and anchored eleven episodes on Gender and Society for National telecast on behalf of EMMRC, O.U.

Research Projects

A. On-going

K.Nagamma Reddy

1. Chief- Resource Person on Telugu Language for Online programme of the Project on "Language Information System-India" (LIS-India) Central Institute of Indian Languages, My sore (2002- 2007).

2. Interactive and collaborative Projects on Speech Synthesis and Recognition for Telugu, Dept.of Computer & Informational Sciences, Artificial Intelligence Lab. University of Hyderabad. (2005 onwards)

3. Technical Advisor to a Project on Speech Recognition system for Telugu (K. N. Murthy), Department of Computer Science, l University of Hyderabad,
4 Individual teachers like Mythili (Computer Science,O.U.) and Lalita (Electronics and Communicatin Unit, O.U.)

B. Consultancy projects

Name of the coordinator	Title of the project	Cost of the project	Period of the project
1. Dr.Rajindra kumar,addl. Director & Head, C-DAC, Thiruvanantha-puram	Annotated speech corpora Development in Indian languages.	Academic consultancy	2004 onwards
2. Dr.R.Shukla, C-DAC, Noida, Delhi	Annotated speech corpora Development in Indian languages.	--do--	2003 onwards
3. Dr. A.K. Dutta & Shyamal Das, C-DAC, Kolkata	Development of Annotated speech corpora for speech Technologys'and Application of International Phonetic Alphabet in Indian languages.	--do--	2004-2007
4.Dr.K.Narayana Murthy. Dept.of Computer & Informationa Sciences, University of Hyd.	Speaker Independent Continues Speech Recognition for Telugu.	Technical Advisor.	2006 Onwards

5. Dr. N. Girija, Dept. of Computer Science, Artificial Intelligence Labs, HCU	Speech Synthesis and Recognition Systems Development.	Joint Researcher and Consultant Phonetician	2004-2006.
6. Faculty Members of the Dept. of Kannada and Linguistics	Consonant Clusters in Kannada.	Consultant Phonetician and Guide	2004-2006.
7. Dr. Mythilli, (Computer Science), and Mrs. Lalitha (Electronics and Communication Unit), Osmania University, Hyderabad.	Development of Speech Recognition System for Telugu.	Consultant Phonetician	2006.

Academic assignments and Extension programmes

K. Nagamma Reddy

1. Vice-President, Dravidian Linguistics Association, 2006 - 2007.

2. Vice-President, Indian Academy of Social Sciences, Andhra Pradesh Chapter.

3. Member, Joint Inspection Committee, on New Private Unaided Colleges, Constituted by APSCHEm, Hyderabad. 2005-06

4. Executive Council Member, Society for Computer Applications in Indian Languages, Hyderabad.

5. Technical Consultant Linguist, Artificial Intelligence Lab, Department of Computer and Information Sciences, University of Hyderabad.

6. Expert Member of the Board of Studies in Linguistics (till 2007) and external Member (nominated by the Vice-Chancellor of Andhra University) of the Advisory Committee for the establishment of Language Laboratary, A.U. College of Arts and Commerce, Andhra University, Vishakapatnam (2004-2009).

7. Expert Member, National Academic Planning Committee, Indian Council for Social Sciences, Allahabad.2006-2007.

8. Member, Advisory Board, Indian Journal of Language and Literature. Department of Linguistics, Foreign and Indian Languages, Nag Publications, Nagpur.

9. Member of Editorial Board, Linguistics and Literature: Studies in Honour of Professor Ram Prakash Saxena, VaiBhav Prakashan, Raipur (India).2006

10. External Member, Board of Studies in Linguistics, Sri Venkateswara University, Tirupathi.2006 -2009.

11. Subject expert in Linguistics for assessing the publications of Readers for promotion as Professors under "Career Advancement Scheme (CAS)" of various Universities/ Institutes Such as Banaras Hindu University, CIEFL, Karnataka University, Puna University and Mysore University.

12. Subject Consultant, C-DAC, Tiruvanamthapuram, kerala.

13. Delivered Lectures on Contribution of Phonetics to Speech Recognition and consultant Member of Narayanamma Technology & Science College, Hyderabad. (2006) Honoured With College Momento.

14. Lectured as Resurce Person on Articulatory and Acoustic Phonetics and Syllabification of Aspirated consonants in Khadia, at the Workshop on Phonetics and Phonology of Austro-Asiatic languages, C.I.I.L. Mysore. November, 2006..

15. Expert Member, BOS, Centre of Linguistics, School of Language, Literature and Culture Studies, Jawaharlal Nehru University. 2007.

V. Swarajya Lakshmi

1. Delivered a lecture on `Loan Words in Telugu' in the Refresher Course in
Telugu on 26.8.2006.

2. Delivered a lecture on `The Gwynn Committee Report and Its Impact on the Education System'. In a Seminar on `Telugu as Medium of Instruction' organized by Telugu Linguists Forum on 10.9.2006.

3. Delivered a lecture on "Telugu as official language – a Review" In a Workshop organized by Telugu Linguists Forum in collaboration with Official Language Commission on 25.9.2006.

D. Vasanta

1. Gave a lecture in the orientation programme for parents of deaf children studying in an integrated set-up on teaching language organized by the Southern Regional Centre of the AYJNIHH at their institute in Secunderabad during 6-8 February 2006.

2. Participated in one-day meeting of the National focus group of education of children with special needs by the NCERT, New Delhi at the Department of Special Education, NCERT on April 21, 2006.

B. Vijayanarayana

1. As resource person gave a lecture on 'Translation' in a Workshop on 'The Use of Telugu in the Administration', jointly organized by the Telugu Linguists Forum, Dr.MCRHRD Institute of Andhra Pradesh, and the Official Languae Commission of Andhra Pradesh on 28.9.2006.

K. Ramesh Kumar

1. Participated as resource person in the workshop on "Teachers' Training workshop For Teaching Maths in Tribal Languages", June 3rd & 4th 2006 at ITDA, Rampachodavaram, East Godavari District, A.P.

2. Participated as a resource person for Gondi & Adivasi Oriya in the Workshop on "Finalisation of Tribal Culture Specific Text Books for Class III in Tribal Dialects", 15th to 20th May, 2006. Organized by Sarva Siksha Abhiyan, at the State Project Director's Office, SSA, Hyderabad, A.P.

3. Participated as a resource person in the Workshop on "Teachers' Training workshop for Teaching Class- II Text Books of Banjara Language", July, 2006 at ITDA, Eturunagaram, Warangal District, A.P.

4. Participated as a resource person for Gondi & Adivasi Oriya in the Workshop on "Editing of Tribal Culture Specific Text Books for Class III in Tribal Dialects", 1st to 4th September, 2006. organized by Sarva Siksha Abhiyan, at the State Project Director's Office, SSA, Hyderabad, A.P.

5. Participated as a resource person for Gondi & Adivasi Oriya in the Workshop on "Translation of Tribal Culture Specific Text Books for Class III in Tribal Dialects", 11th to 16th September, 2006. organized by Sarva Siksha Abhiyan, at the State Project Director"s Office, SSA, Hyderabad, A.P.

6. Participated as a resource person for Gondi & Adivasi Oriya in the Workshop on "Translation of Tribal Culture Specific Text Books for Class III in Tribal Dialects", 13th to 16th November, 2006. organized by Sarva Siksha Abhiyan, at the State Project Director"s Office, SSA, Hyderabad, A.P.

PUBLICATIONS OF THE DEPARTMENT OF LINGUISTICS OSMANIA UNIVERSITY

*1. **Krishnamurti,Bh. and Aditi Mukherjee**. Eds.1984. *Modernization of Indian Languages in News Media.* Hyderabad: Centre of Advanced Study in Linguistics, Osmania University.

2. **Krishnamurti,Bh.** (co-edited with **Colin P.Masica and A.K.Sinha**). 1986. *South Asian Languages: Structure, Convergence and Diglossia.* Delhi: Motilal Banarsidass. ISBN: 81-208-0033-8

*3. **Ranganadhacharyulu,K.K.** 1987. *A Historical Grammar of Inscriptional Telugu.* Hyderabad: Centre of Advanced Study in Linguistics, Osmania University.

*4. **Mukherjee, Aditi**. Ed. 1989. *Language Variation and Language Change.* Hyderabad: Centre of Advanced Study in Linguistics, Osmania University.

*5. **Lakshmi Bai, B. and B.Ramakrishna Reddy**, eds. 1990. *Studies in Dravidian and General Linguistics: A Festschrift for Bh.Krishnamurti.* Hyderabad: Centre of Advanced Study in Linguistics, Osmania University.

6. **Lakshmi Bai, B. and Aditi Mukherjee.** Eds. 1993. *Tense and Aspect in Indian Languages.* Hyderabad: Centre of Advanced Study in Linguistics, Osmania University, and Booklinks Corporation. ISBN: 81-85194-16-5.

7. **Venkateswara Sastry, J.** Ed. 1994. *Art and Science of Translation.* Hyderabad: Centre of Advanced Study in Linguistics, Osmania University, and Booklinks Corporation. ISBN 81-85194-29-7.

8. **Lakshmi Bai, B. and D.Vasanta.** eds. 1994. *Language Development and Language Disorders: Perspectives from Indian Languages.* Hyderabad: Centre of Advanced Study in Linguistics, Osmania University and Bahri Publications, New Delhi. ISBN-81-7034-097-7.

9. **Swarajya Lakshmi, V. and Aditi Mukherjee**. Eds. 1996. *Word Order in Indian Languages.* Hyderabad: Centre of Advanced Study in Linguistics, Osmania University and Booklinks Corporation.

10. **Vijayanarayana, B. and C. Ramarao.** Eds. 1998. *Word Formation in Indian Languages.* Hyderabad: Centre of Advanced Study in Linguistics, Osmania University, and Booklinks Corporation. ISBN: 81-85194-51-3.

11. **Vijayanarayana, B., K. Nagamma Reddy, and Aditi Mukherjee**. Eds. 2001. *Language Matters: Papers in Honour of Professor C. Ramarao.* Hyderabad: Centre of Advanced Study in Linguistics, Osmania University, and Booklinks Corporation. ISBN: 81-85194-65-3.

12. **Ramesh Kumar, K.** ed. 2002. *Studies in Sociolinguistics and Applied Linguistics: Papers in Memory of Prof.Arun Kumar Sharma.* Hyderabad: Centre of Advanced Study in Linguistics, Osmania University and Booklinks Corporation. ISBN: 81-85194-68-8.

13. **Mukherjee, Aditi and Duggirala Vasanta.** Eds. 2002. *Practice and Research in Literacy.* New Delhi: Sage Publications.

14. **Swarajya Lakshmi, V.** Ed. 2002. *Case for Language Studies: Papers in Honour of Prof. B.Lakshmi Bai.* Hyderabad: Centre of Advanced Study in Linguistics, Osmania University, and Booklinks Corporation. ISBN: 81-85194-70-x

* Copies of these books are available in the Department of Linguistics, Osmania University, Hyderabad 500 007, India.

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