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O. Henry's 'After Twenty Years' : A Text Analysis*

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Abstract

This paper analyses the textual features of a written narrative text using the framework of Halliday (1985) to demonstrate how language plays a significant role in projecting the literary qualities of the text and to explain why a text means what it does.

Introduction :

William Sydney Porter (1862-1910) is one of the famous short story writers of America. He has written more than nine hundred short stories under the pseudonym O. Henry. Many biographical and critical studies have dealt with his life and works (Current - Garcia (1965), Long (1960), Smith (1916), Ejxembaum (1968), Langford (1957), Nazneen (1980), Thomas (1997) and Ozarde (1994); but no study has so far tried to examine the textual aspects of his stories. Hence this paper modestly attempts to do a text analysis of one of his best known and often prescribed stories namely 'AFTER TWENTY YEARS' (Porter, 1907; 49-54) applying the framework of Halliday's *An Introduction to Functional Grammar* (1985).

Text Analysis

Halliday's systemic grammar explains how clauses are organized in terms of message, exchange and representation reflecting the textual, interpersonal and ideational functions of

language respectively. To be very precise, textual function explains the ways in which text links itself and with its social context. Interpersonal function brings out the social, expressive and conative functions of language used in text. And ideational function expresses prepositional context of text, i.e., its experience of the real world (experiential aspect of meaning) and of its inner world (reflective aspect of meaning). This paper tries to apply Halliday's framework to examine critically the textual features in the selected short story. The methodology involved in the analysis of statistical data presented in the tabular forms is that the textual features of the chosen short story are analyzed in terms of the functions of language proposed by Halliday, adopting interpretative procedures to explain the literary qualities of the text with a linguistic approach.

Textual function in 'After Twenty Years'

Clause consists of elements which function as Subject (S), Predicator (P), Complement (C) and Adjunct (A) as in

- 1) The Police man (S) / gave (P) / a letter (C) / to Bob (C) / then (A)
- 2) Jimmy Wells (S) / is (P) / a police officer (C) / in New York (A)

There are three kinds of Subject :

- (a) Psychological Subject (PS) called Theme (T) meaning the one which is the concern of the message.
- (b) Grammatical Subject (GS) called Subject (S), meaning that of which something is predicated, and (C) Logical Subject (LS) called Actor (AC) meaning the doer of the action.

These three kinds of Subject represent the textual, interpersonal and ideational functions respectively. All these three functions may be mapped on in one constituent as in

- 3) Bob (PS, GS, & LS) / told the police officer his story.
Or two functions are mapped on in one constituent
- 4) The police officer (PS & GS) / was told / by Bob (LS) / his story.
- 5) His story (PS & GS) / was told / by Bob (LS) / to the police officer.

Or all the three functions are separated :-

- 6) His story (PS / the police officer (GS) / was told / by Bob (LS).

The Predicator is realized by a verbal group minus the finite element - temporal or modal operator. For ex. 'been asking' in 'have been asking' and 'have been going' in 'must have been going' are the predicators. The Complement is an element which has the potential of being subject but is not. In ex. 3 there are two complements 'the police officer' and 'his story'

Either of them could function as subject as in ex. 4 and 5,

The Adjunct is an element that has not got the potential of being subject, realized by an adverbial group or prepositional phrase in English.

7. Bob met Jimmy / in New York (A) / after twenty years (A)

Every clause has the Theme Rheme structure. The Theme is the element that serves as the point of departure of the message. It is that with which the clause is concerned. The remainder of the message is called the Rheme, which develops

the Theme. There are unmarked and marked Themes. An unmarked Theme is the one which is mapped on to subject as in

- 8) The police man (THEME (PS), SUBJECT (GS) ACTOR (LS) / saw / Bob / near a hardware store.
- 9) Bob (THEME (PS), SUBJECT (GS) / was seen / by the police man (ACTOR (LS) / near a hardware store.

The marked theme is the one that is other than Subject (GS) as in

- 10) Bob (Complement) (THEME (PS) / the police man (SUBJECT (GS) ACTOR (LS) / saw / near a hardware store.
- 11) About twenty minutes (ADJUNCT) (THEME (PS) / he (SUBJECT (GS) ACTOR (LS) / waited.
- 12) Forget (PREDICATOR) (THEME (PS) / it / I (SUBJECT (GS) ACTOR (LS) never shall.

where Complement (C) Adjunct (A) and Predicator (P) are brought to the initial position of the utterances to function as Themes (i.e., Psychological Subjects with which the clauses are concerned about). Likewise interrogative, imperative and exclamatory clauses also have both unmarked and marked Themes (Halliday, 1985 : 38-52 and Arunachalam, 1992 : 401-407 and 516-590).

Unmarked and Marked Themes

The Theme-Rheme structures of “After Twenty Years” can be analyzed between and within the utterances at the inter clause level and intracause level respectively, as presented in Appendix I.

An analysis of the organization of Theme-Rheme structures shows that the unmarked and marked themes at inter clause complex level are distributed in the following manner.

Table 1
Distribution of interclause complex level unmarked and marked themes

Theme	Total	Jimmy/ Proxy	Bob	Jimmy/ Proxy & Bob	Bob's dress	Passen- gers	Time	Space
Unmarked	33 %	11 33%	13 40%	2 6%	1 3%	1 3%	2 6%	3 9%
Marked	14 %+	3 21%	1 7%	- -	- -	- -	6 43%	4 29%

Even a cursory review of the distribution of the unmarked themes shows clearly that the story is concerned with two characters namely Jimmy and Wells, who are treated as the points of departure in the organization of clauses as message to the extent of 79%. The placement of Bob's dress as a theme focuses on his richness, while foregrounding of passengers to the thematic position is intended to present textually that the passengers are forced to wear raincoats, which hide their identity. Such a background is essential to the story as it makes the wearing of raincoat by Jimmy's proxy natural in the subsequent scene and Bob will not recognize Jimmy's proxy immediately and escape from him. The unmarked themes related to temporal and spatial dimensions of the story to the tune of 6% and 9% respectively highlight textually the important roles time and space play in the lives of the protagonists.

The marked themes textually emphasize the messages taken as points of departure. They are used to refer to Jimmy to the extent of 21% emphasizing textually his

personality that he is a man of character and integrity. That he is a conscientious officer is stressed in the marked theme that describe his duties. (Ref.T4) (Hereafter T means Theme mentioned in Appendix 1). His satisfaction and modesty are textually focused in the remaining two marked themes, when he responds to Bob's quiry about his present life. (Ref T35 and T36). The marked theme about Bob's activities (T20) stresses textually how he has become prosperous, though his means of acquiring wealth are dubious. These marked themes textually juxtapose the two characters of opposite value systems of life. Jimmy believes that means justify the ends, while the end justifies the means for Bob. Time and space are very significant dimensions of the story. It is textually emphasized when the themes related to temporal and spatial aspects of the story are brought to the marked positions to the extent of 43% and 29% respectively. As the title of the story itself suggests, time plays the most determinative role in the lives of the characters. It is textually substantiated when the marked themes focus maximally on the temporal aspects (Ref T6, T11, T15, T17, T19 and T28). Likewise space provides a definite meeting place to the characters bringing out their nostalgic experiences, and sealing the fate of Bob a criminal in the hands of Jimmy, an ideal policeman. It is textually highlighted in the marked themes related to the spatial dimensions of the story (Ref. T7, T8, T27 and T40).

The distribution of the unmarked and marked themes at the intraclause complex level is as follows :

Table 2
Distribution of intraclause complex level unmarked and marked themes

Theme	Total	Jimmy/ Proxy	Bob	Jimmy & Bob	Time	Space	Other cha- racter	Mee- ting	Jimmy's letter
Unmarried	101 %	38 38%	33 33%	9 8%	4 4%	12 12%	2 2%	2 2%	1 1%
Marked	14 %	3 21%	4 29%	- -	6 43%	1 7	- -	- -	- -

A close examination of the above figures shows that both Jimmy and Bob are brought to the unmarked thematic positions to the extent of 79% at the intraclause complex level reiterating the observation that both of them are the main concern of the story. Similarly time and space are also placed in the unmarked thematic position to the extent of 4% and 12% stressing textually their crucial roles in the story. The placement of other characters namely 'spectators' and a 'man' (T54) in the unmarked thematic position is to provide the setting to describe the natural smartness of Jimmy and his contented and simple life in New York. The agreement between the two friends to meet after twenty years is the central point of the story. It is textually projected in the unmarked themes to the extent of 3% (Ref T7, T30 and T43).

The marked themes at the intraclause complex level also textually repeat the important roles assigned to the characters, time and space in the story. The marked theme 'good fellow', (T52) which is a comment by Bob about his friend, sums up emphatically textually the ideal character of Jimmy. Another marked theme 'somehow' (T113) in Jimmy's letter brings out forcefully his hesitation to arrest his friend directly, projecting the emotional conflict he undergoes. It also textually infers that as a friend he feels sorry for the present criminal status

of Bob, but as a sincere police officer, he has to discharge his duties faithfully, of course by deputing his colleague.

Yet another marked theme 'hope' (T52) apparently expresses the sincere belief of the policeman that Bob's friend will meet him without fail. It also textually implies that Jimmy wants to create an impression that he does not suspect Bob at that point of time and rather believes his story. The marked themes at the intra clause complex level used to refer to Bob's activities textually project the fact that the policeman Jimmy wants to be sure that Bob is not going to leave New York immediately, to create a friendly unsuspecting atmosphere and to stress the fact that Bob will face severe consequences, if he tries to escape from the clutches of the police. Similarly the marked theme 'sounds' (T8) textually focuses on the fact that honouring the appointment made twenty years ago is exceptionally unprecedented. The marked themes associated with the temporal aspect (T11, T19, T34) reiterate the significant role of time in the story. The repetition of the marked themes in 'twenty years' (T27) and 'a long time between meets' (T29) textually displays the considerable gap of duration of time in the lives of the individual to achieve what they want - whether to remain to be an ideal character or to become a criminal to amass wealth. As stated already, the space of the story becomes a strong linkage between the two characters. It is reflected textually in the marked theme (T25) that assures that distance will not be a hindrance for the meeting between the friends.

The story has two clear-cut parts, which are not stated by the narrator: Firstly the meeting between the policeman and Bob and secondly the arrest of Bob by the proxy of Jimmy. The repetitions of the activities of Jimmy and the descriptions of the setting of the story at the beginning

(utterances 1-6) and ending (53 to 56) of part I of the story textually project the impression that the policeman has nothing to do with Bob and he is just performing his duty. It also helps textually not to create any clue about the real identity of the police man to Bob as well as to the reader till the end of the story in order to achieve the surprising ending, that is the distinctive quality of O. Henry's stories. Indeed the real identity of Jimmy is disclosed at the end of the story by his proxy and in his short letter addressed to Bob.

A close examination of the thematic structure shows that the policeman has a distinctive identity. He is one of the ideal, conscientious policemen and his entire identity is confined to his existence as a sincere policeman. It is textually presented in the fact that the very introduction of him in the opening utterance itself with the non-selective specific anaphoric demonstrative reference 'the' implies that he is the ideal police man whose identity is well known in New York and he does not need any introduction from any other sources.

In contrast, Bob has lost his identity, as he has uprooted himself from his native place New York and gone in search of green pasture in the West especially in Chicago, like a typical American protagonist. Hence his introduction as 'a man' with an indefinite article 'a' in the following utterance

[In the doorway of a darkened hardware store (Theme)
| *a man* leaned with an unlighted cigar in his mouth
(Rheme)] (utterance 8)

textually implies that his identity is not known. Further his identity is determined on the basis of his activity as in 'the waiting man' (utterances 37 and 38) and 'the man who had come a thousand miles to fill an appointment, uncertain almost to absurdity into the friend of his youth' (utterance 56) or the

places of his stay/living as in 'the man in the door' (utterance 60 'the man from the west') (utterances 76, 80 and 90)

In the organization of the message, Theme is more important than Rheme, as the former is treated as a point of departure while the latter is meant for the information that is already known or insignificant. The way in which the characters are introduced textually brings out their significant personality or role in the story. The policeman is introduced in the Theme of the utterance textually indicating his important role as well as his philosophy of life. On the contrary, Bob is introduced in the Rheme of the utterance implying textually his insignificant personality trait and the rejection of his way of life. He is a criminal whose activities shaken the very economic foundation of the society. So he should be punished and rejected and that can be possible only by an ideal man like Jimmy who is known for his honesty and integrity.

A close examination of the thematic structures in 'AFTER TWENTY YEARS' shows that the narrator uses the third person narration to recount the events narrated. He never discloses anything about himself, his self-consciousness, intrusiveness and reliability. However his narratee is referred to only once as 'you' in utterance 6. But the reference to him in the Rheme of the utterance textually indicates his insignificant role. Further nothing is said about his character, knowledge and change. This implies textually that the short story is fully concerned with the narrated events only, but not its narrational dimensions.

Simple and Multiple Themes:

The Themes are classified into simple and multiple Themes. The simple theme has the ideational component only

namely Subject, Predicator, Complement or Adjunct in the clause initial thematic position. Whereas the multiple Theme consists of textual and / or interpersonal components in addition to the ideational component. The textual element within the Theme may have any combination of (i) continuative (ex. Yes, no, well, oh, now), (ii) Structural (ex. and, or, but, so yet, because, though, unless, since, even if, supporting (that), in spite of, etc. or relatives like which, who, that, where, when, whatever, whoever, whenever, etc and (iii) conjunctive Adjuncts (ex. for instance, rather, to be precise, therefore, nevertheless, likewise, hence, besides, moreover, etc.) The interpersonal element within the Theme may have a (i) Modal Adjunct (ex. probably, usually, often, personally, frankly, really, no doubt, initially, on the whole, wisely. by chance, etc.), (ii) The Finite verb, in a yes/no interrogative clause, and (iii) a vocative element (ex. Bob, sir, officer, etc.)

(Ibid: 53-67) - The following is the pattern of arrangement of the simple and multiple Themes in "After Twenty Years" at the interclause and intraclass complex levels.

Table 3
Distribution of Interclause and intraclass simple and multiple themes

Level of Clause	Total	Simple	Multiple
Inter clause	47 %	37 79%	10 21%
Intra clause	115 %	73 63%	42 27%

The above figures clearly show that the simple themes are used mainly to the extent of 79% and 63% at the interclause and intraclass complex levels respectively, dealing with the subjects proper of the clause complexes.

An analysis of the distribution of internal classifications of the multiple themes at interclause as well as intraclause complex levels is provided in the following table.

Table 4
Internal classifications of interclause and intraclause multiple themes

	Total	Textual paratactic	Textual hypotactic	Textual continuative	Textual non-modal	Textual continuative	Modal adjunct	Vocative	Conjunctive adjunct
Inter	10 %	1 10%	2 20%	4 40%	2 20%	1 10%	- -	- -	- -
Intra	42 %	19 45%	13 31%	4 10%	11 2%	- -	2 5%	2 5%	1 2%

The above analysis of the interclause multiple themes shows that all of them have textual elements. It confirms the fact textually that the story is concerned with its narrated proper only. In other words the absence of interpersonal elements reiterates the fact textually that the narrator never expresses his intrusiveness anywhere. The use of the textual paratactic conjunction 'And' (T27) indicates textually the explicit link between two parts of the story. The textual hypotactic conjunctions 'As' (T9) and 'when' (T41) are used by the narrator to focus on the activities of Jimmy/proxy and Bob. The textual elements like continuatives namely 'well, yes' (T17) 'you bet!' (T21) 'Bully' (T33) and 'Oh!' (T34) appear in the conversations of Jimmy and Bob bringing out their responses in the given contexts. The use of the multiple theme with textual elements namely continuative and vocative in 'Good night Sir' (T24) emphasizes textually the polite departure of Jimmy in order to assure that Bob the criminal at large, will not doubt that the policeman is going to send his proxy to arrest him subsequently.

In the intraclause complex level, the use of textual paratactic and textual hypotactic elements to the extent of 45% and 31% implies textually that the story consists of compound and complex clauses to the tune of 76% and the remaining 24% of the clauses used are only simple. This observation comments textually on the style of the writer in this story. The interpersonal elements namely modal adjuncts 'no matter' (T24) and 'rather' (T29) bring out textually the emotional responses of Bob and Jimmy respectively. The use of conjunctive adjunct 'and then' (T69) textually projects the arrival of the new character, i.e., Jimmy's proxy and the beginning of part II of the story. The interpersonal element - vocative 'officer' (T65) brings out the formal relationship between Bob and the policeman. It also shows that though Bob is a criminal wanted for printing fake currency he is not afraid of speaking with the police officer in a reassuring friendly manner. Similarly another interpersonal element vocative 'Bob' (T109) addressed by Jimmy in his letter displays textually how he still treats him as his friend. The textual elements continuative 'well' (T9, T23 and T29) is used in the conversations between the characters. Its repetition by Jimmy's proxy (T77) emphasizes his restlessness textually.

The foregoing discussion has demonstrated the way in which the message has been organized systematically textually.

Interpersonal function in 'After Twenty Years'

A critical analysis of the clause complexes as exchange between the narrator on the one hand and his narratee | characters namely Bob and Jimmy on the other hand is presented in Appendix 2, based on the analysis of interpersonal function of clauses as exchange in term of primary tense (present, past or future), Modality (modal or non modal),

speech act (declarative, interrogative, imperative or exclamatory), polarity (positive or negative) and modal elements employed in the Mood-Residue structures used in 'After Twenty Years' (Halliday, 1985:68-100 and Arunachalam, 1992:448-470 and 591-617; 1994(a) and (b)). The figures show clearly a uniform pattern in the interpersonal relationships between them at the textual level. It is obvious that the narrator employs non-modal (nm) or temporal operators only to recount the events related to his characters. In other words he does not project his views | comments textually on the events related to them, maintaining emotionally the most distance from them and recounting the events connected with them in a highly formal and the least intrusive manner. However he uses a modal operator 'might' (utterance 6) to comment on the possibility of his narratee, whom he refers to only once, to observe the spatial aspect of the story. Similarly he uses the modal adjunct 'well nigh' (utterance 3) to describe the almost empty roads, and 'suddenly' to comment the activity of the policeman and Bob in utterances 7 and 80 respectively. In the mood structure, the narrator never refers to himself as 'I'. It affirms textually that he has employed the narrativized discourse to recount all events and adopted the third person narration only. The analysis of the speech acts shows that the declarative mood is only employed. It confirms once again that the narrator is never intrusive in his narration. This is further evident in the full use of the positive polarity.

Similarly it is possible to analyse the mood-residue structures of the conversations between the policeman \ his proxy and Bob to bring out the interpersonal relationships between them textually. But this is not attempted in this paper.

Ideational function In After Twenty Years

An analysis of different types of processes of clauses realized by the verbs used with Jimmy and Bob is presented in Appendix 3 and summarized below in Table 5. These verbs are examined in terms of 1. Types of Processes namely (a) material (doing), (b) mental (sensing), (c) relational (being), (d) behavioural (behaving), (e) Verbal (saying) and (f) existential (existing), 2. Voice (Middle or effective), 3. Medium (Agent / Subject or Medium), 4 goal for agent/subject and 5. Primary or Secondary process on the basis of Halliday's frame work (Ibid: 101-157 and Arunachalam, 1992:471-490 and 618-636 and 1999).

Table 5
Types of processes of clauses

Character	Total	Material	Mental	Relational	Verbal	Medium	Agent / Subject	Primary	Secondary
Jimmy	18 %	11 61%	1 6%	2 11%	4 22%	12 66%	6 33%	11 61%	7 39%
Bob	26 %	17 65%	- -	2 8%	7 27%	18 69%	8 31%	18 69%	8 31%

As far as Jimmy is concerned the material processes of clauses are maximally used to the tune of 61% . It creates an impression that he must be a man of action. It is textually proved that his actions are related to discharging of his duties sincerely. A critical examination of the material process verbs shows that 45% of them are middle in voice, as the clauses in which he occurs do not have the feature of agency, i.e., they are neither active nor passive but middle in voice. The remaining material process verbs are effective in voice because

the clauses in which they occur have the feature of agency and if the agent is subject, the clause is in active voice and if the medium is subject, the clause is in passive voice. As far as Jimmy is concerned, he is the agent / subject of all instances of the verbs which are effective in voice. It implies textually that he engenders the processes from outside to control his activities and perform his duties systematically. Further all the effective material process verbs used with him realize the creative type of process, because they bring out the new techniques of guarding the beat impressively. Besides the middle material process verbs namely 'moved' (utterance 1), 'walked up' (utterance 10), 'passing on' (utterance 53), 'went' and 'turning' (utterance 3) also reinforce his method of guarding the beat smartly.

The use of the mental process verb of perception namely 'to cast' (utterance 3) also stresses the fact that he is a careful observer of his surroundings when he is on duty.

The relational process verbs 'was' (utterance 2) and 'made' (utterance 3) used with him textually focus on his inherent personality traits as an honest officer.

The verbal process verbs namely 'said' (utterance 16, 29 and 53) and 'asked' (utterance-40) employed with him project textually his personality trait as a conversationalist who has the capacity to elucite the required information from his interlocutors tactfully.

The verbs used with Jimmy to the extent of 61% realize the complete and independent meaning, as they function as primary processes in the primary clauses of utterances. The remaining 39% of verbs offer incomplete and dependent meanings, as they work as secondary processes in the secondary clauses. However these verbs are also controlled

by the primary process of the verbs namely 'made' (utterance 2) and 'said' (utterance 3) that characterize him as a fine guardian of law.

Regarding Bob, the material processes of clauses are maximally used to the extent of 65%. It creates an impression that he must be a man of action. It is proved textually that he has gone to the west in search of prosperity. An analysis of the material process verbs displays that 35% of them are middle in voice and the remaining 65% of them effective in voice. Bob is the agent /subject of all the instances, implying textually that he engenders the processes from outside. Besides all the effective material process verbs used with him project the dispositive types of process, as they refer to 'doing to' some entities, as in the case of 'struck' a match (utterance 18), 'lit' his cigar (utterance 18), 'pulled out' a handsome watch (utterance 37), 'smoked' his cigar (utterance 56) etc. In addition, the middle material process verbs like 'leaned' (utterance 8) 'waited' (utterance 56,57) and 'stopped' (utterance 80) also stress his routine, normal activities.

The relational process verbs *was' (utterance 20 and 91) used with him project his rich background and bold behaviour.

The verbal process verbs like 'spoke up' (9)'said' (21,31,50) and 'announced' (38) used to the tune of 27% bring out textually that he is a talkative man who does not hesitate to speak even with strangers.

The verbs amounting 69% associated with him express the complete and independent meaning as they are primary processes in the primary clauses of the utterances. They focus textually the normal activities of a waiting person such as leaning, speaking and waiting. The remaining 31% of verbs

provide incomplete and dependent meanings in their secondary clause expressing his reactions to Jimmy's Proxy, his letter and waiting for Jimmy, reflecting his restlessness and impatience.

The above discussion demonstrates modestly that the personality traits of characters can be explained with the help of the ideational function of language.

Conclusion

The paper has humbly applied the framework of Halliday (1985) to bring out the literary qualities of a short story by exploiting the linguistic features of the selected text. Such an exercise concretizes the arguments objectively and empirically. Further it helps the teachers to train the students to improve their linguistic competence and performance.

Note :

- * This paper was presented in the U.G.C sponsored Refresher Course in American Studies (Literature) conducted by Indo-American Centre for International Studies, Hyderabad from 4/6/2001 to 24/6/2001

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Appendix - I

ANALYSIS OF TEXTUAL FUNCTION (CLAUSE AS MESSAGE) OF O. Henry's AFTER TWENTY YEARS

[Abbreviations: T= interclause complex theme; t= intraclause complex theme; us = unmarked and simple; um= unmarked and multiple; ms= marked and simple; mm= marked and multiple; (|) = (theme |rtheme) boundary]

1. (The Policeman on the beat {T1 US} | moved up the avenue impressively). 2. (The impressiveness {T2 US} | was habitual and not for show, || for spectators {t1 um} | were few). 3. (The time {T3 US} | was barely 10 o'clock at night, || but chilly gusts of wind with a taste of rain in them (t2 um) | had well nigh decapocled the streets).

4. (Trying doors as he went, twirling his club with many intricate and artful movements, turning now and then to cast his watchful eye adown the pacific thoroughfare, {T4 MS}| the officer, with his stalwart form and slight swagger, made a fine picture of a guardian of the peace). 5. (The vicinity {T5 US}| was one that kept early hours). 6. (Now and then {T6 MS} | you might see the lights of a cigar store or of an all-night lunch counter, || but the majority of the doors {t3 um} | belonged to business places that had long since been closed).

7. (When about midway in a certain block, {T7 MS}| the policeman suddenly slowed his walk). 8. (In the doorway of a darkened hardware store {T8 MS}) a man leaned, with an unlighted cigar in his mouth). 9. (As the policeman {T9 UM}| walked up to him || the man {t4 us} | spoke up quickly).

10. ("It { T10 US} | 's all right, officer, || he {t5 us} | said, reassuringly). 11. ('I {t6 us} | m just waiting' for a

friend.) 12. (It {t7 us}] 's an appointment made twenty years ago). 13. (Sounds {t8 ms}(a little funny to you, doesn't it?) 14.(Well, I {t9 um}| 11 explain || if you {t10 um} | 'd like to make certain it's all straight). 15. (About that long ago {t11 ms} | there used to be a restaurant where this store stands - 'Big Joe' Brady's restaurant)."

16. ("Until five years ago," {T11 MS} || said {t12 us}the policeman). 17. ("It {t13 us} | was torn down then)."

18. (The man in the doorway {T12 US}) struck a match || and {t14 um}| lit his cigar). 19. (The light {T13 US})|| showed a pale, square-jawed face with keen eyes, and a little white scar near his right eyebrow). 20. (His scarfpin {T14 US} | was a large diamond, oddly set).

21. ("Twenty years ago tonight,'1 {T15 uS})| said {t15 us} | the man, 'I dined' here at Big Joe' Brady's with Jimmy Wells, my best chum, and the finest chap in the world). 22. (He and I {t16 us} [were raised here in New York, just like two brothers, together). 23. (I {t17 us} | was eighteen || and Jimmy {t18 um} | was twenty). 24. (The next morning {t19 ms} I was to start for the west to make my fortune). 25. (You {t20 us} | couldn't have dragged' Jimmy out of New York; {t21 us}|| he thought || it {t22 us}| was the only place on earth). 26. (Well, we {t23 um} | agree that night that we would meet here again exactly twenty years from that date and time, | no matter what our conditions {t24 um}| might be or from what distance {t25 mm} | we might have to come). 27. (We {t26 us}| figured {t27 mm}) that in twenty years each of us ought to have our destiny worked out and our fortunes made, whatever they were going to be)."

28. ("It {T16 US} | sounds pretty interesting," || said {t28 us}) the policeman). 29. ("Rather a long time between meets, {t29mm} | though, [| it {t30 us}) seems to me).

30. (Haven't you {t31 um} | heard from your friend || since you {t32 um}| left?")

31. ('Well, yes, for a time {T17 MM} | we corresponded," || said {t33 us}| the other). 32. ("But after a year or two {t34 mm}] we lost track of each other). 33. (You see, the West {t35 um} | is a pretty big proposition, || and {t36 um} | I kept hustling around over it pretty lively). 34. (But I {t37 um} | know || Jimmy {t38 us} | will meet me here || if he' {t39 um} |s alive, for he {t40 um} | always was the truest, stanchest old chap in the world). 35. (He {t41 us}) '11 never forget). 36. (I {t42 us} | came a thousand miles to stand in this door tonight, || and if {t43 um} |s worth it {t44 um} | if my old partner turns up)."

37. (The waiting man {T18 US} | pulled out a handsome watch, || the lids of it {t45 US} set with small diamonds)

38. ("Three minutes to ten, {T19 MS) || " he {t46 us} | announced). 39. ("It {t47 us} | was exactly ten o'clock || when we {t48 um} | parted here at the restaurant door)."

40. ("Did {T20 MS) | pretty well out west, didn't you?" || asked {t49 us} | the policeman).

41. ("You bet! I {T21 UM} | hope || Jinimy (t50us} | has done half as well). 42. (He {t51 us} | was a kind of plodder, though, || good fellow {t52 ms}| as he was). 43. (I{t53 us} | 've had to compete with some of the sharpest wits going to get my pile). 44. (A man {t54 us} | gets in a groove in New York). 45. (It {t55 us} | takes the West to put a razor-edge on him)."

46. (The policeman {T22 US}| twirled his club || and {t56um}| took a step or two). 47. ("I {t57 us}| '11 be on my

way). 48. (Hope {t58ms} | your friend {t59 us} | comes around all right). 49. (Going to call, {t60 ms} | time on him sharp?"

50. ("I {T23 US} | should say not!" || said {t61 us} | the other, "I{t62 us} | '11 give him half an hour at least).

51. (If Jimmy {t63 um} | is alive on earth || he{t64 us} | '11 be here by that time). 52. (So long, officer)." {t65um}

53. ("Goodnight, sir," {T24 UM} || said {t66 us} | the policeman, passing on along his beat, trying doors |as he {t67 um}) went).

54. (There {T25 US} | was now a fine, cold drizzle falling, || and the wind {t68 um} | had risen from its uncertain puff into a steady blow). 55. (The few foot passengers astir in that quarter {T26 US} | hurried dismally and silently along with coat collars turned high and pocketed hands). 56. (And in the door of the hardware store {T27 MM} | the man who had come a thousand miles to fill an appointment, uncertain almost to absurdity, with the friend of his youth, smoked his cigar and waited).

57. (About twenty minutes {T28 MS} | he waited, || and then a tall man in a long overcoat, with collar turned up to his ears, {t69 um} | hurried across from the opposite side of the street). 58, (He {T29 US} | went directly to the waiting man).

59. ("Is that (T30 UM}you, Bob?" || he (t70 us) | asked, doubtfully).

60. ("Is that {T31 UM} | you. Jimmy || Wells?' cried {t71 us}) the man in the door).

61. ("Bless my heart!" {T32 US} || exclaimed {t72 us} | the new arrival, grasping both the other's hands with his own). 62. (" It{t73 us} | 's Bob, sure as fate). 63. (I{t74 us} | was certain || I{t75 us} | 'd find you here | if you {t76 um} |

were still in existence). 64. (Well, well, well! -twenty years {t77 um}) is a long time). 65. (The old restaurant's {t78 us} | gone. Bob; || I{t79 us} | wish [it {t80 us}| had lasted, | so we {t81 um} | could have had another dinner there). 66. (How {t82 us} | has the West treated you, old man?"

67. ('Bully; it {T33 UM}| has given me everything I asked it for). 68. (You {t83 us}| 've changed lots. Jimmy). 69. (I {t84 us}| never thought || you {t85 us} | were so tall by two or three inches)."

70. ("Oh, I {T34 UM} | grew a bit || after I {t86 um} | was twenty)."

71. ("Doing {T35 MS} | well in New York, Jimmy?"

72. ("Moderately). {T36 MS} | 73. (I {t87 us} | have a position in one of the city departments). 74. (Come {t88 ms} | on. Bob; | we{t89us}] '11 go around to a place I know of, || and I have {t90 um} | a good long talk about old times)."

75. (The two men {T37 US} | started up the street, arm in arm). 76. (The man from the West, his egotism enlarged by success, {T38 US} | was beginning to outline the history of his career). 77, (The other, submerged in his overcoat, {T39 US} | listened with interest).

78. (At the corner {T40 MS}) stood a drugstore, brilliant with electric lights). 79. (When they (T41 UM) | came into this glare || each of them (t91 us) | turned simultaneously to gaze upon the other's face).

80 The man from the West {T42 US} | stopped suddenly || and {t92 um} | released his arm).

81. ("You {T43US} |'re not Jimmy Wells, || he {t93us} | snapped). 82. ("Twenty years {t94 us}) is a long time, but

not long enough to change a man's nose from a Roman to a pug)."

83. . ("It {T44 US} | sometimes changes a good man into a bad one," || said {t95 us} | the tall man). 84. ("You {t96 us}" | 've been under arrest for ten minutes, 'Silky' Bob). 85.(Chicago {t97 us} | thinks || you {t98 us} | may have dropped over our way | and wired {t99 um} |us || she {t100 us} | wants to have a chat with you), 86.(Going {t101 ms} quietly, are you?" || That's {t102 us} \ sensible). 87. (Now, {t103 ms} | before we go to the station || here {t104 us} |'s a note I was asked to hand to you). 88. (You {t105 us} | may read it here at the window). 89. (It {t106 us} |'s from Patrolman Welis)."

90. (The man from the West {T45 US} unfolded the little piece of paper handed him). 91. (His hand {T46 US} [was steady ||) when he {t107 um} | began to read, || but it {t108 um} | trembled a little by the time he had finished). 92. (The note {T47 US} | was rather short),

93. (Bob; I {t109 um} was at the appointed place on time). 94. (When you {t110 um} | struck the match to light your cigar), ||I{t11 us}| saw || it {t112us} | was the face of the man wanted in Chicago). 95- (Somehow {t113 ms} |. I couldn't do it myself, || so I {t114um} went around || and {t115 um} got a plain-clothes man to do the job).

Jimmy

Appendix-2

Analysis of Interpersonal Function (Clause as Exchange)

Utterance No.	Clause elements	Primary tense	Modal	Speech Act	Polarity	Modal elements
1	moved up	P	nm	dc'	po	
2	was	P	nm	de	po	
3	were	P	nm	de	po	
	had well nigh depeopled	P	nm	de	po	ma
4	made	P	nm	de	po	
5	was	P	nm	de	po	
6	you might see	P	m	de	po	
	belonged	P	nm	de	po	
7	suddenly slowed	P	nm	de	po	ma
8	caned	P	nm	de	po	
9	walked up	P	nm	de	po	
	spoke up	P	nm	de	po	
10	said	P	nm	de	po	
16	send	P	nm	de	po	
	lit	P	nm	de	po	
19	showed	P	nm	de	po	
20	was	P	nm	de	po	
21	said	P	nm	de	po	
23	said	P	nm	de	po	
31	said	P	nm	de	po	
37	pulled out	P	nm	de	po	
	set	P	nm	de	po	
38	announced	P	nm	de	po	
40	asked	P	nm	int	po	
46	twined	P	nm	de	po	
	took	P	nm	de	po	
53	said	P	nm	de	po	
	went	P	nm	de	po	
54	was	P	nm	de	po	
	had risen	P	nm	de	po	
55	hurried	P	nm	de	po	
56	smoked	P	nm	de	po	
	wanted	P	nm	de	po	
57	waited	P	nm	de	po	
	hurried across	P	nm	de	po	
58	went	P	nm	de	po	
59	asked	P	nm	de	po	
60	cried	P	nm	de	po	
61	exclaimed	P	nm	de	po	
75	started	P	nm	de	po	
76	was beginning	P	nm	de	po	
77	listened	P	nm	de	po	
78	stood	P	nm	de	po	
79	came out	P	nm	de	po	
	turned summit	P	nm	de	po	
80	stopped suddenly	P	nm	de	po	ma
81	snaapped	P	nm	de	po	
83	said	P	nm	de	po	
90	unfolded	P	nm	de	po	
91	was	P	nm	de	po	
	trembled	P	nm	de	po	
92	was rather	P,	nm	de	po	na

P = past nm = non-modal m=modal de=declarative po = positive ma=modal adjunct

Appendix-3

Analysis of Ideational Function (Clause as Representation)

i) Jimmy

S.No	Utterance No.	Clause elements	Process type	voice		Medium /Agent	Goal	Primary/ Secondary
1	1	moved	material		middle	medium		Primary
2	2	was	relational			medium		Primary
3	3	Trying	material	creative	effective	ag/Sub	door	Secondary
4		went	material		middle	medium		Secondary
5		twirling	material	creative	effective	ag/Sub	his club	Secondary
6		turning	material	creative	middle	medium		Secondary
7		to cast	mental	perception		medium		Secondary
8		made	relational			medium		Primary
9	7	slowed	material	creative	effective	ag/Sub	his work	Primary
10	8	walked	material		middle	medium		Primary
11	16	said	verbal			medium		primary
12	28	said	verbal			medium		primary
13	40	asked	verbal			medium		primary
14	46	twirtled	material	creative	effective	ag/Sub	his club	primary
15		took	material	creative	effective	ag/Sub	a step or two	primary
16	53	said	verbal			medium		Secondary
17		passing on	material		middle	medium		Secondary
18		trying	material	creative	effective	ag/Sub	door	Secondary

ii) Bob

1	8	leaned	material	dispositive	middle	medium		primary
2	9	spoke up	verbal			medium		primary
3	10	said	verbal			medium		primary
4	18	strnek	material	dispositive	effective	ag/sub	a match	primary
5		lit	material	dispositive	effective	ag/sub	his cigar	secondary
6	20	was	relative			medium		primary
7	21	said	verbal			medium		primary
8	31	said	verbal			medium		primary

9	37	pulled out	material	dispositive	effective	ag/sub	a handsome watch	primary
10	38	announced	verbal			medium		primary
11	50	said	verbal			medium		primary
12	56	smoked	material	dispositive	effective	ag/sub	his cigar	primary
13		waited	material	dispositive	middle	medium		secondary
14	57	waited	material	dispositive	middle	medium		primary
15	60	cried	verbal			medium		primary
16	76	was beginning	material	dispositive	middle	medium		primary
17		to outline	material	dispositive	effective	ag/sub	the history of his career	secondary
18	80	stopped	material	dispositive	middle	medium		primary
19		released	material	dispositive	effective	ag/sub	his arm	secondary
20	81	snapped	material	dispositive	middle	medium		primary
21	90	unfolded	material	dispositive	effective	ag/sub	the title piece of paper	primary
22	91	was	relational			medium		primary
23		began	material	dispositive	effective	ag/sub		secondary
24		to read	material	dispositive	middle	medium		secondary
25		trembled	material	dispositive	middle	medium		secondary
26		had finished	material	dispositive	middle	medium		secondary

A Decade of Research in Translation Studies : An Overview of M.Phil. and Ph.D. Dissertations in Four Universities at Hyderabad

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Introduction

A common problem which a researcher faces is: which area and on what topic he should concentrate on for his research. Selecting a new topic of research in a given field is not so easy. Most of the researchers find it difficult to arrive at a definite topic of research. This, in fact, is not only a problem for scholars but also to the proposed research supervisors who may have to advise their students in finalizing a topic.

An overview of the research carried out in various fields will definitely help the prospective researchers to select their particular fields and topic and thereby avoid duplication or repetition. Keeping this in view, the present paper attempts to consolidate thematically and chronologically the relevant information concerning research carried out in the field of translation Studies in four universities at Hyderabad: The University of Hyderabad, Central institute of English and Foreign Languages, Osmania University and Telugu University.

Translation Studies as a branch of knowledge, is an emerging field with new trends and technologies flowing into the field. The emergence of Information Technology including Computer Science given scope to broaden the field of

translation studies. Most of the researchers today concentrate on machine aided translation. To know and to see that one's research is unique and effective, it is very important to have the knowledge about the areas that have already been focused upon and the areas that still require the attention of the researchers.

As a step towards this end, in this paper, we offer an overview of M.Phil, and Ph.D. dissertations. In the process the dissertations produced during the last decade (1990-2000) were considered. One can observe from this overview, the areas covered, areas untouched and needed attention, and the latest trends in the areas of research etc.

Classification of data

M.Phil, and Ph.D. dissertations are shown under two separate categories in the case of each university. Each category of dissertations is again subdivided according to the areas of research. Broadly they are categorized under five heads i.e., Translation Practice, (II) Translation Application, (III) Translation Evaluation, (IV) Machine Translation and (V) Translation Theory.

Although most of the dissertations have been produced under the label of Applied Linguistics (AL), they too are taken for consideration in, this review because of their focus on Translation Studies(TS). In other words, irrespective of their official marking whether they fall under, Applied Linguistics or Translation Studies, they are considered for review, as they concentrate on Translation Studies.

A brief description of the main focus of some of the dissertations of all the four universities are given hereunder. The basis for selection for description is random. However,

effort was made to cover a variety of topics in the case of each category.

There is an appendix at the end showing the details of all the dissertations produced in the field of translation studies in the case of each university. The appendix shows the details pertaining to name of the researcher, topic, source language, target language, name of the supervisor and year of completion and the name of the University to which submitted.

To sum up, all the dissertations produced in the field of translation studies between 1990 and 2000 in all the four universities have been taken for review which comes to 51 (47 M.Phils. and 4 Ph-Ds), as listed under appendix. Out of them 40 (36 M.Phils, and 4 Ph.Ds.) dissertations were chosen for the purpose of this overview in order to depict the nature of the work presented in each dissertation.

(A) University of Hyderabad

M.Phil. Dissertations :

I. Translation Practice :

1. Problems of Pronunciation and Translation faced by Malayalam Speakers of English. (1990. V. Sundary, M.Phil. AL)

The aim of this work is to analyse with the help of a specially prepared corpus, the spoken English and translation abilities of native speakers of Malayalam with a view to find out if they speak an acceptable and intelligible variety of spoken English and if they are able to produce acceptable pieces of translation from English to Malayalam and vice-versa.

2. Translation Versus Innovation: Term Planning in Oriya
(With particular reference to Administrative Terms) (1990. S.K. Pattanayak. M.Phil. AL)

This dissertation discusses how one can develop technical terms through translation in the course of which, innovation plays an important role.

3. Problems of Translating Advertising Literature from English to Telugu: A Case Study. (1990. K. Rajya Rama. M.Phil. AL)

This study gives an idea about the nature of the current linguistic trends in the structure of the Telugu advertisements and throws light on the problems that arise while translating advertising literature.

4. Translating English to Tamil: A Semantic Approach, Prasanna Rekha Abel. (1990. Prasanna Rekha Abel. M.Phil. AL)

This thesis which related syntax and semantics to the process of translation, may be seen as illustrative of the relevance of linguistics as a discipline to the practice of translation. It argues that knowledge of formal linguistic devices enables the translator to make optimal use of such devices to produce effective and accurate rendering of the SL text into the TL.

5. Sub-titling strategies of Indian Film media: Tamil Feature Films: A Case Study. (1991. T. Santosh Kumar. M.Phil. AL)

This study focuses on the strategies employed in the process of sub-titling in English for Tamil films. It is an attempt to offer an account of the linguistic strategies adopted

in the process of subtitling in the light of recent research in translation.

6. Transference of verbal Semantics from Hindi into Telugu. (1992. K. Usha Kiran. M.Phil. AL)

According to this dissertation, the Dakkhini variety of Hindi served as the bridge between the north and the south. Dakkhini which emerged during the Nizam rule, to aid administration and trade, had familiarized the Telugu speakers with Hindi constructions along with Urdu vocabulary. There were also some preexisting Sanskrit verbs in Hindi and Telugu which may or may not correspond to one another. The purpose of the dissertation is not only to study the social psychology as reflected in these language forms and usages, but also the underlying philosophy of language in the words of both Hindi and Telugu speakers as reflected in their use of verbs so that the areas of difficulty could be isolated.

7. Translation of Headlines with special reference to English and Tamil versions of 'India Today'. (1992. P. Selva Kumar. M.Phil.AL)

This dissertation aims at studying some problems of transfer in translating headlines from English to Tamil. The researcher has chosen to examine some headlines in the popular English fortnightly "India Today" and their translations in the Tamil edition of the same magazine.

8. Translation of Jokes from English to Telugu: Some Problems. (1993. M. Radhika. M.Phil. AL).

This work is an attempt of translating jokes from English to Telugu for the purpose of humour-related research. It aims at finding out whether the general techniques used in

II. Translation Application

Dynamics of Translation in reconstructing SCI-TECH Terminologies. (1991. Arul Mozi, S. M.Phil. AL)

The present study places the problem of English-Tamil techno-scientific translation in the context of the pedagogical dimension of modernization and social development. It specifically discusses questions of terminological choice that arise in high school chemistry text books in Tamil.

III. Translation Evaluation

1. Comparison and Evaluation of the Two English translations of Sumati Sataka. (1990. M.A. Saroja, M.Phil. AL)

This dissertation tries to compare and evaluate the two English translations of “Sumati Sataka” by C.P. Brown and by T.V. Subba Rao and C.N. Srinath. An attempt is made to see as to how far the translations are closer to the original and the degree of their success in choosing the closest and natural equivalents in their renderings.

2. On Measuring Translator’s Proficiency: (1992. M.K. Pandey, M.Phil. AL)

The main objective of this dissertation is to study whether a translator’s proficiency can be measured by certain experimental techniques designed on testing grounds and whether the results of such a measurement will reflect the intuitive judgment of the conscientious TL readership on the acceptability of the text in translation.

3. Deviations and creativity in translating ‘Gitanjali’ into English: A Study of Selected Poems. (1994. Bidisha Bandyopadhyay. M.Phil.AL)

This dissertation deals with ‘deviations and creativity’ in Tagore’s English Gitanjali. It focuses on linguistic aspects of deviation/creativity only while leaving out the ‘political’ motivations that underlie (consciously/ unconsciously) a translation.

4. Translation of Middles-An Analysis (With special reference to Eenaadu newspaper) (1995.G. Padmasree. M.Phil. AL)

‘Middle’ is a term used in journalism to denote a brief essay of a literary kind published mainly on politics. The aim of the study is to analyse the translated middles (English - Telugu) of Eenaadu, and identify the important translation procedures used and the lapses in them.

5. The English Translation of muuD_u kathala bangaram of Ravi Sastri: An Evaluation. (1999. T. Durga Srinivasa Rao. M.Phil. TS)

In this thesis the researcher selected an English translation of muuD_u kathala bangaram of Ravi Sastri and tried to evaluate the translation.

6. Translation as a Process: A Study of the English rendering of Gopinath Mohanty’s ‘Harijana’. (1999. Aditi Ghosh. M.Phil.TS)

This dissertation discusses the process of translation and some translation problems while translating Gopinath Mohanty’s novel ‘Harijana’ from Oriya to English. The problems discussed relate to words, phrases, sentences and figurative expressions.

7. Translation and News Headlines: English to Telugu (2000. I. Mallikarjuna Reddy. M.Phil. TS)

An attempt is made in this study to understand the nature of translation, various processes involved and consequent problems with reference to translation pertaining to news headlines from English to Telugu.

8. Translation Assessment: A Study of Telugu Translation of Ambedkar's "Annihilation of Caste". (2000. U. Satya Rao M.Phil. TS)

The main aim of this study is to make structural analysis of sentences in Ambedkar's book "Annihilation of Caste" and its Telugu version translated by Boyi Bheemanna. A few lines of the SL (250) are taken randomly from the SL text and are analysed on the basis of certain linguistic aspects.

IV. Machine Translation (MT)

1. A Prototype machine readable Telugu-English dictionary of occupational terms for translator (1995. M. Chennakesava Murthy. M.Phil. AL)

This study concentrates on the problem of translating occupational terms from Telugu to English. In this study, an attempt is made to compile a Model Telugu-English machine readable bilingual dictionary.

2. Bangla-Hindi bilingual electronic lexicon for Anusaaraka (1996. Aparupa Dasgupta. M.Phil. AL)

In this dissertation a bilingual (Bangla - Hindi) electronic lexicon for use of Anusaaraka Machine Translation system is compiled. Even though the work covered approximately 16,099 entries, it is restricted to words that begin with vowels of Bangla.

3. Improvement of Telugu Morphological Analyzer for Anusaaraka (MT) Applications: A Study of Adjectives. (1997. G.V. Ramesh. M.Phil. AL)

This work is a part of the larger work involving the analysis of Telugu to enable building a morphological analyzer as an essential module in developing Telugu-Hindi Anusaaraka Machine Translation System. It is an attempt of putting the Telugu grammar to machine use.

4. Comparing the post-edited Anusaaraka out-put with human translated texts and evolving guidelines for improving the quality of post-edited anusaaraka out-put. (1998. Padmaja Tanneeru. M.Phil. TS).

The aim of this study is to compare the out-put of Anusaaraka machine translation with human translated text to evaluate the significance of the validity and quality of the post-edited output of Anusaaraka. It is also an attempt to evolve guidelines for improving the quality in terms of acceptability, comprehensibility and readability of Anusaaraka Hindi output by comparing with human translated texts.

5. Of Man and Machine: Literary Translations:A Comparative Study. (1998. D. Sirisha. M.Phil. TS)

The main objective of this study is to compare the human translation with machine translation. For this experiment, the researcher has selected three Telugu stories and at first translated them into Hindi. Later the same Telugu stories were run on the computer for machine translation. Later, she compared the machine translated version with the human translation. The translations are from Telugu to Hindi.

6. An Evaluation of Faithfulness, Comprehensibility and Readability of Anusaaraka MT and human translated texts. (1998. M. Satya Chandra. M.Phil. TS)

This dissertation deals specifically with literary texts, their translation, that is, machine and human. It is a pilot study to evaluate the level of faithfulness, comprehensibility and readability of machine and human translated texts.

7. Developing post-editing strategies for different applications with reference to Telugu-Hindi Anusaaraka. (1998. K. Rajini Reddy. M.Phil. TS)

The aim of this study is to investigate and develop post-editing strategies for different applications with response to Telugu-Hindi Anusaaraka MT System. After a text is fed into the machine and run Anusaaraka, the machine will produce a raw output, which is subjected to post editing. According to the re-searcher, in order to make the raw-output read-worthy and comprehensible with minimum effort and maximum speed, various post-editing strategies are needed to be adopted.

8. Evolving guidelines for pre-editing Telugu Text to improve the performance of Anusaaraka MT system: (1998. K. Himabindu M.Phil. TS)

This dissertation aims at evolving some guidelines for pre-editing Telugu Text to improve the performance of Anusaaraka MT system. Pre-editing enhances the system's performance in a number of ways. Some recommendations are made which will help in enhancing and improving the machine process of Telugu texts efficiently.

9. A machine-readable lexicon for Ao verbs. (1999-Tiala Pongener. M.Phil. TS)

The aim of this dissertation is to compile a machine-readable Ao-English dictionary of verbs aimed at serving the needs of translators from Ao into English. The dictionary included in this thesis has a hypertext interface to facilitate use access both locally and through the internet.

10. Certain aspects of an Electronic Dictionary for a Language Accessor [Telugu-Hindi Anusaaraka System] (2000. P. Kalyani. M.Phil. TS)

The basic principle underlying this work is to enable the accession of the information that is available in the given Telugu text by a Hindi knowing reader. The system guarantees faithful rendering of the message available in Telugu text into Hindi by minimizing subjective interpretation and maximizing objective reading of the source text. The researcher claims that the thesis is a modest demonstration of how Anusaaraka MT dictionaries can be built.

V. Translation Theory

1. Translation as mediation: (2000. S.Rashmi Dev. M.Phil. TS)

In this dissertation the researcher selected four stories published in Hindi in Sahitya Akademy's bi-monthly magazine and translated them into English. He focussed on the themes and treatment and discussed the linguistic and cultural problems faced while translating them.

2. Translation as Recreation (2000. Krishnanjan Bhattacharjee. M.Phil. AL)

This study takes a position that all original fictional writings are extensions of translational strategies in the sense that they are all twice-removed from what goes on in an author's mind while conceiving them. The researcher argues that the author thus translates his original texts into what he comes out with on paper.

Ph.D. level Dissertations

Translation Practice

1. Problems of Translating Culture-specific Terminologies from Tamil to English. (1992. D. Gunasekaran. Ph.D. AL)

This dissertation addresses the following questions: How far the culture-specific terms are translatable (or say, transculturable) without sacrificing the subtle nuances of those terms? How far the translators are able to understand the mechanics of source language (SL) and receptor language (RL) and overcome translation issues? The main purpose of the present research is to find out answers to some of these questions. The other purpose is to ascertain as to how far the reverse or back translation technique is relevant and useful in determining the adequacy and quality of translation. The overall purpose of the study is to help designing a theoretical framework to deal with translation more effectively for optional results.

2. Paramagiitardhamu of Father M. Devadas: A case study in Biblical translation. (1999. D.R.V. Dinakar. Ph.D. AL)

This thesis concentrates on presenting and focussing the mystical religious concepts that are particular to the East.

Accordingly much attention has been paid to religious problems in translation. Culture-specific and language peculiar aspects are also integral parts of this translation enterprise. Equal importance has been given to them, in making a balance between religion, culture and language, which are the essential parts of any complex religious text.

(B) Central Institute of English and Foreign Languages (CIEFL):

Basically most of the dissertations have focused on literature and language teaching. However translation studies also has some place in research at M.Litt. and Ph.D. level in this Institute. For the last 25 years about 10 dissertations have been produced on translation, both at M.Litt. and Ph.D. level. The following two dissertations were produced on translation at Ph.D. level between 1990 - 2000:

Translation Practice

1. English spoken by Malayalam Speakers: A Phonological study with reference to source and Target languages. (1991. Jose, P.V. Fr. Ph.D. in Linguistics)

The aim of this research is to describe the features of Malayalam English (ME) both segmental and supra-segmental, as spoken by the educated Malayalam speakers in Kerala. The study also aims at discovering the extent to which the segmental and suprasegmental features of ME are influenced by Malayalam, the source language.

2. English and Telugu : Problems in Translation: A Study of Literary and Technical Texts. (1991. H. Lakshmi. Ph.D. in Linguistics)

This study attempts at an understanding of the nature of translation, its processes and problems with particular reference to literary and technical texts. It is confined to the translations between English and Telugu. The study, the researcher claims, will help the translator concerned with translations between English and Telugu by providing the knowledge of the major linguistic differences between English and Telugu. It also suggests some guidelines for the translation of poetry and prose.

(C) Osmania University

Almost all the dissertations were focused on Linguistics. No dissertation was produced on Translation Studies between 1990 - 2000. However, earlier in 1986, one M.Phil, dissertation entitled, "The expression of time in Telugu and English with special reference to the problem of translation" by Mr. B. Vijayanarayana has given scope for translation studies.

The above dissertation compares Telugu and English with reference to the linguistic devices they employ in expressing time. 'It has two objectives: (1) to focus the treatment of time in Telugu and English, and (2) to show how time is treated in translation from English to Telugu and vice-versa.

This study examines how a meaning component of one language is transferred to another. It concludes that the two-fold distinction of tense in Telugu (i.e. past and future) and English (i.e., past and present) does not correspond with the three-fold conceptual distinction between past, present and future.

(D) Telugu University

As regards the dissertations produced at Telugu University since 1988, no dissertation on translation studies has so far been submitted either at M.Phil, or Ph.D. level. The researchers mainly concentrated on Linguistics, Language Teaching and Comparative Literature in the area of language studies.

Source and Target Languages

The details of the source and target languages used in the dissertations are shown hereunder in order of their frequency and percentage.

Source Languages

Table - 1

Languages	Frequency	Percentage
English	19	35.1
Telugu	19	35.1
Bangla	05	09.2
Tamil	04	07.4
Hindi	03	05.5
Oriya	02	03.7
Marathi	01	01.8
AO	01	01.8
Malayalam	00	00.0
Magahi	00	00.0
Bhojpuri	00	00.0
Maithili	00	00.0
Others	00	00.0
Total	54	100.0

Target Languages

Table - 2

	Frequency	Percentage
English	18	32.1
Hindi	14	25.0
Telugu	11	19.6
Tamil	04	07.1
Oriya	02	03.6
Marathi	01	01.8
Bangla	01	01.8
Malayalam	01	01.8
Magahi	01	01.8
Bhojpuri	01	01.8
Maiihili	01	01.8
Others	01	01.8
AO	00	00.0
Total	56	100.0

It may be observed from the above tables that English is given first preference as source and target language. Telugu is also on par with English as source language, while Hindi takes the second position as target language. Tamil (7+) and Oriya(3+) has equal status both as source and target languages. Languages like Telugu, Bangla have different frequencies as source and target languages.

Trends

The above data indicate the general trends across time and institutions in the field of research in Translation Studies. Year-wise and area-wise classification of dissertations are shown in the following table.

Table - 3

Year-wise and Area-wise classification of M.Phil. & Ph.d Dissertation

Year	Tr. Pr.		Tr. App.	Tr.Ev.	M.Tr.	Tr.Th.	Total
1990	04	00	01	01	00	00	06
1991	02	02	01	00	00	00	05
1992	03	01	00	02	00	00	06
1993	02	00	00	00	00	00	02
1994	02	00	00	01	01	00	04
1995	01	00	00	01	00	00	02
1996	00	00	00	00	02	00	02
1997	03	00	00	00	02	00	05
1998	00	00	00	00	05	00	05
1999	02	01	00	02	01	01	07
2000	01	00	00	03	01	02	07
Total	20	04*	02	10	12	03	51

* Ph.D.Dissertations

Abbreviations :

- Tr. Pr. - Translation Practice
 Tr. App. - Translation Application
 Tr. Ev. - Translation Evaluation
 M. Tr. - Machine Translation
 Tr. Th. - Translation Theory

It may be observed from the above table that during the initial years Translation Practice was preferred by the researchers. Later after five years, there was a slight decrease followed by a slight increase in the next four years. There was almost no place for Machine Translation in the first five years (except one in 1994).

In our review, a period of 10 years i.e., 1990 - 2000 (since the academic year starts from July/August every year the ten years period has been counted from August 1990

upto the end of 2000) is taken for consideration. For the purpose of determining trends the ten year period has been divided into two halves. The first half of the decade is from 1990 - 1995 and the second half is from 1996 - 2000. The following table shows the area-wise and half-decade wise classification of dissertations with percentages within brackets.

Table - 4

Period	Tr.Pr.	Tr.App.	Tr. Ev.	M.Tr.	Tr. Th.	Total
1990 - 2000	24 (47.05%)	02 (3.92%)	10 (19.60)	12 (23.52%)	03 (5.88%)	51 (100%)
(I half) : 1990 - 1995	16 (66.66%)	02 (8.33%)	05 (20.83%)	01 (4.16%)	00 (0.0%)	24 (100%)
(II half) : 1996- 2000	08 (29.60%)	00 (0.0%)	05 (18.51%)	11 (40.74%)	03 (11.11%)	27 (100%)

As seen from the above table in the first five years 24 dissertations were produced while in the second five years 27 dissertations were produced. While Translation Practice numbered 66.66% in the first half of the decade it came down to 29.60% in the second half. Machine Translation had only 4.16% in the first half and it had rapidly increased in the second half which went upto 40.74% which is the highest among all other areas in the second half. So it can be concluded that during the decade the trend had started with Translation Practice at the beginning and given highest preference for Machine Translation at the end.

Conclusion

More attempts at gathering, collation and analysis of dissertations so far produced are necessary. Such attempts enable researchers to focus their area of study. Ours is only a beginning. Much more work in this field taking the entire state or nation as a unit for review of work done in Translation Studies will give a comprehensive picture.

Appendix

List of M.Phil. & Ph.D. Dissertations Produced At Four Universities At Hyderabad Between 1990-2000 (C Translation Studies

M.Phil. level: University of Hyderabad.

S.No	Title of the Dissertation	Source Language	Target Language	Name of Researcher	Name of Supervisor	Year of Award
I.	TRANSLATION PRACTICE					
1.	Problems of pronunciation and translation faced by Malayalam speakers of English	English	Malayalam	V.Sundary	Udaya Narayana Singh	1990
2.	Translation versus Innovation: Term Planning in Oriya (with particular reference To administrative terms)	English	Oriya	Subrat Kalyan Pattanayak	Udaya Narayana Singh	1990
3.	Problems of Translating Advertising Literature from English to Telugu: A Case Study	English	Telugu	K. Rajya Rama	G.Umamaheshwar Rao	1990

4.	Translating English To Tamil: A semantic approach	English	Tamil	Prasanna Rekha Abel	Probal Dasgupta	1990
5.	A Verbal Dictionary of Magahi, Bhojpuri and Maithili languages: An aid to translators	Hindi	Magahi Bhojpuri Maithili	Shailendra Kumar	Udaya Narayana Singh	1991
6.	Subtitling strategies of Indian film media: Tamil feature films - A case study	Tamil	English	T.S.Santosh Kumar	G.Umamaheshwar Rao	1991
7.	Transference of verbal semantics from Hindi into Telugu	Hindi	Telugu	K. Usha Kiran	Udaya Narayana Singh	1992
8.	Problems of translating proverbs from Marathi to Oriya	Marathi	Oriya	Bishwanandan Dash	P.R. Dadegaonkar	1992
9.	Translation of headlines with special reference to English and Tamil versions of INDIA TODAY	English	Tamil	P. Selva Kumar	P. Dasgupta	1992

10.	Translation of Linguistic Terms: A study of Tagore's linguistic writings	Bangla	English	Sushmita Sengupta	B.R. Bapuji	1993
11.	Translation of jokes from English to Telugu: Some problems	English	Telugu	Mamidi Radhika	Udaya Narayana Singh	1993
12.	Translating Feminism: Walker's The Color Purple in Hindi	English	Hindi	Priya K. Rao	B.R. Bapuji	1994
13.	Textbook translation - A case study (English to Marathi)	English	Marathi	Vaishali Dalvi	P.R.Dadegaonkar	1994
14.	Problems of transfer: Translation of headlines captions, Intros (with spl. Ref. To Telugu & English versions of 'India Today')	English	Telugu	T. Bharani	Shivarama Padikkal	1995
15.	Equivalence in Telugu and Hindi: A study in translatology	Telugu	Hindi	V. Surya Rekha	Panchanan Mohanty	1997

16.	Translating from Telugu to English (A 'practical' translation and its analysis)	Telugu	English	J. Hymavathi Devi	B.R. Bapuji	1997
17.	Principles, Procedures and Problems of Subtitling: A Study	Tamil Telugu Telugu English	Telugu English Hindi Hindi	Movva Radhika	N. Krupanandam	1997
18.	Translating post-modernity: A critique of contemporary Bangla Poetry	Bangla	English	Sriparna Das	Udaya Narayana Singh	1999
19.	A problem of translating sports news and sports terminology from English to Telugu: A study	English	Telugu	P. Sampath Reddy	N. Krupanandam	1999
20.	Cultural Aspects of Translation	Telugu	English	Marie Florence Padmaja. P.	P.R. Dadeganokar	2000

II.	TRANSLATION APPLICATION					
1.	Translation as a tool for language teaching: A case study	English Tamil	Tamil English	G. Ambedkar	Udaya Narayana Singh	1990
2.	Dynamics of translation in reconstructing SCI-TECH terminologies	English	Tamil	S. Arulmozi	Probal Dasgupta	1991
III.	TRANSLATION EVALUATION					
1.	Comparison and evaluation of the two English translations of Sumati Sataka	Telugu	English	M.A. Saroja	K.Subrahmanyam	1990
2.	On the Problems and place of evaluation in translation theory: A case study	Telugu	English	A. Srilakshmi	N. Krupanandam	1992
3.	On Measuring translator's Proficiency	English	Hindi	Mahendra Kumar Pandey	Udaya Narayana Singh	1992

4.	Deviations and creativity in translating 'Gitanjali' into English (A study of selected poems)	Bangla	English	Bidisha Bandyopadhyay	B.R. Bapuji	1994
5.	Translation of Middles - An analysis (with special reference to Eenadu Newspaper)	English	Telugu	G. Padmasree	N. Krupanandam	1995
6.	The English Translation of muuDukathala bangaram of Ravi Sastri: An Evaluation	Telugu	English	T. Durga Srinivasa Rao	N. Krupanandam	1999
7.	Translation as a process: A study of the English rendering of Gopinath Mohanty's Harijana	Oriya	English	Aditi Ghosh	Panchanan Mohanty	1999
8.	An evaluation of the Translation of Chemistry text books from English to Telugu	English	Telugu	T.D. Srinivasa Rao	N. Krupanandam	2000
9.	Translation and News Headlines: English to Telugu	English	Telugu	I.Mallikarjuna Reddy	B.R. Bapuji	2000

10.	Translation Assessment: A Study of Telugu Translation of Ambedkar's "Annihilation of Caste"	English	Telugu	U. Satya Rao	J. Prabhakara Rao	2000
IV. MACHINE TRANSLATION						
1.	Machine Translation between Telugu and other languages (with spl. Ref. to Journalism)	Telugu	Other languages	J. Viswa Mytri	N. Krupanandam	1994
2.	A Prototype machine readable Telugu English dictionary of occupational terms for Translator	English		M. Chennakesava Murthy	N. Krupanandam	1996
3.	Bangla-Hindi bilingual, electronic lexicon for Anusaaraka	Bangla	Hindi	Aparupa Dasgupta	Udaya Narayana Singh	1996
4.	Materials for an Oriya Morphological Analyzer for the Anusaaraka (Machine Translation System)	Oriya	Hindi	Babita Mahapatra	Panchanan Mohanty	1997

5.	Improvement of Telugu morphological analyzer for Anusaaraka (Machine Translation) applications: A study of adjectives	Telugu Hindi	G.V. Ramesh	G.Umamaheshwar Rao	1997
6.	Comparing the post edited Anusaaraka output with human translated texts and evolving guidelines for improving the quality of post edited Anusaaraka output	Telugu Hindi	T. Padmaja	G.Umamaheshwar Rao	1998
7.	Of Man and Machine: Literary Translations: A Comparative Study	Telugu Hindi	D. Sirisha	P.R.Dadegaonkar	1998
8.	An evaluation of faithfulness, comprehensibility and readability of Anusaaraka Machine translated and human translated texts	Telugu Hindi	M. Satyachandra	Panchanan Mohanty	1998
9.	Developing post-editing strategies for different applications with reference to Telugu-Hindi Anusaaraka	Telugu Hindi	K. Rajini Reddy	G.Umamaheshwar Rao	1998

10.	Evolving Guidelines for Pre-editing Telugu text to improve the performance of Anusaaraka Machine Translation System	Telugu	Hindi	K. Himabindu	G.Umamaheshwar Rao	1998
11.	A Machine-readable lexicon for Ao Verbs	Ao	English	Tiala Pongener	G. Senguta	1999
12.	Certain Aspects of an Electronic Dictionary for a Language Accessor [Telugu-Hindi Anusaaraka System]	Telugu	Hindi	P. Kalyani	G.Umamaheshwar Rao	2000
V. TRANSLATION THEORY						
1.	Imaging women in contemporary Telugu writing	Telugu	English	Lavanya Nemana	Udaya Narayana Singh	1999
2.	Translation as Meditation	Hindi	English	S. Rashmi Dev	Udaya Narayana Singh	2000
3.	Translation as Recreation: A Semiotic-pragmatic approach	Bangla	Bangla	Krishnanjan Bhattacharya	Udaya Narayana Singh	2000

PH.D. LEVEL: UNIVERSITY OF HYDERABAD						
	Translation Practice					
1.	Problems of translating culture-specific terminologies from Tamil to English	Tamil	English	D. Gunasekaran	Udaya Narayana Singh	1992
2.	Paramagiitaardhamu of Father M.Devadas: A Case study in Biblical Translation	Telugu	English	D.R.V. Dinakar	N. Krupanandam	2000
PH.D. LEVEL: CENTRAL INSTITUTE OF ENGLISH & FOREIGN LANGUAGES (CIEFL)						
	Translation Practice					
1.	English spoken by Malayalam Speakers: A Phonological Study with reference to source and target languages	Malayalam	English	Jose, P.V. Fr.	B.A. Prabhakar Babu	1991
2.	English and Telugu: Problems in Translation: A Study of Literary and Technical Texts	English	Telugu	H. Lakshmi	B.V.L. Narayana Row	1991

Characterization of Articulation disorders: Input from Linguistics

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Abstract

The traditional definitions of articulation disorders underestimate the degree of communication disability these conditions impose on the speaker. This is in part related to the inadequate assessment procedures used in attempting to describe these disorders. With a view to influence existing public policies as they pertain to granting welfare measures to speech and hearing disabled population in our country, an attempt is made in this paper to offer a critical perspective on the definition and assessment of articulation disorders specific to the conditions mentioned hitherto. World Health Organization's (WHO) classification of impairments, disabilities and handicaps, approaches to Functional assessment of language that take certain insights from the field of linguistics form the basis for the main argument presented here.

Up until early 70's, articulation disorders were merely viewed as pronunciation disorders which have little or nothing to do with the speech production processes. Neither researchers nor clinicians were concerned about the nature of the breakdown, that is, they weren't asking questions such as, what level in the speech production process is the problem originating? has it something to do with phonological representations? or with motor planning? or does it have to do with the processes of phonetic implementation? It is not surprising then that the assessment procedures were designed merely to obtain taxonomies of error patterns (typically

classified into substitutions, omissions, distortions etc.) and the goal of most treatment programmes were to eliminate or atleast minimize a given pattern of misarticulation.

Starting from mid 70's and particularly during the decade of the 80's, there was a shift in the way articulation disorders were characterized. This shift has to do with moving away from a phonetic perspective to a phonological perspective. What this entailed was to look at the functional consequences of misarticulations. There was a concomitant shift in the goal of assessment as well as treatment programmes. Picture-word articulation tests were more or less replaced by phonological process analysis manuals. Treatment programmes were designed to enhance patient's overall intelligibility and hence communication adequacy (see for instance, Edward and Shriberg 1983; Hodson and Paden 1983; Weiner 1984).

It seemed as though the dichotomy is clear cut; articulation disorders which often have an organic basis are limited to specific speech sounds; the problem is consistent across different contexts and these disorders have considerable effect on speech intelligibility. Phonological disorders on the other hand, lack specific etiological factor, they refer to impaired ability to use speech sounds linguistically and the errors seem inconsistent in that they are subject to the influence of phonetic context (see Grunwell 1989). A phonological disorder may arise from impaired operation of mental processes serving either the productive, the perceptive or the organizational mechanisms of speech.

However, by the mid 80s the dichotomy between phonetic versus phonological disorders has been called into question (see for instance, Hewlett 1985). Hewlett argued that a loss of phonological contrasts does not necessarily

imply that the disorder is phonological in nature. He argued for a three-way distinction between phonological, phonetic and articulation disorders:

1. Phonological disorders imply disorders of phonological representations of words in the speaker's mind as may happen in certain clinical types of dysphasics;
2. Phonetic disorders characterize disorders to the mechanism of phonetic implementation of phonological representations as may happen in cases of verbal dyspraxias and
3. Articulation disorders are those in which the anatomy of the vocal tract is affected in some way (e.g. cases of glossectomy, cleft palate etc.).

A phonological distinction (e.g. consonant voicing) may be realized phonetically in very different ways in different languages and the speaker has to learn the language specific ways in which the distinction is realized. Besides, the speaker has also to learn how to implement the articulatory gestures associated with individual speech sounds and how the various speech sounds may affect and be affected by other gestures with which they may be combined.

Hewlett's argument is that, this learned skill of articulatory implementation may become impaired independently of or together with the learned information concerning phonological categories themselves or with the impairment to the neurological or organic structure of the vocal tract. He argued further that the constraints on one level might affect the processing activities at another. In other words, the presence of lower level phonetic or articulatory constraints may meet with a 'sympathetic response' from phonology resulting in phonological avoidance strategies.

Hewlett illustrated this argument by citing the example of cleft-palate speech. In addition to the abnormal voice quality, cleft-palate speakers typically exhibit substitutions and omissions which are of phonological nature. This should not however be interpreted to mean that phonological problems coexist with articulatory problems arising from anatomical deformity. Instead, looking from the speaker's perspective, the unimpaired phonology in these speakers seems to be seeking to circumvent the problems of production. When the anatomical deformities are acquired much later (after the acquisition of speech and language) as in certain cases of glossectomy (surgical removal of the tongue), the patients may develop a whole lot of compensatory strategies to maintain correct articulatory characteristics.

The other important implication of the above mentioned debate on phonetic versus phonological disorders is that, it is essential that the assessment procedures should be comprehensive enough to provide details about both phonetic and phonological facts pertaining to the language under investigation. Specifically, assessment procedures should investigate the variability in the production of speech patterns and relate the results of analysis to other aspects of affected person's abilities (Grunwell 1989) so that appropriate compensatory measures can be figured out for each individual.

According to Edwards (1984) a definition of articulation disorder must specify the following:

1. whether the problem is arising out of an organic or non-organic condition
2. the range of etiological factors involved

3. whether it is a phonetic or phonological disorder or both
4. the nature of the units within which the articulation disability manifests
5. the nature of the disorder, that is, whether it is a single disorder of varying severity or do different subtypes exist?
6. what other parameters of speech production are involved.

For an articulation disorder arising out of cleft lip/palate, the assessment should be comprehensive enough to examine both phonetic and phonological aspects of the language used by the patient. This requires assessment of phonetic and phonemic inventories and listing of phonological processes observed in the speech of the patient. Narrower the inventories, and greater the extent of the use of phonological processes, greater the severity of the disability. Assessment of phonetic inventories should be based on spontaneous naming responses to a wide variety of stimulus pictures (the goal is to note all the speech sounds a patient can utter); phonemic inventories should be assessed by having the patient read lists of minimal pairs in word initial and word final positions in the language under consideration to see which speech sounds are being used contrastively to make meaning differences; phonological process analysis manuals for individual Indian languages need to be developed to assess the nature and extent of phonological process usage. Normative data should also be collected on the use of phonological processes to identify sub-groups of speech disordered children. Finally, speech materials should be designed in different Indian languages to assess overall speech intelligibility and speech rate (For materials based on English language, see Yorkston and Beukelman 1981).

The idea is not listing of linguistic structures that are present or missing. Since the goal is to assess functional aspects of communication problems, the consequence of loss of speech contrasts (i.e. restricted phonemic inventories) on speech intelligibility should be assessed by making use of metrics like the proposed by Connolly (1980).

To elaborate, the notion of contrastive power of a system of N distinctions in parallel distribution is given by the formula;

$$C=N(N-1)/2$$

For example, for a system with five vowel phonemes, /i, /a/, /u/, /e/ and /o/ (i.e., $N = 5$), the contrastive power would be 10 since each one contrasts with all the others. Suppose if one term (for e.g. vowel /o/) is missing so that $N = 4$, C becomes equal to 6.0 and the reduced system has a contrastive power of only 60% of the full system. One can see clearly what a marked effect even a minimal systemic reduction can have upon a person's capacity to signal functional distinctions. Connolly (1989) pointed out that the notion of contrastive power can be utilized in measurement of functional load both at the phonological and syntactic levels. For example, English with 13 different modals will have a contrastive power of 78. Thus an intact modal system facilitates signalling of 78 different semantic distinctions. We can easily compute the functional load of the reduced modal system of a patient to estimate the extent of the disability experienced by that patient.

This kind of work should be carried out in relation to different Indian languages as part of the "functional assessment" approach to speech disabilities, without which calculation of compensatory measures or support services becomes difficult if not impossible.

Detailed phonetic and phonological assessment of speakers with articulation disorders also calls for supplementing auditory-perceptual analyses with instrumental investigations such as for example, spectrography, palatography, air-flow studies etc (see Philips 1984 for detailed discussion on assessment procedures for patients with velopharyngeal disorders and Weismer and Martin 1992). This will mean that qualified speech pathologists, preferably with a masters degree qualification alone can certify regarding the extent of disability of a person. To minimize the assessment time, attempts should be made to develop screening tests of speech production and use.

The nature of the concessions to be provided to different groups of persons with speech disabilities will of course depend on factors like age of onset of disability, nature and severity of disability, nature of compensation considered (educational, vocational etc.). In the case of children who have acquired the impairment prelingually, parents may be offered some kind of income tax relief measures for the disability imposed by such impairments. Finding appropriate school placement, job placements etc. are likely to be considerably hard for the prelingual group relative to those who have acquired the impairment after the age of 5 years (i.e. after they have acquired basic speech and language skills) because the speech of the latter is likely to be more intelligible. The point to be noted is that there is an urgent need to evolve both screening and diagnostic tests for assessing articulatory and phonological capabilities of children reporting to speech therapy clinics in a wide variety of Indian languages. The starting point for such a research programme might be consolidation of existing information about the phonetic and phonological characteristics of Indian languages.

Note: An earlier version of this paper was presented at a workshop organized by the Dept. of Speech pathology, Ali-Yavar Jung National Institute for the Hearing Handicapped, Mumbai during November 1995

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Development of Plural Morpheme in Telugu Children's Speech*

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Abstract

This paper discusses the emergence of plural marker and processes involved in children's attempts at mastering the plural formation rules of Telugu. It is based on the observations made in the speech of six children in the age group ranging between 2.0 - 2.9.

Introduction :

A Morpheme is a minimum meaningful unit of language. A whole word can be a morpheme or more than a morpheme. That is a morpheme sometime can be a small unit than a word and can be combined with other in creating a new word. There are two kinds of morphemes: free and bound. Bound morpheme is affixed to other morphemes to colour the meaning or function of the word. Slobin (1984) MacWhinney (1978) hypothesize that children learn affixes more quickly with the phonological cues available in the word formation process. That is a child exploits phonetic cues that a word has been affixed, such as having a final syllable whose vowel is in harmony with that of the stem or rhymes with the stem or is a reduplication of a stem syllable or whose voicing is the same as the final stem segment so on.

A morpheme having a unique semantic notion is expected to be earlier in acquisition than the one having more than one semantic notion (Brown 1973, Slobin 1973). Margaret Omar (1970) reports that acquisition of plural number is one of the

most difficult aspects of linguistic structure to be mastered by Egyptian Arabic Children (CF. Ferguson and Slobin 1973). She recognizes the linguistic complexity of plural for its delay in the mastering by the children. Ruke-Dravina's study on Latvian language (CF. Ferguson & Slobin 1973) shows that the case inflection on singular noun is prior to plural noun and formal separation of number is later to the separation of case. In contradiction to this, Clara and Wilhelm Stern observe that the separation of number in child language occurs significantly earlier than the case separation (CF. Ferguson & Slobin 1973).

Nirmala (1982) observes that plural inflection is earlier than case inflection in her study with four Telugu children aged from 1:6 to 3:6. It is observed that children of her study produced productively the plural formation rule i.e. $i \rightarrow u / -lu$ (Vowel harmony rule) in addition to the regular rule i.e.,

N.Sg + lu \rightarrow N. pl.

e.g.	1.	ga di	+	lu	\rightarrow	gadulu
		room		pl. suffix		rooms
	2.	kukka	+	lu	\rightarrow	kukkalu
		dog		pl.		dogs

The present study discusses the emergence of plural marker and processes involved in children's attempts at mastering the plural formation rules of Telugu. It is based on the observations made in the speech of 6 children in the age range of 2:0 - 2:9.

Plural Noun in Telugu

Nouns in Telugu show a contrast between singular and plural. To express plurality, the plural suffix [—lu] is added to

the singular noun. It has two alternants with the phonological shapes [—lu] and [—Lu].

The noun in singular number is treated as the basic stem and that is identical with the nominative singular, by the addition of the plural suffix, it becomes the nominative plural (Krishnamurti and Gwynn 1985).

Plural formation involves a number of morpho-phonological changes in the singular stem and plural morpheme. One class of nouns does not undergo any change in the process of plural formation. This can be stated as regular rule of plural formation (Rule I). This can be written as

Rule-I. N.Sg + lu → N. pl.

Eg: aaku + lu → aakulu 'leaves'

But there are a large number of nouns, which undergo change during plural formation. The following rules illustrate these morphophonemic changes.

Rule-II. When the basic stem ends in Tu/Ti/TTu/DDu/Du/Di, it changes to T / T / T / D / L / L respectively before the plural suffix [—lu]. Plural morpheme has the alternant [—Lu] as a result of progressive assimilation.

EX: gaaTu + lu → gaaTLu 'scars'

ceTTu + lu → ceTLu 'trees'

guDDu + lu → guDLu 'eggs'

taaDu + lu → taaLLU 'ropes'

poDi + lu → poLLu 'powders'

Rule-III. When the basic stem ends in Ndu / NTu, it loses its final vowel before [—lu]. -Ndu form has an alternative form -L in plural. (Progressive assimilation to plural suffix).

EX: paNDU + lu → paNDLu / paLLu ‘fruits’

Rule-IV. When basic stem ends in -am / -em it changes to -aa / EE before the plural suffix.

EX: gurram + lu → gurraalu ‘horses’

Rule-V. Certain singular stems with final -nnu change to L before plural suffix.

EX: pannu + lu → paLLu ‘teeth’

Rule-VI. The stem final -lu / -llu changes to -L before plural suffix.

EX: kaalu + lu → kaaLLu ‘legs’

Rule-VII. A set of nouns, which do not involve retroflex stop in the final syllable, shows the following rule. These nouns end in [-i], which changes to [-u] before [-lu]. This change from i to u is observed in the penultimate syllable / non initial syllable also.

i → u / —+ lu

EX: gadi + lu → gadulu ‘rooms’

maniSi + lu → manuSulu ‘human beings’

Rule-VIII. Nouns which end in -ru show the deletion of final vowel before -lu.

EX: peeru + lu → peerlu ‘names’

uuru + lu → uurlu ‘villages’

Rule-IX. When singular stem has -yi and -yyi alternation in the final position, it changes to -tu before plural suffix.

EX: ceeyi + lu → ceetulu ‘hands’

Rule-X. When - yi and yyi in final position do not have the alternation in singular number or in an exception, they behave differently. Either it takes regular rule or Rule-I or the final syllable i.e. -yi changes to -L before plural suffix.

EX: raayi + lu → raaLLu 'stones'
poyyi + lu → poyyilu 'furnaces'

Rule-XI. A set of singular stems lose the final syllable before plural suffix.

EX: ceenu + lu → ceelu

Method & Subjects

The data collected for my M.Phil dissertation has been utilized for the present discussion. It is the data collected from six children of age from 2;0 to 2;9. This period of nine months is divided into three equal groups. i.e. 2;0 - 2;2:15, 2;3 - 2;5:15 ;2;6 - 2;8:15. Each group is represented by two children: a male child and a female child. Each child is studied longitudinally for 3 months with a fortnight interval between the two sessions and compared with other child of the same group. Hence the method is a blend of cross-sectional and longitudinal. Each session with the child lasted for 30 minutes. Due attention has been paid to spontaneous speech of each child. Relevant objects like toys, pictures books, charts have been used to motivate the children to talk spontaneously. Data of six sessions from each child is recorded on a cassette - tape recorder and transcribed in broad transcription.

All the children are Hyderabad residents and having educated parents. They all belong to upper-middle class. All the children are free from congenital disorders. Children's details are given in Table 1.

Table 1 : Details of Children

Child	Age	Sex	Order in the Family	Education		Occupation	
				Father	Mother	Father	Mother
K	2;0	M	1	PG	PG	Bank Manager	Clerk
Si	2;0	F	1	PG	G	Business Man	HW
A	2;3	M	1	PG	G	Business Man	HW
Se	2;3	F	1	Ph.D	G	Reader in OU	Teacher
V	2;6	M	2	PG	G	Bank Officer	Clerk
Sa	2;6	F	1	PG	G	Scientist	HW

Data

Table 2

Age	S.No.	CF	Gloss	AF	Context
2;0 to 2;0:15	1	ii bomma	'this toy'		Singular
	2	naa ceppulu	my slippers		Plural
	3	bomma	toy	bommalu	Plural
	4	puulu	flowers	puwvu	Singular
	5	pallu	fruits	paNDu	Singular
	6	pallu	fruits	paLLu	Plural
	7	aaku	leaf	aakulu	Plural
2;1 to 2;2:15	8	caala	many		Plural
		bommalu	toys		
	9	oka ceppu	one Slipper		Singular
	10	cettu	tree	ceTTu	Singular
	11	cettulu	trees	ceTLu	Plural

12	endu Piccikalū	two sparrows	reNDu piccikalū	Plural
13	endulu piccikalū	two sparrows	reN Du piccikalū	Plural
14	pandulu	fruits	paNDLu / paLLu	Plural
S.No.	CF	Gloss	AF	Context
15	paalulu	milk	Paalu	
16	aamulu	food	aamu (baby talk)	
17	paṅlu	fruits	paLLu / paNDLU	Plural
18	dindu	pillow	diNDu	Singular
19	dindulu	pillows	diNDLu / diLLu	Plural
20	kaalu	leg	Kaalu	Singular
21	kaallu	legs	Kaalu	Singular
22	kaallu	legs	kaaLLu	Plural
23	pittalu	birds	piTTalu	Plural
24	nuunelu	oils	nuune	
25	lendu caykiilu	two bicycles	renDu saykiLLu	Plural
26	patangi	Kite		Singular
27	lendu patangii	two kites	renDu patangiilu	Plural
28	enni patangii loo	so many kites!		Plural
29	gammulu	(lot of) gum	ganu	
30	Sittu	sweet	swiiTu	Singular
31	siitsulu	sweets	swiiTLu / swiiTsu	Plural
32	aapilsulu	apples	aapilsu/ aapiLLu	Plural
33	hEtū	hat	hETū	Singular
34	hEtulu	Hats	hETsu/ hETL.u	Plural
35	gullam	horse	gurram	Singular

2;5:15	36	pawda	face powder	pawDaru	Plural Plural Singular
	37	pawdalu	lot of powder	pawDaru	
	38	gullaalu	horses	gurraalu	
	39	puttaalu	books	pustakaalu	
	40	oka paTTam	one anklet	paTTa	
Age	S.No.	CF	Gloss	AF	Context
2;6	41	renDu	two	reNDu	Plural
		paTTaalu	anklets	paTTaalu	
	42	guyyaalu	Horses	gurraalu	Plural
	43	kaayitam	Paper	kaagitam	Singular
	44	kaayitaalu	Papers		Plural
	45	diNDu	Pillow		Singular
	46	diLLu	pillows		Plural
	47	guDi	temple		Singular
2;6:15	48	puulu	flowers		Plural
	49	guDilu	temples	guLLu	Plural
	50	kootilu	monkeys	kootulu	Plural
	51	kalarsulu	colours	kalarsu	Plural
	52	deemuDulu	gods	deewuLLu	Plural
	53	rusilu	Saints	ruSulu	Plural
2;7	54	jemsulu	chocolate	jemsu	Plural
			gems		
	55	rusulu	saints	ruSulu	Plural
	56	kootulu	monkeys		Plural
2;8	57	guDLu	eggs		Plural
	58	guLLu	temples		Plural
	59	ceeyi	hand		Singular
2;9	60	ceetulu	hands		Plural
	61	ceeyilu	hands	ceetulu	Plural
	62	ceeyulu	hands	ceetulu	Plural
	63	aamleTulu	amlets	aamleTLu	Plural
	64	ceTLu	trees	ceTLu	Plural

Analysis

We can make the following observations based on the data given above. It is clear from the data that in the initial stages 2;0 & 2;0:15 the number distinction is not made. Singular and plural forms appeared in free variation (No.1-7) Data from 2;1 to 2;2:15 show that there is singular and plural contrast developed and produced in the correct context (No.8-14). During this period children produced plural nouns with the rule1 i.e., N.Sg + lu \rightarrow N.pl. No.11 cettulu (AF ceTLu) is a result of rule-1. No.13, Where child has pluralized the numeral endu (AF renDu 'two') as endulu. We notice that children have pluralized mass nouns like paalu 'milk', which resulted in the form of paalulu (No.15) and aamulu (No.16). We observe this form /aamu/ in the speech of adults addressed to children. This kind of over extensions explain the child's awareness of plural concept.

We also observe the continuation of rule-1 for nouns to which other rules operate in adult speech (No.14 & 19). PaNDu 'fruit' has the plural form paNDLu / paLLu in adult speech. Here, it was produced as pandulu (No.14) and panlu (No.17) by first age group children. It shows that they applied rule-1 in No.14 and an intermediary form of rule-III in No.17.

PaNDu + lu \rightarrow paLLu

- (i) -NDu \rightarrow L / —+ lu
- (ii) -NDu \rightarrow ND / —+ lu \rightarrow Lu assimilation of retroflexion
[loss of final vowel -u]

CF = pandu + lu \rightarrow pandulu (No.14)

\rightarrow panlu (No.17)

(Stem final syllable -du is lost in the process). Retroflexion is not yet acquired by these children.

No. 20 and 21 are singular and plural forms produced in singular context. Since children showed the concept of plurality in their speech, we should not treat it as an instance of free variation. This noun (No.20) ends in a syllable similar to plural suffix. It may be the reason for this error.

Data from 2;3 to 2;5:15 illustrate the following developments.

Rule-I was in extensive use; this was evidenced by pluralization of loan words (No.29, 31, 32, 34). Rule-IV $am \rightarrow aa/— + lu$ emerged (No.38 & 39). No.40 was an instance of back formation. This appeared as a noun which ends in - am and would take rule-IV in its plural formation. But AF of this form is not so. It is paTTaa 'anklet' and undergoes rule-I for plural form as paTTaalu 'anklets'. Child at 2;5:15 rendered singular form as paTTam (as gurram) based upon its plural form paTTaalu (as gurraalu).

English plural nouns 'sweets' & 'apples' were seen. Child (2;4) produced these nouns with Telugu plural suffix (No.31, 32). Child had not analysed English form into singular + plural but took it as a single unit and pluralized it under rule-I. This provides evidence to the fact that children had learnt the concept of plural and to mark it overtly by a morpheme.

In the data of age 2;6 - 2;9 (No.47 to 64) we notice few more observations.

Rule-VII i.e. $i \rightarrow u / — + lu$ emerged (No. 55 & 56). Earlier these forms were produced under rule-I (No.49, 50,53). There was another phonological condition noticed under rule-IX i.e.,

Yi → tu / —+ lu with No.60. It was correctly produced as ceetulu 'hands'. But it was not consistent in its structure. In the same session, child produced plural of /ceeyi/ as ceeyilu (No.61) and ceeyulu (No.62). No.61 showed rule-I and No.62 showed rule-VII.

Stages in the development of plural

Stage-I: It is marked by the absence of number distinction (Singular forms and plural forms (unanalyzed) were in free variation).

Stage-II: It is marked by the emergence of number distinction. (Plural morpheme -lu appeared in the context of plurality and not in free variation with the singular counterpart).

Stage-III: It is marked by increase in number of plural nouns in plural context using regular rule i.e. rule-I.

Stage-IV: It is marked by the extensive use of the plural formation rule. (Children produced over generalizations by using rule-I).

Stage-V: It is marked by establishment of the rule of productive use of rule acquired in the speech of children. (Children could use rule-I consistently, extensively and correctly to the contexts).

Discussion

We observe quite a few rules emerged in the present data, but one rule (regular rule) was mastered by these children. Number separation appeared around 2;0:15 or 2:1 in this data. Nirmala (1981) notices the emergence of plural distinction at 2;0 in her study. She reports that the little child of her

study 1;6 showed a stage of free variation from 1;6 - 1;11. There may be a stage for the child to treat these singular and plural forms of the same noun as different sets initially but not as free variants (Slobin 1973). Later child may start paying attention to the endings of morphemes and phonological features and values with semantically based equations would be arranged in a hierarchy usually reflecting their relative prevalence in languages. For example phonological cues like vowel harmony or voice assimilation between stems and suffixes would be highly accessible but not equations specifying the number of syllables in the stem (Slobin 1984). We can substantiate this with the production No.39 CF. puttaalu 'books' puttam 'book'. Though child could not produce pustakam (AF) and pustakaalu (AF) child could make use of morphophonological cue i.e. - am \rightarrow aa / ---+ lu in order to produce No.39 puttaalu. Slobin (1984) reports that gender categories correlating poorly with phonological properties (Such as Slavic languages) are acquired late and phonological properties serve to learn strictly allomorphic variations among affixes (e.g. English children could learn the allomorphs -s, -z & -iz variously coding plurality as a function of the final voicing and manner of articulation of their stems. Once child learns to use these phonological cues, and then tries to extend it in similar structural conditions. Sometimes it results in error, when it behaves as irregular form like No.61, 62 Sailaja (1989) reports that number inflection and case inflection emerged at the same age i.e. 2:0 and case marking on plural noun was not observed in her study. Stem + affix (number) + affix (case) is chronologically later to Stem + affix (number) and Stem + affix (Case) in developmental process (Nirmala 1981, Sailaja 1989).

Conclusion:

The present study could observe a few rules of plural formation in addition to regular rule i.e., rule - I. N. Sg + lu → N. pl. This regular rule was observed to be productive in use. Other rules emerged were not yet mastered by these children.

Note :

- * Earlier version of this paper was presented at National Seminar on word structure in Dravidian languages, Dravidian University, Kuppam.

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Geriatric psycholinguistics : A review article

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Abstract

Aging involves many diverse phenomenon ranging from molecular and cellular events through physiological and psychological changes. It is known that as people grow older they often experience difficulties in understanding and remembering spoken and written language. While some of these problems can be attributed to sensory impairments, it is likely that some others could be due to cognitive deficits. Memory is the core of cognition and a necessary prerequisite to the understanding of the cognitive processing involved in language production and comprehension. In this paper, research pertaining to the impact of aging on different types of memory has been reviewed.

Introduction and background

Aging has in recent times become the focus of research of various disciplines. This is not surprising in view of the fact that aging involves many diverse phenomenon ranging from molecular and cellular events through physiological and psychological changes. Additionally, across many countries, the aging population constitutes the burgeoning section of society given their increased life expectancy . With the concept of “successful aging” gaining currency, it would seem a realistic goal to facilitate older adults in this process. One of the ingredients that contributes to successful aging is communication (Nussbaum, Thompson and Robinson, 1988).

Effective communication is central to an older person's well being. It involves adequate production and reception of a message, congruity between the message sent and the message received and a climate in which his interactions are valued and reinforced. It is well known that a number of sensory, physical and environmental changes may interfere with an elderly individual's ability to communicate. These operate directly or indirectly and compound communication difficulties. Research has documented changes through the lifespan in the organic and psychological structures and processes that are involved in communication.

It is known that as people grow older they often experience difficulties in understanding and remembering spoken and written language. While some of these problems can be attributed to sensory impairments, it is likely that others could be due to cognitive deficits. A range of cognitive processes slow down with age. Changes occur in the ability to coordinate language abilities with cognitive, memory and attention skills. They result from a complex interaction of internal senescent processing changes, neurocognitive changes and biological changes.

Cognitive factors and aging

Memory

Memory is the core of cognition and a necessary prerequisite to the understanding of the cognitive processing involved in language production and comprehension. Language use is characterized by the abilities to learn i.e. to encode information into memory; to store i.e. to retain information over both brief and long intervals of time; and to retrieve, i.e. to decode the information at the time speech is initiated. If

older individuals are deficient in one or more of these mnemonic stages, a correlated change might occur in their ability to use language, either as a speaker or a listener (Smith & Fullerton, 1981).

There have been many views of memory. Waugh & Norman, (1965) proposed a model of memory that divides memory into separate stores or types. After briefly being held in sensory-memory, information is initially stored in short term memory. The information may then be encoded into long term memory where it can be retained for longer periods of time prior to retrieval and utilization. The concept of working memory has also gained popularity in recent years as a form of short term memory.

i) Short Term Memory:

Information moves from modality specific sensory memory to Short Term Memory (STM) once attended to. It is here that information processing occurs. If STM capacity is not adequate, problems in language comprehension would arise. It seems plausible that listeners should be able to retain the initial portion of a sentence in order to comprehend a sentence. Similarly, the STM serves to briefly store linguistic units prior to production. STM capacity is limited as is well known. It can retain or process only a small amount of information at any one time. The classical test of STM requires the experimenter to read out a list of letters, numbers or words, and get the participant to repeat it back. The longest length of list of these items which can be repeated back reliably is called the participant's span.

STM and Aging

Most researchers concur that STM does not change with age, at least as far as its capacity is concerned. This is generally determined using immediate digit span and some earlier studies have shown that digit span is unaffected by age (Craik, 1968; Talland, 1968). However other investigators have demonstrated a statistically significant though small decline in later life (Craik and Jennings.1992). STM can also be studied by examining the last few items (“recency “ portion in the serial- position curve) in free recall. It has been reported that while both young and old recalled these items equally well, age differences were found for earlier serial positions (Craik, 1968). Any extra demands placed on the participants results in the age effects generally becoming more pronounced (Cohen,1996).

Evidence to indicate that a difference exists in terms of the time taken to search STM at retrieval was presented by Waugh, Thomas and Fozard (1978). In their experiment subjects were presented a short list of paired associates and at random, the just presented pair would be presented again for the subject to produce the response. The subjects were required to recall the second member of the latest pair and also to do so rapidly. It was found that the older the subject, the slower was the response time.

The STM task can be made more complicated by using the backward span procedure, where the participants are required to repeat the items back in reverse order of their presentation. This is obviously a more difficult task since the participants must keep in store the items in their correct order whilst simultaneously working out what they are in reverse. It has been well documented that older persons are significantly

worse at this task. The reasons attributed for this include i) confusion between the items in the forward and reverse lists since they are identical; ii) older participants lack the mental processing capacity of younger people and do not have the “processing space” necessary to manipulating the items iii) items are transferred to LTM for re-arrangement and these are either lost during this process or the LTM fails to store the items efficiently.

The argument that the decline of STM is due to a failure to use LTM as an effective backup is supported by the findings of Craik et al (1990). In their study younger and older subjects were given a memory task in which they had to remember a short list of words whilst simultaneously deciding if a simple sentence was true or false. It was found that the older subjects’ subsequent recall of the words was significantly worse than that of the young subjects’. The magnitude of this difference increased as more words were required to be remembered. The investigators reasoned that this age difference occurs because the younger individuals not only encode information in their working memory but also send a copy of the memory trace to a LTM store ; hence if the memory trace is lost from working memory, they can retrieve a copy from LTM. Older persons, however, are less able to do this. Morris et al argued that the older and young people may use poorer encoding and /or retrieval strategies.

ii) Working Memory

Working memory is defined as the temporary storage of information that is necessary for such activities as learning, reasoning and comprehension (Baddeley, 1986). The concept of working memory expands the notion of STM as a passive receptacle to include a component for manipulating as well as

storing information (Connor, 2001). Typical tasks involving working memory are those in which the person must hold a small amount of information in mind while simultaneously carrying out further cognitive operations on the material held or on other incoming materials (Craik, Morris, and Gick, 1990). There are many ways to evaluate working memory. A simple method to assess working memory abilities is the backward digit span. However, for a comprehensive evaluation of working memory would require tasks that challenge the manipulation of information in more complex ways. These may include evaluations such as reading span, mental arithmetics, or recall of a word list in alphabetic order.

Working Memory and Aging

Several experiments have been reported that show that older adults are more penalized when they must divide their attention, either between two input sources, input and holding, or holding and responding.

A study by Broadbent and Heron (1962) has shown that memory performance in the elderly is also particularly susceptible to distraction from a secondary non-memory task. They used visual search in two tasks separately, one requiring the crossing out of certain digits, while the second involved listening to sequences of ten letters and responding whenever a sequence was repeated. The elderly showed themselves capable of performing the two tasks separately. However, when the two were combined, their memory performance declined much more than that of the young.

Inglis and Caird (1963) used Broadbent's dichotic listening test and presented three items to each of their subjects' ears. They published the classic demonstration that normal aging is

associated with no decrement in the recall of items from the ear that was tested first but that performance on the second channel drops progressively with age. These results cannot be attributed to acoustic masking since comparable differences between the first and the second set recalled were found when one set is presented visually and the other auditorily.

Further evidence of the difficulty that the older adult encounter in simultaneously storing and manipulating material emerged from the work of Talland (1965). He presented lists of words of which every word in the first half of the sequence was repeated in a different order in the second, with the exception of one word which was not repeated. The subjects' task was not only to reproduce the words but hold to the end that word that was spoken only once. The subject hence not only had to listen and retain the incoming words but also to classify words as repeated or not repeated, and finally to re-organize recall as well. The task thus involved division of attention and recall and was found to be much more sensitive to the effects of aging than the standard span procedure.

Rabbitt (1981), cited by Baddeley (1986), in a series of experiments investigated the performance of elderly subjects on reaction time tasks. They combined information from both accuracy and speed, and found that all subjects tend to monitor their performance, gradually speeding up their responses until an error occurs. At that point, they readjusted their response criterion so as to minimize subsequent errors. Therefore, errors form a crucial feedback mechanism to tell the subject whether he is going fast enough; a subject who does not make errors is not going as fast as he could. The authors found that the elderly are capable of responding just as rapidly as the young, but that their response to error feedback is much less finely tuned, leading to more errors and extremely long reaction times.

More evidence for the working memory explanation for aging emerge from the series of studies of Cohen and Faulkner(1984). They studied two samples of subjects, a group of highly educated subjects which included an equal number of young and older adults, and another matched group of young and older subjects of lower educational background. In the first experiment, subjects heard brief passages on a given theme and were then required to answer questions. These could be answered directly in terms of the information overtly given or could depend on drawing inferences from the material presented. The conclusions were based on the responses of the higher educated group since they were better matched in this study in terms of both educational achievements and life experiences. The elderly were found to be not significantly impaired in recalling literal details but were less likely to give correct answers to questions requiring inference.

In their second study subjects were required to listen to a series of statements and detect anomalies. These comprised statements which were inconsistent either with what was presented earlier or with world knowledge. Again it was found that the elderly performed poorer relative to young subjects at detecting both types of anomalies. Cohen and Faulkner attributed this to their difficulties in processing the spoken message and relating it to prior information either from the same passage or from their semantic memory.

The capacity of young and older subjects to recall stories were investigated in their third study. It was found that overall recall was poorer in the elderly, particularly in the less educated group. Further, while the young subjects showed a tendency to recall the more important details of the story than the incidental features, the older adults did not show a similar trend in their performance.

Hasher and Zachs (1988) agreed that substantial changes occur in working memory ability with increasing age. They, however, found that older people have difficulty inhibiting irrelevant information and argued that they are more susceptible to interference from environmental stimuli and unrelated thoughts during working memory situations. They hypothesized that working memory is reduced in the elderly as a byproduct of both intrusion of off - task information into slots that are supposed to be reserved for task- relevant information. There is also a failure to inhibit effectively task irrelevant intrusions resulting in storage space being occupied. This in turn functionally reduces the capacity in older individuals. Support for their hypothesis emerged from their experiment with young and older adults where the latter were found to exhibit less inhibitory control.

Declines in working memory in individuals above the age of seventy are reported to vary from mild to profound. Salthouse (1990) proposed that age-related changes in working memory underlies many other changes in cognitive domains. He attributed these working memory decrements to changes in processing speed.

iii) Long Term Memory:

Long Term Memory (LTM) is the repository of information held in a more permanent state. Information in long term memory can be considered to be episodic or semantic (Tulving, 1972). Episodic memories are of personal experiences; it encompasses remembering of discrete events and unique instances. It can be tested by using tasks such as free recall or by using contextual information about their original encoding for retrieval. On the other hand, semantic memory is a store of facts such as general knowledge or academic

learning for items. It constitutes the internal dictionary, that is, memory traces organized by concept and semantic meaning (Smith and Fullerton, 1981). Three processes are known to characterize LTM : encoding, storage and retrieval.

Long term memory and Aging

Age effects are more pronounced in the case of LTM than in the case of STM which is not surprising since much of the information passing into the LTM must first be processed by STM and any defects in STM may be magnified over the time items are stored in LTM prior to recall.

Encoding: Most research in this area is driven by the question of which aspects of a sentence are remembered. A study by Bransford and Franks (1971) indicated that the prepositional semantic content of sentences are more important than its grammatical aspects. In their study, young adults were presented a series of related sentences. Each of the sentence contained one, two or three main ideas. Following the presentation, they were required to carry out a recognition task. Here they were displayed not only the original sentences but also the sentences which they have not encountered earlier. It was found that subjects more often recognized never presented sentences (new sentences) that combined several propositions and with higher confidence than they recognized actually presented sentences, containing fewer propositions. The authors found that the semantic structure of the language is more important as an encoding dimension than its syntactic structure.

An attempt to explore age differences in semantic meaning encoding was made by Walsh and Baldwin(1977) using the paradigm of the above investigators. They compared a group

of young (mean age=18.7years) and older subjects (mean age=67.3 years) on recognition of propositions. They found no differences between the two groups, indicating that encoding into semantic memory is accomplished similarly across the age span. In addition, their data emphasized the distinction between episodic and semantic memory and further indicated that semantic memory may not show the decrements with age that are often shown by episodic memory.

Syntactic elements of language like redundancy play a role in encoding semantic memory, Clark and Clark(1977) suggested that users of a language learn to make the distinction between ‘given’ and ‘new’ information in language, one form of grammatical redundancy. The finding indicated that language users store the new information more consistently than the given information. It is possible that given information may be used to access relevant information. Once access is gained, then the given information is no longer needed and not stored again.

Storage

Debate continues on the issue of whether the manner in which information is stored in semantic memory changed with age. Some studies have used vocabulary size differences as estimates of the size of the mental dictionary across the adult age span. Hence an increase in vocabulary was taken as an indication of increase in the size of semantic vocabulary and also as an indication of change in the structure of semantic vocabulary (Birren, 1970). Riegal (1968) highlighted the relevance of noting syntagmatic versus paradigmatic responses in word associative pairing tasks. He reported that younger subjects prefer paradigmatic responses whereas older subjects used a combination of paradigmatic and syntagmatic responses.

From their results, it appears that the structure of semantic memory, which deals with storage of words, may change with age.

Fluency was also used as a means of investigating age differences in the structure of semantic memory. Riegal and Birren (1966) cited by Smith and Fullerton, (1981) reported that as vocabulary size increases with age, verbal fluency i.e. the speed of producing written or verbal associations to a word, seems to decrease. The investigators asked subjects to respond with a single word to a two-, three-, or four- letter stimulus that was to be the first syllable of the response word. The older subjects were slower than the younger subjects in all the conditions and slowest when a four letter stimulus was given, i.e., when response restriction was greatest. The authors concluded that two different kinds of speed factors are probably involved in the task, namely, the time required for emergence of a response and the time needed to make a selection between alternative responses. The slower response of older subjects was apparently due to a decrease in emergence speed because older subjects were able to increase their response speed during the test to the level of younger subjects by learning to restrict their answers to the most common response.

Retrieval

It is well known that older people have difficulty in retrieving names of objects or people. Thomas, Fozard and Waugh(1977) attempted to measure the time needed for older subjects to retrieval names of common objects from semantic memory.' performance of subjects under two experimental conditions were studied. In the first, the subject was required to name a common object or a picture. In the second

condition, a word was presented just prior to the picture. However, here the presented word was sometimes not the name of the picture. The authors thus divided naming times into a perceptual-motor component and a search component. Their results suggest that search speed and strategy seem to be stable over age.

Poon and Fozard (1978) in a further experiment however, concluded that it was familiarity of material rather than age which determined speed of retrieval. Their hypothesis was supported by the findings of Thomas, Waugh and Fozard (1978).

Effects of Aging on Language

Adult age differences in language competence are minimal whereas in some domains age associated sensory and cognitive changes lead to noticeable age differences in language performances (Bayles and Kaszniak, 1987). Linguistic and pragmatic knowledge acquired in adolescence is maintained and undoubtedly increased throughout life based on life experiences (Light, 1988). In this section the age related trends in different linguistic skills are discussed under the following heads:

Lexicon/Vocabulary

Semantics

Syntax

Discourse

Lexicon

The general view is that verbal skills are well maintained in older individuals relative to their performance on nonverbal

tasks. Several authors have reported that the performance of elderly subjects on the Weschler Adult Intelligence Scale (WAIS) usually show minimal decline, if at all, on the vocabulary and information subtests (Botwinick, 1977; Harwood and Naylor, 1969). However, on analysis of the quality of responses on the vocabulary subtest, an age decrement was found that was not reflected in the quantitative scores (Botwinick, West & Storandt, 1975). More specific studies of lexical performance however have identified aspects that are susceptible to age differences.

The aging individual's major difficulty seems to be accessing words. Performance on multiple choice vocabulary test and lexical decision tasks are not likely to show age related decrements as documented by Bowles and Poon (1985). However, older adults perform poorly on some tasks requiring production of a word specified by semantic or graphemic features e.g. on a task requiring them to produce a word given a definition and a first letter cue.

Confrontation naming tasks as well as other lexical tasks requiring productive use of words tend to show age declines from middle- aged to young- old to old -old (Borod, Goodglass and Kaplan, 1980; LeBarge, Edwards and Knesevich, 1986). Juncos and Iglesias (1994) using cross linguistic data proposed that age related deterioration observed in the synonyms, antonyms, and semantic opposites subtests could be attributed to breakdown in access to the lexico-phonological network from the semantic network due to competition from alternatives which complicate the selection process.

Word access difficulties may underlie the older adults' difficulties in remembering names, in failure to retrieve a well

known word while speaking and in the “tip-of-the-tongue” phenomenon.

Semantics

Memory paradigms have usually been used to study semantic processing and comprehension. Such paradigms may not reflect semantic representations that are initially derived during comprehension especially in older adults (Burke and Yee, 1984). In addition, older adults’ self reports do not seem to indicate semantic encoding or comprehension difficulties (Sunderland, 1986).

Several authors have hypothesized that older adults have poorer episodic memory performance because they encode information less deeply i.e. because they have a deficit in semantic encoding (Craik and Byrd, 1982; Eysenck, 1974; Burke and Light, 1981). Older individuals encode semantic information; however, the encoding is less “elaborated” and less sensitive to the semantic context. The mechanism underlying this deficit is a hypothesized age related reduction in the attentional resources available for mental operations. Semantic processes are believed to require more attentional capacity and thus to be more impaired than nonsemantic processes requiring little attention and to show greater impairment as the attention required increases.

Syntax

Several authors have suggested that there is an age related breakdown in comprehension due to factors such as syntactic type or semantic predictability. Feier and Gerstman (1980) utilized an object manipulation task to explore age related changes in syntactic comprehension of relative clause

sentences by subjects in their 50s, 60s, and 70s. Results indicated a significant decrease in accuracy rates in subjects who were 60 years and older. Subjects in the 70-80 year age group performed significantly poorer than subjects in the 50-59 year age group. This finding could not be accounted for by education or WAIS vocabulary and digit span scores. The investigators found no interaction between age and the various types of relativized sentences, although performance was worse on all relativized sentences as compared to conjoined sentences.

Emery (1986) tested comprehension for syntactic forms including passives and possessives. Her subjects in the age group of 30-42 years performed better than those in the age group of 75 and above. However, no statistical interactions were reported.

Similarly, Kemper (1986) varied syntactic complexity on a repetition task that was presumed to involve comprehension. She compared left branching and right branching clauses and discovered an interaction with age, whereby left branching structures provided disproportionately more difficulty for the older subjects.

Further attempts to investigate age associated decrements in syntactic performance have focused on language production abilities and the contribution of working memory in syntactic processing. Kemper (1987) and Kemper, Kynette, Rash, O'Brien & Sprott (1989) have reported considerable evidence that indicates a decline in syntactic production skills in the elderly. Using sentence repetition tasks and analysis of oral or writing samples from elderly subjects, Kempers' studies report age related changes in the ability to produce syntactically complex constructions. Kemper (1989) attributed the poorer

performance of older subjects to limitations of working memory which affect the elderly subjects' ability to retain and manipulate syntactic elements simultaneously. She suggested that certain syntactic constructions place greater demands on working memory capacity and thus hypothesized that a decrease in memory capacity with age will yield changes in the syntactic abilities.

On the other hand, Lieberman et al (1989) found no significant decrements in the syntactic comprehension in older subjects as a group as measured on a standardized test. However, there were individual subjects who exhibited poor performance on the syntactic comprehension task. The authors cited individual disease processes to account for the observed reduction in performance and contended that such a reduction is not typical of "normal" aging.

Davis and Ball (1989) studied the effects of aging on comprehension of complex sentences. He tested subjects in the age range of 25-79 years on relative clauses, modifying either the first or second noun phrase in a sentence. They also varied sentence plausibility. They found no age effects for syntax but older subjects did show differential decline on the implausible sentences.

Baum (1991) explored age-related decline in syntactic abilities and sought to determine the contribution of purely linguistic abilities or of a decline in working memory capacity. A word monitoring paradigm was utilized to explore subjects' online sensitivity to ungrammaticality in stimuli including both local (within clause) and long distance (across clause) dependencies which was examined through error analysis and reaction time measures. Three groups of adults in the age range of 60-69, 70-79, 80-89 years were assessed. Results

showed no statistically significant difference in syntactic sensitivity across the age groups tested nor any correlation of age and reaction time difference scores. However, a significant increase was found in error rate in the oldest group and less consistent yet significant evidence of sensitivity to violations of long distance dependency constructions in that group. His findings therefore support Lieberman et al's (1989) proposal that decrements in syntactic performances is not a natural feature associated with aging.

In a follow up to Davis and Ball's (1989) study, Opler, Fein, Nicholas and Albert (1991) sought to determine the factors which contribute significantly to comprehension difficulty in advancing age by testing the influence of syntactic complexity and semantic plausibility on comprehension. Sixty-six women subjects in four age groups from 30-70 years were tested for comprehension of six syntactic structures. Each structure was presented with both plausible and implausible content. The contribution of cognitive nonlinguistic factors important for comprehension was tested using neurophysiological tasks. Results showed both errors and reaction times increased with age especially for more complex syntactic types and implausible sentences. The neurophysiological factors tested contributed minimally to an age related decline in comprehension. The authors opined that syntactic processing alone may not account for the older adults' difficulties. The findings supported those of Davis and Ball (1989) that the selective difficulty with syntactic decoding may be linked to a difficulty in inhibiting real world knowledge processing.

Discourse

There has been extensive investigations on prose comprehension and recall across the life span. A few studies

have found age effects at the discourse level of comprehension though the findings are highly variable.

Prose comprehension and Recall: Belmore (1981) investigated inferencing with a reading task in which subjects verified true or false statements about a paragraph. Two groups of subjects participated in the study, an old group (mean=67 years) and a young group (mean =18 years). He measured accuracy and response latency for both groups. Accuracy showed no age effects when statements were verified immediately after reading the paragraph. However, when only the statements were presented again, requiring a greater demand on paragraph retention, the old group were less accurate than the young. The age related reduction occurred more for explicit information (the paraphrase) than for the implicit information (inference). It was also found that the older subjects took significantly longer than the younger subjects to verify both types of statements. It must be pointed out that age effects in this study may be more related to recall demands than to comprehension per se.

Recall of stories although seldom required in everyday life, does test abilities which are important aspects of comprehension. Specifically, it tests the ability to perceive the logical and structural relationships between different parts of the story and the ability to retain the gist of the story. Cohen (1979) using two groups of highly educated subjects, one with a mean age of 58 years and the other with a mean age of 24 years, found that older adults recalled significantly fewer story propositions and summary propositions than young adults when the passage was auditorily presented at a fairly slow rate of speech (approx. 120 wpm). Cohen concluded that this was an age related deficit due to a diminished processing capacity that was exceeded by the demands of the recall

task. However, this contention does not hold true as recall differences may reflect comprehension deficits or just poorer recall performance. Rice and Meyer (1986) found in a later study that a decrease in the quality of recall appeared with increasing age.

Comprehension can also be measured by examining subjects' recall of prose as a function of the importance of the ideas in the passage. Petros, Tabor, Cooney and Chabot (1983) studied adult age differences in prose comprehension. Young and older adults from low and high educational background listened to narrative passages at different presentation rates and difficulty levels. They were required to immediately recall the story. Results revealed that younger adults remembered more than older adults but subjects from all age groups cited the main ideas in their recalls. It was suggested that the differences observed on discourse comprehension tasks may reflect an age related decline in processing capacity.

Conversational skills

Very little research has been directed specifically to conversational skills. There has been some sporadic reports of older listeners having difficulties in one-to-one conversation and with group conversations. Koriat et al (1988) in a study of memory in a word retrieval task reported that older adults showed poorer judgement about whether words has already been recalled and hence repeated words during recall This deficiency in output monitoring was considered by the authors to be linked to the tendency of elder speakers to repeat a story to the same listener.

Excessive loquaciousness or verbosity has been identified as a problem for some older individuals. It is generally assumed that verbose individuals are especially lonely and more demanding in social interactions. The few studies conducted indicated that verbose elders were older, less physically mobile, more extroverted, experienced more stress, sought more social contacts and were less concerned about making favorable impressions on others (Gold et al, 1988).

Narrative production

Many studies use story telling and retelling to study this aspect. What distinguishes the older from young narrators are the features of ambiguity of reference and poorer efficiency in conveying information. Obler (1980) found that older adults used more paraphrases and indefinite terms, which could stem from word retrieval problems. Ulatowska et al (1985) cited by Ryan, 1995, examined narrative discourse tasks in two groups of women, middle-aged (Mean=46 years) and older women (Mean=76 years). They reported significantly more ambiguity of reference between the middle aged and older groups and between the younger and older halves of the elder group.

Diminished efficiency in conveying information has been reported by Shewan and Henderson (1988). The older speakers were found to include fewer critical units of information in story telling and procedural descriptions.

Kemper, Kynette, Rash and O'Brien (1989) investigated whether the syntactic complexity of adults' language varies from one discourse genre to another. Two groups of subjects comprising young adults (age range 18-28) and elderly (age range 60-92) participated in the study. Three different language

samples were collected including oral and written discourses. Age related changes in the length, clause structure and fluency of subjects' oral and written statements were observed. However, the older adults' discourse was rated more favorably in terms of interest and clarity.

Conclusion

Aging thus imposes constraints on language and memory. An important point that must be borne in mind is that there are individual variations in language performance, based on genetic inheritance and life histories, as well as individual vulnerabilities to age associated diseases and environmental changes. It is this heterogeneity that poses a challenge to research in that comparison of successful aging, usual aging and ill aging would help identify the modifiable factors that could shift the majority of individuals towards successful aging. The later years should not be considered as only a period of declines but, more positively, as the culmination of life's experiences.

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Modern Technology For Language Access: An Aid to Read English in The Indian Context

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Abstract

The world today is of reduced distances with faster communication and increased information usage. Those who can have access to the right information at the right time will lead the world. However, most of the information is in English, a language foreign to most Indians. At present, in India 95% of Indians do not know English. Of the 5% who know English, very few are really proficient in it. Moreover in the present technological context, it is not possible to have perfect translation of human language through machines. In this situation, how to make use of the information written in English? The authors of this paper opine that in this kind of situation, language accessors across two languages would help the people to derive information from the source language to target language. The present paper talks of one such tool developed by 'akshar bharathi' group based at Language Technologies Research Centre, IIIT, Hyderabad.

Backdrop

The world today is of reduced distances, faster communication and increased information usage. In fact the catch phrase today is 'information is power'. Those who can have access to the right information at the right time will lead the world.

This wealth of information is there for anyone to use. However, most of it is in English, a language foreign to most Indians. The situation in India, at the moment, is that approximately 95% of Indians do not know English. Of the 5% who know English, very few are really proficient in it. A large number of children who go through a formal learning of English for six years (from sixth to twelfth standard) have very little, if any, proficiency in English. They cannot comfortably read and understand a text in English. Therefore, they cannot really make use of the information available on the net.

What are the options before them?

- Not use the information, remain uninformed and deprived

or

- Explore the possibility of using the modern technology for accessing the texts in English, thus having access to the information.

How can the available technology help?

Is fully automatic general purpose translation system possible in the present technological context?

The way human beings use language is a very dynamic process. It is a complex tool for conveying information. The effort to achieve brevity in language leads towards a linguistically more complex state. Further, it creates ambiguities. Ambiguity at various levels becomes inherent to language. Therefore, how precisely the information flows in various languages remains difficult to understand. Sense disambiguation is a natural process for a human being. A human being applies various types of linguistic information that is available to him.

Apart from linguistic mechanisms, human beings also use 'world knowledge' or 'previous experience' for sense disambiguation. Machine, on the other hand, does not have 'common sense'. Moreover, it needs knowledge in exact terms. Not only is it extremely difficult to formulate rules with no exceptions so far as various linguistic aspects of the language are concerned, it is also difficult to provide 'world knowledge' in precise terms and in quantities that the machine needs for applying learning methods.

Good translation demands -

- i) skilful linguistic proficiencies of the concerned languages
- ii) socio-cultural knowledge associated with the two languages

As is obvious from the discussion above, it is difficult to provide both these knowledge bases to the computer in a foolproof way. Given above conditions the question should be reframed as how can the technology be BEST used for our purpose?

Keeping the limitations of what the computers can presently achieve, so far as translating a text from one language to another is concerned, it would be far too ambitious to offer a fully automatic translation system. But it would be quite in time to offer a system that would give access to the text in another language. The need of the time is to exploit the strengths of both the man and the machine and evolve a system based on the combined strengths. In other words, reduce man's burden by giving machine the load that it can carry more efficiently.

- Machine has a large memory and fast processing power and
- Man has 'world knowledge' and 'ability to infer' from the context.

Developing Technologies For Language Access

Machine based reading aids appear to be an answer for this. Call them language accessors across two languages. How does one approach the objective of developing a language access tool considering the limitations of the machine? The present paper talks of one such tool developed by the 'akshar bharati' group based at Language Technologies Research Centre, IIT, Hyderabad. The group has earlier developed language accessors between certain Indian languages and Hindi. The accessors are called 'anusaarakas. 'anusaaraka' (Bharati, 2002) adopts an approach whereby the language barrier between two languages can be reduced by dividing the learning load between man and machine. Concepts such as learning load, language barrier, reduced language barrier should be well understood before we proceed with this discussion.

Language barriers are due to the differences between any two languages, which make communication across two languages difficult. The present case addresses the problem of comprehending a text in another language. The differences between any two languages translate into language distance. More the differences, more will be the distance between the two given languages. The effort to acquire proficiency in a language goes up with the increased degree of differences. Learning load can be roughly described in terms of what all the new learner of a language has to learn.

The learner has to learn-

- |— script
- |— spelling rules (in case of languages such as English)
- |— vocabulary
- |— inflectional rules
- |— syntax

The degree of differences or distance between any two languages has to be measured in terms of a) the time and b) the effort that one needs in learning the above aspects of the second language.

How to reduce the burden on the learner?

Reducing the burden in this context implies giving some of the burden to the machine and letting the man carry some. This way man can by-pass learning of some features of the language. Thus the time spent by him and the effort involved will be reduced.

In case of English, following aspects can easily be by-passed-

- spellings
- those English words which have one to one mapping in Hindi
- irregular features of English morphology

However, the individual still has to learn some features of English

- some functional words such as prepositions of English
- Those parameters of English syntax which are not common with Hindi

The assumption is that it should reduce the learning from about one year to one month. At the end of this period, the individual should be able to read and understand any text in English comfortably. Based on this hypothesis a language-accessor has been developed between English and Hindi.

Theoretical Model

The theoretical model which forms the basis of the English language accessor draws heavily from Paninian grammatical tradition (Bharati, 1995) and uses concepts such as

- pada (suptingantam padam)
- padashakti (pravritti-nimitta)
- vakyashakti
- pratibha and sphota

The Chomskian notion of 'parameters' (Chomsky, 1981) is also used for developing lessons on syntax. Lessons on contrastive grammar between English and Hindi based on their parametrical differences should help the learner in setting the syntactic parameters of English.

English-Hindi Reading Aid

Since the basic purpose of developing the tool is providing technological support for accessing information in another language, particular emphasis is given on 100% information preservation. The tension between readability in target and retention of information of the source is well known. Languages use different mechanisms for coding information. The type of information coded also differ. For example, English codes the gender information in personal pronoun whereas Hindi does not have the gender information in personal pronoun 'vaha'.

A human translator marks the gender information of English personal pronouns in verbs in Hindi (Hindi's mechanism of marking grammatical gender). Hindi has only two grammatical genders whereas English has three in personal pronoun. So the information of 'neuter' gender is always lost while translating a text from English to Hindi. Thus, in trying to achieve readability in the target language some amount of information is invariably lost. If we want to retain 100% information of the source (as the objective of 'anusaaraka' is) and the target does not provide a mechanism to represent it, one has to evolve a method for doing so. In 'anusaaraka' approach extra symbols are adopted to express such information. 'anusaaraka' would give the equivalent of English 'it' as 'vaha{napuM}'. Therefore a person reading 'anusaaraka' output of English has to bear with a number of extra notations. Additional symbols do add to the learning component for the human beings. However, what is crucial here is not the additional symbols on the screen which the user will also have to learn initially, but the 'full access' to information coded in English.

A more important purpose these extra notations serve is of providing a 'fully reversible' output. In this approach 'full reversibility' from L2 (target) to L1 (source) is easily achievable which is, otherwise, an impossible task. It is obvious that in trying to achieve its objective of 100% information preservation, anusaaraka compromises with easy readability in the target language. The anusaaraka creates an image of L1 in its output which is not exactly L2 but is an intermediary language which has some specific characteristics.

>>> English-Hindi anusaaraka >> Intermediate >> language:

1. It has grammar of English

2. It has a large body of Hindi vocabulary
 3. It has 'word formulae' for English polysemous words
 4. It has certain English function words such as prepositions
 5. It has extra notation
1. It has grammar of English

Since there are limitations in training a machine for syntactic operations, *anusaaraka* has adopted an approach wherein the output retains the grammatical features of English.

The decision is based on the notion of 'principles and parameters' given by Chomsky. (Chomsky, 1981) It is primarily based on two assumptions:

- Any two languages share certain common syntactic mechanisms. Features which are common to English and Hindi are not new to the Hindi user (since they are a part of his internalized grammar) and therefore, will not create any problems in his understanding of what is communicated.
- Human beings have an inherent ability to acquire new linguistic mechanisms. Features (parameters) which are not part of their internalized grammar are unfamiliar for a second language learner. Therefore, such features or structures initially cause difficulty to reach the intended meaning.

It is believed that a short training and some practice in these new grammatical features should make it possible to extract senses.

2. It has a large body of Hindi vocabulary

Machine can easily handle large dictionaries. So the burden of substituting word senses from English to Hindi has

been put on the machine. Therefore, the artificial intermediary language of English-Hindi anusaaraka will have Hindi vocabulary. The user need not learn a large lexicon of a foreign language.

3. It has 'word-formulae' for English polysemous words.

To deal with the problem of ambiguity at the word level, the concept of 'word formulae' has been used. 'word formulae' stand for a core sense of the English word and its sense developments. (See Appendix for an example of this)

4. It has certain English function words, such as prepositions

Function words such as prepositions are retained as such in the intermediary language. Prepositions, not only are syntactically opposite of postpositions in Hindi, but are also often ambiguous. This creates both syntactic as well as semantic complexity for mechanical processing. Therefore, at the very basic level, anusaaraka keeps the English prepositions as such. It does provide the most basic sense of the preposition in brackets with an arrow showing that if you read the Hindi sense it has to be moved to the right to an appropriate place. For example the anusaaraka output of the following sentence would be:

English : The book is on the table

Actual Output : the पुस्तक है on { पर } the मेज

Output in Roman : The 'pustak hE' on {->par} the 'meja'

The last line above is for readability for those who do not know Devanagiri which is written in quoted Roman.

5. It has extra notation

For expressing some of the linguistic information which is present in English text but is not part of Hindi grammar, it has extra notation. For example, English gender in singular personal pronouns (example given above).

The aid also provides online help using other resources available under General Public License (GPL, 1991) such as GCIDE English dictionary, English Wordnet etc.

Empirical Evidence

A tool such as the above raises several doubts -

Whether a tool such as this really help an individual in accessing another language?

Whether this tool really reduces the 'learning load'?

Whether the potential users would be willing to put in the required effort to use it?

If the answer for the above questions is in the affirmative then

What should be the optimal training period for using the tool efficiently?

How does one quantify learning time?

To find answers for all these questions and more it was decided to conduct a pilot study in Hindi medium school in Madhya Pradesh.

The purpose of the experiment was also to find direction for further improvement of the tool both

- at the level of interface and
- at the level of content organization

Experiment Details

Subjects

Children of classes 9 and 11 (one boy was from class VII)

School - Malhar Ashram, a residential school in Indore.

Number - around 25 (of these about 20 attended the experiment regularly)

General background - rural Madhya Pradesh,

English Background -

Formal : learning English at school from class VI

Practical: not having any command on the language whatsoever- had problems comprehending even simple sentences.

Duration

Ten days (Jan 15, 2002 to Jan 24, 2002)

Method

- 30 to 45 mnts of lectures per day
- Covering two or three concepts
(Example: Word order and notion of missing 'ko')
- Introducing various notations which appear in the output and how to interpret them (not more than two or three either. Example: {ed/en})

Followed by children reading English stories on the computer with the help of the tool. This was minimum one hour per day with a single child or group of two using one machine.

Help Provided

The tool provides various levels of help to the reader.

- dictionary meanings,
- explanatory help for difficult words,
- help for ambiguous words which appear in a compressed formula initially.
- Help on notation.
- Help on inflectional suffixes of English.

Observations (based on questions from both sides)

The children did find the immediate dictionary help to be useful for understanding. Most children with some effort started to interpret the notation for inflectional suffixes of English. However, they had difficulty in internalizing the other notation (optionality of choices etc.) Probably they need a little more time for that. Also, since they depended on inference a lot, probably they tended to leave out the notation which had finer information.

The children were highly enthusiastic about the tool and were very willing to put in the extra effort which enabled them to understand something of an English text.

Performance of the subjects improved over a period, which shows that with practice the tool can be used more efficiently.

Conclusions

It is obvious that the above experiment needs further controlling factors. Some more experiments need to be conducted before arriving at any definite quantitative measures. However, the experiment does show the need and potential of such a tool for a vast majority of Indian population. The answers that could be drawn from the experiment for the doubts raised above are that such a tool would definitely be useful for accessing an English text. However, the user should be willing to put in the required effort.

Considering the modern technological context where 'least effort' is most 'in demand', the next question or doubt that most would have about such a tool would be

- whether the potential users would be willing to put in effort to use it?

Well, surprisingly the experiment indicated that they might be.

The question of 'optimal training period' needs further testing.

Thus the approach and its empirical testing have shown that an English reading aid can definitely be a useful tool for a large number of Indians.

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Appendix

Polysemy is a major problem that one has to deal with while building bilingual lexical resources for the machine translation. The concept of ‘Shabdasutra’ is an attempt to capture the underlying thread which relates various meanings in a polysynonymous word.

The term ‘sutra’ in ‘Shabdasutra’ is used at two levels.

A. At the first level the term ‘Shabdasutra’ means ‘a formula’ which encodes the basic semantic concept of a word and how it gets extended to varying usages. For example. The English word ‘issue’ has several meanings as available from Shabdanjali: Shabdasutra or formula for the English word ‘issue’ is

viSaya[~< niSpaadana]

or its rough gloss:

topic [~ < to come into existence]

Notational symbol ‘<’ means ‘is derived from’ and symbol ‘~’ means that the sense has taken several turns in its evolution. Thus, the above notation says that the meaning of ‘issue’ is ‘topic’ which has arisen from ‘to-come-into-existence’ after taking many turns in its evolution. This ‘sutra’ is a formula

which expresses that 'niSpaadana' appears to be the basic sense or the 'core' meaning of the English word 'issue'. From this 'core sense' various other meanings have evolved.

B. The second sense in which the term is used is that of an 'underlying thread' which connects all the senses to which the meaning of a particular word gets extended. To continue the example of 'issue' above, the formula given above has the following underlying thread.

niSpaadana (astitwa meM lanaa/aanaa)

→ niSpatti kaa srota

→ niSpatti (santaana, sansakaraNa etc)

which means:

'bring into existence

→ point of origin

→ the thing that comes into existence (child, edition etc).

The relation between various senses of the word 'issue' can be seen through this 'sutra' with the help of following examples from English

niSpaadana eg: "issue orders"

→ niSpatti kaa srota eg: "point of issue of a river"

→ niSpatti eg: "has no issue after marriage, latest issue is out,"

The way the 'underlying thread' is compressed into a 'sutra(formula)' notationally can vary depending on the complexity of the sense it is encoding.

Following are the steps in this task:

- Begin with a bilingual dictionary of English to Indian Languages which contains different senses, and example sentences for each sense.
- Identify commonality of meanings for a word.
- Come up with core meaning or word-thread or sabda-sutra

This is an intricate task, and has been completed by a group of dedicated researchers for 5000 words.

For all the above tasks, a basic list of 5000 words based on high frequency is being used. The initial target is to complete 5000 high frequency words for all the Indian languages. In case, some group wants to go further and work for a larger dictionary they can cover the whole dictionary (with about 25000 Headwords).

Negative Participial Structures in South Asian Languages: A Parametric Approach

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Abstract

This paper has discussed the negative participial clauses in South Asian languages. For this study, languages of three Language families of the Indian sub continent viz., 1. Dravidian, 2. Tibeto Burman and 3. Indo Aryan are chosen. An attempt has been made in this paper to account for the cross linguistic differences found in the occurrence of 1. Identical subjects in Negative Conjunctive Participial clauses, 2. Reduplication of Negative Conjunctive participles, 3. Negative relative participial clauses through principles and parameters framework. It is also claimed in this paper that the status of the negative cannot be the head of negative phrase in the languages under consideration.

Introduction

This paper discusses the negative participial clauses in South Asian languages . Languages belonging to three language families of the Indian subcontinent viz. Indo—Aryan . Dravidian and Tibeto-Burman are chosen to study the participial clauses. Data From languages such as Hindi- Urdu, Punjabi, Bengali, Oriya, (IndoAryan); Telugu. Tamil, Kannada (Dravidian); Mizo, Thangkhul Naga. Angami Naga (Tibeto-Burman) are used to show similarities or differences.

This paper points out the reasons for the occurrence and the non-occurrence of different subjects in negative participial clauses, the reasons for the reduplication and the non-reduplication of negative conjunctive participials as well as relative participials in the languages under consideration. It concludes that the parametric approach can adequately explain the cross-linguistic differences observed in the present study.

Negative Conjunctive Participial Clauses (hereafter NCP Clauses)

Let us consider the following sentences in which the subject of the NCP clause and the matrix clause are identical.

Identical Subjects—PRO -Parameter

Hindi-Urdu

1. raam- ne/i [PRO/i meeraa kaam nahii karke]
 Ram ERG my work not do CP

siita kaa kaam kiyaa
 Sita of work doPERF

‘Ram did Sita’s work instead of doing my work.’

Oriya

2. chaatramaane/i [PRO/i khadya nokhaai] durbal hoi parleni
 students food not having weak became eaten

‘PRO having not eaten food, students became weak.’

Thangkhul Naga

3. a-na/i [PRO/i ma phaning] ot ci sahow
heNOM NEG thinking that work did
‘PRO without thinking he did that work.’

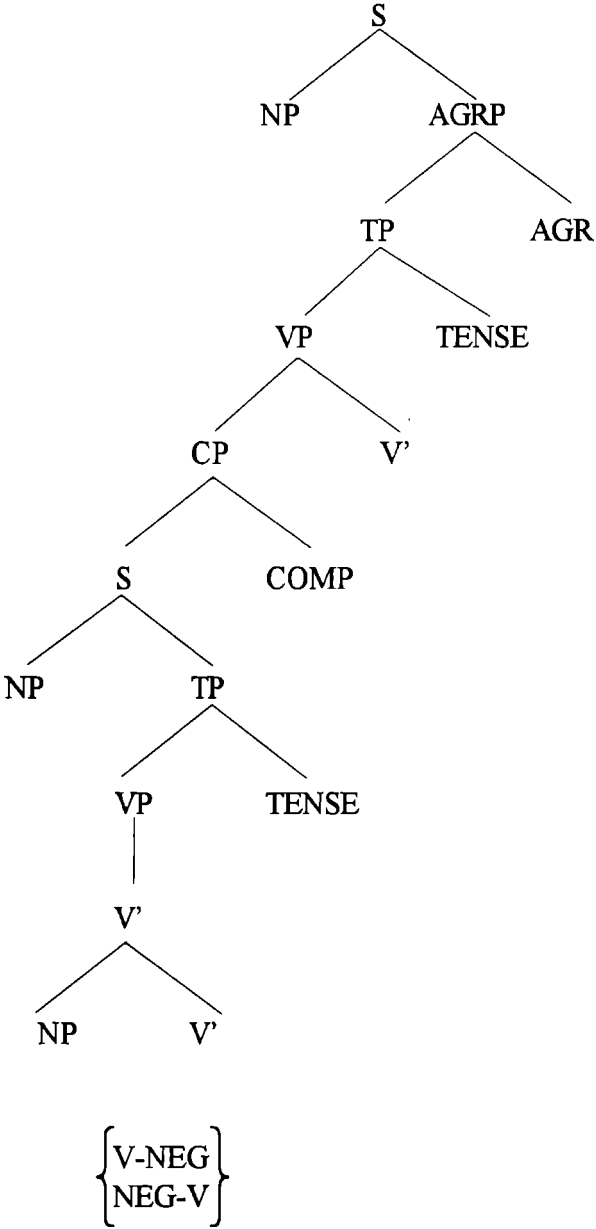
Mizo

4. [PRO/i engman gaitua (lem) lovin] zova- n/i
anything think NEGCP Zova ERG
so hna so a- thOk
DET work DET 3SG work(did)
‘PRO without thinking anything Zova did that work.’

Telugu

5. siita/i [PRO/i annam sarigaa tinaka]cikki poindi
Sita food properly eatNEGCP weak became AGR
‘Sita became weak since she did not eat properly.’

Notice that in sentences (1)-(5), the subject of NCP clause is PRO and it is coindexed with the matrix subject. These NCP clauses occur as VP adjunctions. The structure of negative conjunctive participial clause is given below.



NCP clauses in languages such as Hindi-Urdu, Punjabi consists of [-TENSE, -AGR] as in the affirmative CP clause. However, NCP clauses in languages such as Telugu (5) Tamil, Kannada consist of [+TENSE, -AGR] as in affirmative CP clauses. The NCP is INVARIANT i.e. the NCP doesn't agree in number, gender and person with any NP in the clause. Hence, no AGR in NCP clauses in these languages.

Conjunctive participial constructions generally require that the subject of the non-finite clause be identical to the subject of the higher clause. Thus, the identical subject constraint generally holds in such constructions in most of the languages under consideration (cf. Davison, 1981, 1985; Kachru, 1980, 1981; Masica, 1976, 1991; Ramarao 1975, 1980; Sridhar, 1989; Subbarao and Arora, 1991 etc.). However, languages such as Telugu, Kannada, Tamil, Oriya, Bengali, Dakkhini, Sinhalese etc do not obey the identical subject constraint (cf. Arora and Subbarao, 1989; Fairbanks et al, 1966; Klaiman, 1981; Ramarao, 1975).

According to Chomsky (1981, 1982, 1986.) PRO occurs in the subject position of an embedded non-finite clause. Furthermore, only PRO is allowed and a lexical NP is barred (Case Filter). According to Chomsky (1981, 1982, 1986) PRO is a pronominal anaphor and it is subject to Principle A and Principle B of the binding theory. However, Manzini (1983); Koster (1984); Bouchard (1984); Lebeaux (1984); Brody (1985); Aoun (1985); Hermon (1985) analyze PRO as an anaphor. Chomsky (1981) proposes a PRO principle or a PRO theorem such as the following.

PRO is ungoverned (Chomsky, 1981)

Notice that in sentences (1)-(5) in NCP clauses in languages such as Hindi-Urdu (1) Punjabi, Dakkhini, Mizo (4) Thangkhal

Naga (3) Consist of [-TENSE, -AGR]. Hence, PRO is un Governed. However, in Languages such as Tamil, Telugu (5);Kannada,Oriya (2), Bengali NCP Clauses Consist of[+TENSE,-AGR](1).Thus,PRO is governed by TENSE.

Thus.in NCP clauses.there are languages in which PRO occurs in governed positions and there are languages in which PRO occurs in un Governed positions .In order to account for both the types of languages, a parameter is proposed (Lalitha.1993).

PRO Parameter

PRO is + governed

By means of this parameter one can account for the cross-linguistic differences found in the occurrence of PRO in CP-Clauses in languages such as Telugu, Tamil, Kannada, Oriya, Hindi-Urdu, Punjabi, Mizo and Thangkhul Naga etc.

Different Lexical Subjects in Negative Conjunctive participial Clauses

Tamil

6. [vaadyaarigal serivara solli sollaamal] maanavaragal
 teachers properly teachCP teach CP NEG students
 pasaaga villai
 pass not

‘Teachers not having properly taught, students didn’t pass’.

Hindi-Urdu

7. * [ham yahaa na aa kar] caar saal hue
we here NEG come CP four years happened
'It is four years since we came here.'

Bengali

8. [briSTi na hoye] fOsol kharaap hoyegaelo
rain NEG fall CP crops got spoiled
'Rains not having fallen crops got spoiled.'

The following rule is proposed in order to account for those Languages in which lexical subjects occur in CP clauses (affirmative and negative) and those in which the lexical subjects cannot occur in such clause.

Lexical subject + occurs in CP clauses if and only if

- (i) if it consists of + @
- (ii) if clausal compatability exists between CP clause and matrix clause

Thus, the variations in the languages regarding the occurrence Of lexical subjects in CP (both affirmative and negative) Clause can be accounted for by the above rule.

Reduplication of Negative Conjunctive Participles

In languages such as Telugu (9), Tamil, Kannada, Oriya (11) etc ., Negative occurs as a bound morpheme and TENSE is attached to it. The bound negative morpheme occurs as a prefix in languages such as Sinhalese. Oriya (11) and it occurs as a suffix in languages Such as Telugu (9), Tamil, Kannada

etc. In contrast it is not bound morpheme .it is free morpheme in languages such as Hindi-Urdu (10),Punjabi. Hence, in this paper it is claimed that NCPs Can occur in a language if the negative is a bound morpheme.

This claim gains support from languages such as Oriya and Bengali where there are two negative morphemes- one bound and the other free. If the claim were correct, then NCP clauses With a free morpheme should result in ungrammatical sentences (12).Our prediction comes true as ungrammaticality of sentence such as (12) from Oriya illustrates, **nahi** not' in Oriya is a free morpheme in contrast to **no** 'not' in sentence (11). It should be emphasized that the whole constituent as a whole can be reduplicated i.e., the verb, adjective, quantifiers, numerals etc.. and the constituent+ some element which is a free morpheme.

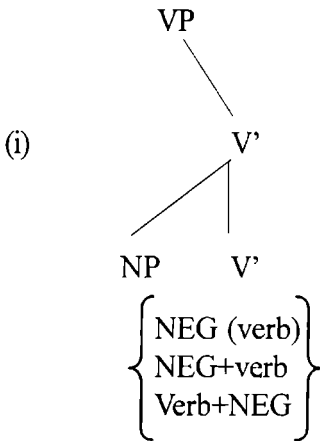
Thus there are languages in which the NCP can be reduplicated and there are languages in which the NCP cannot be reduplicated. In order to account for these cross-linguistic variations, the following parameter is proposed (cf. Lalitha, 1993).

RNCP-Parameter

Language @ has+NRCPif

- (i) NEG is + verb (head of VP)or
- (ii) V+NEG is the head of VP

Accordingly, if NEG is a verb or verb+NEG is the head of VP, Then the language will have an NRCP, if the NEG is an adjunct Of a V'. then the language will not have an NRCP clauses.



Telugu

9. atanu/i [PRO/i raaka raaka] maa inTI ki waccaaDu
 he come NEG come NEG my house to came
 ‘He came to my house after a long time.’

Hindi-Urdu

10. * [PRO/i nahii kha kar nahii kha kar] raam/i
 NEG eat CP NEG eatCP Ram
 khub khaana khane laga
 a lot food started eating
 ‘Ram has started eating more food after not eating for
 some time.’

Oriya

11. [PRO/i khadya nO khai nO khai] raamO/i bemaar heigOla
 food NEG eat NEG eat Ram disease got
 ‘Ram got disease since he has not eaten properly.’

12. *. [PRO/i nahi khaai nahi khaai] siita/i potaRLa heogela
 NEG eat CP NEG eat CP Sita thin became

‘PRO not having eaten food, Sita became thin.’

Negative Relative Participial Clauses (hereafter NRP clauses)

There are negative Relative Participial clauses in languages Such as Telugu (18), Tamil, Kannada, Oriya (13), Bengali, Sinhalese, Mizo (16). Thangkhul Naga (17) and there are no NRP clauses in languages such as Hindi-Urdu, Punjabi etc. The following sentences are illustrative :

Oriya

13. [@/i kichi bhi pOisa nOhi thiba] lokota/i
 anything money NEG RP be man

‘The man who does not have money—.’

14. * [@/i kichi bhi pOisa nahi thiba] lokota/i
 anything money NEG be man

‘The man who does not have money—.’

Hindi-Urdu

15. *. [@/i nahii likhaa huaa] aadmi
 NEG write be PERF man

‘The man who didn’t write

Mizo

16. looman/i [zova/i don loh] cu a- mOi lutuk
 prize Zova get NEG DEF 3SG nice very

‘The prize which Zova didn’t get is very nice.’

Thangkhul Naga

17. [*@/i* ot masalaak] kaci paa ci na
 that NEG do DET man DET NOM

‘The man who doesn’t work-

Telugu

18. [*@/i* Dabbu leeni] maniSi/i
 money NEG RP man

‘The man who doesn’t have money

Status of Negative

Notice that in the aforementioned languages except in Hindi-Urdu the negative either occurs as a verb or as a part of a verb. Hence in languages in which NEG occurs as a head of VP i.e.. as a verb Or if NEG as bound morpheme attached to the verb, one can expect NRP clauses .In languages in which NEG occurs as a free morpheme, NRP clauses are not found as in Hindi-Urdu(15). In order to account for these observed cross- linguistic differences the following parameter is suggested (cf.Lalitha, 1993).

NRP-Parameter

Language @ has + NRP if NEG-V or only NEG is + head of VP

Chomsky (1988), Pollock (1989) proposed Negative Phrase in which NEG occurs as a head .However, if we assume that NEG occurs as a head of a Negative Phrase as stated in Chomsky (1988), Pollock (1989) either NRP clauses or RNCP clauses which occur in the aforementioned South Asian languages cannot be explained.

Conclusion

It is claimed that the status of the negative cannot be the head of negative phrase in the languages under consideration.

It is pointed out that there are bound negative and free negative morphemes in some South Asian languages and only free negative morphemes in some languages.

In this paper further evidence is provided in support of the notion that India is a Linguistic Area which is as follows;

- (i) the occurrence of governed PRO
- (ii) the reduplication of negative conjunctive participles
- (iii) and the occurrence of negative relative participles in languages belonging to different language families.

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News of the Department

Important Events In The Department

.Prof.J.Venkateswara Sastry as Head and Coordinator and Prof.V.Swarajya Lakshmi as BOS Chairperson have assumed charge on 25.6.2001.

.. Prof.Aditi Mukherjee has assumed charge as Dean, Faculty of Arts in May 2001

... Prof. K.Nagamma Reddy has been appointed as Director, Centre for Women's Studies, O.U. in September 2001

.... Prof.B.Lakshmi Bai has retired on 31.10.2000. In her honour the Department has organized a lecture programme by Prof.R.Amritavalli, CIEFL, Hyderabad, on the topic dearer to her.

National Seminars organised by the Department

1. Variation in Written Language: A Functional Perspective

The Centre of Advanced Study in Linguistics, Osmania University, has organized the National Seminar on 'Variation in Written Language: A Functional Perspective' under the directorship of Prof.V.Swarajya lakshmi during February 19-20, 2000. Dr. A. Usha Rani and Mr.B.Vijayanarayana were the organizing secretaries. It was inaugurated by Professor Issac Sequeira, Research Consultant, Indo-American Centre for International Studies, Hyderabad, and Former Dean of Faculty of Arts, Osmania University. Dr.H.S.Ananthanarayana, Professor of Linguistics (retired) and former Dean of Faculty of Arts, Osmania University, presided over the inaugural session. The keynote address was delivered by Dr.C.Ramarao, Professor of Linguistics (retired) and former Dean of Faculty

of Arts, Osmania University. He has reiterated in his paper that there is bound to be variation in written language based on its function. During the paper-reading sessions 17 papers were presented by scholars coming from different parts of India, drawing data from several languages such as Hindi, Bengali, Panjabi, Oriya, Assamese, Telugu, Kannada, Tulu and English. The scholars in their papers looked at the theme of the seminar from different perspectives. For instance, variation in the structure of written language used in official correspondence, translations, news paper advertisements were discussed. Variation in written language from historical perspective was also discussed. When some sociolinguists have questioned the concept of standard language which is creating problems in the area of language teaching/testing, others who are dealing with machine translation have argued for the uniformity in the written language. All the papers generated a lot of heated discussion among the participants.

2. Tribal Languages in India

A two day National Seminar on Tribal Languages in India was organized by the Centre of Advanced Study in Linguistics on 16 and 17 February, 2001, under the directorship of Prof. B. Lakshmi Bai. Mr.K.Ramesh Kumar served as the Secretary of the seminar.

A total of 11 papers were presented on the following broad areas: 1) Structure of Tribal languages, 2) Threats to maintenance of tribal languages in the context of “mainstream languages” and 3) Issues related to literacy among tribals. Tribal languages belonging to Dravidian, Indo-Aryan and Munda family were covered. There were four academic sessions.

Prof.B.Lakshmi Bai, Director of the seminar, in her address, initiated the discussion about the future action to be taken with regard to research in the area of the tribal languages in India. During the discussion it was suggested that a website on tribal languages of India should be created and also stressed the need to bring out a News letter on Tribal languages.

3. Workshop on Clinical Linguistics

A two day workshop on Clinical Linguistics was jointly organized by the Central Institute of Indian Languages, Mysore, Central Institute of English and Foreign Languages, Hyderabad, University of Hyderabad, and the Centre of Advanced Study in Linguistics, Osmania University, in order to prepare syllabus for the post graduate course in Clinical Linguistics, to be offered by Central Institute of Indian Languages, Mysore. Two faculty members Dr.D.Vasanta and Dr.A.Usha Rani have participated in the above said workshop.

Visiting Professors

Prof. Rajendra Singh, University of Montreal, Canada, has delivered a lecture titled “From the Regulative to the Constructive : Linguistic Competence and multilingualism” on 23.3.2000.

Prof.P.R-K.Rao, Professor of Electrical Engineering, IIT, Kanpur and Visiting Faculty member at Department of Electronics and Communications Engineering, O.U., has delivered a lecture on “Models, Metaphors and Myths in Science” on 10.8.2001.

Research Projects

1. Impact of the medium of instruction on the multilingual character of a community: a case study in Adilabad district.

Investigator: Prof. Aditi Mukherjee

2. A joint project Evaluation of existing English Parsers with special reference to Telugu and Hindi-Urdu.

Investigators: Prof. B. Lakshmi Bai

Prof. V. Swarajya Lakshmi

Dr. A. Usha Rani

Mr. B. Vijayanarayana

Mr. K. Ramesh Kumar

Publications of the Department

Following book was brought out by the Department:

1. Language Matters: Papers in honour of Prof. C. Ramarao
Editors: B. Vijayanarayana
K. Nagamma Reddy
Aditi Mukherjee

Research Degrees Awarded

M.Phil degree was awarded to Mr. P. Srinivas Rao for his thesis "The use of English propositions by Telugu medium students of Intermediate level: A study in ELT" in 2000. Supervisor: Prof. V. Swarajya Lakshmi.

Academic achievements of the faculty

Publications

Prof. Aditi Mukherjee

2000 'The standard problem". In *Directions in Indian Sociolinguistics*, edited by R. S. Gupta. Shimla: Indian Institute of Advanced Study. Pp. 86-93.

2001 'The sylhetis in Leeds: an attempt at a sociolinguistic profile" (with M.K. Verma, A.L.Khanna and R.K.Agnihotri). *The Journal of Social Studies*, 91. pp. 38-58.

Books edited

2000 *Language Matters: Papers in honour of Prof. C.Ramarao* (co-edited with B.Vijayanarayana and K.Nagamma Reddy). Hyderabad: CAS in Linguistics, Osmania University & Booklinks Corporation.

Prof.K.Nagamma Reddy

2000 'Linguistic functions of length beyond word level in Telugu'. *International Journal of Dravidian Linguistics*, Vol.XXIX, 81-90.

2000 'The sounds of Sanskrit and modern Indian languages, in O.N.Koul and L.Devaki (eds.). *Linguistic Heritage of India and Asia*, (Proceedings of UNESCO & CIIL International Conference) Central Institute of Indian Languages, Mysore, 211-244.

2000 'Statistical patterns of phoneme and consonant sequences in some Indian languages: Their relevance

- to speech technology' (co-author). *Speech Technology: Issues and Implications in Indian Languages*, (ed.) K.Nagamma Reddy. International School of Dravidian Linguistics, Thiruvananthapuram, 61-76.
- 2000 'Relevance of duration for speech system in Telugu'. *Speech Technology: Issues and Implications in Indian Languages*' (ed.) K.Nagamma Reddy. International School of Dravidian Linguistics, Thiruvananthapuram, 185-213,
- 2000 'Current research, future trends and applications of speech technology in India'. *Speech Technology: Issues and Implications in Indian Languages*, (ed.) K.Nagamma Reddy. International School of Dravidian Linguistics, Thiruvanantha-puram, 266-277.
- 2001 'Role of core grammar in translation across Indian Languages' (co-author). Professor K-Karunakaran 60th Birthday Commemoration Volume. Thiruppur, Tamilnadu: The Park Trust. 305-314.
- 2001 'Ethnolinguistic perspectives on tribal literature: The Kondh situation' (co-author). In *Dravidian Folk and Tribal Lore*, B.Ramakrishna Reddy (ed.) Dravidian University, Kuppam. 276-290.

Books edited

- 2000 *Speech Technology in India: Issues and Implications in Indian Languages*. International School of Dravidian Linguistics, Thiruvananthapuram, Kerala.

- 2001 Co-editor, *Language Matters: In honour of Prof.C.Ramarao*. Hyderabad: CAS in Linguistics, Osmania University and Booklinks Corporation.

Prof.V.Swarajya Lakshmi

Language issues in Telugu in the context of Multidialectal situation. *OPIl* Vol.25. Hyderabad: Dept of Linguistics, Osmania University.

Dr.D.Vasanta

- 2000 'Rethinking Neurolinguistics: Insights from sign language studies'. *International Journal of Communication*. 10:1-2 pp. 127-140.
- 2001 Lipreading skills of Telugu deaf children in normal and special schools. *Hearing Aid Journal (India)* 15: 1, pp. 5-19.
- 2001 Researching language and Gender: A critical Review. *Indian Journal of Gender Studies* 8:1, pp. 69-87.
- 2001 Phonology, Orthography and Reading: Insights from the Spelling errors of Prelingually deaf Telugu children. In B.Vijayanarayana et al (eds.), *Language Matters: Papers in honour of Prof. C. Ramarao*. Hyderabad: CASL & Booklinks Corporation.

Dr.A. Usha Rani

- 2001 Dative Constructions in Telugu children's speech, In B.Vijayanarayana et al (eds.), *Language Matters: Papers in honour of Prof. C. Ramarao*. Hyderabad: CASL & Booklinks Corporation. (Co-authored with V.Sailaja).

Mr.B. Vijayanarayana

- 2000 'apanammakaM' (A Telugu translation of Morley Callaghan's story 'Watching and Waiting'). In H-Lakshmi and A. Mehta (eds) *hima viicika*. Hyderabad: Gamaliel Printers & Publishers. Pp. 37-43.
- 2000 'Agreement with special reference to Telugu'. *Indian Linguistics*, 61; 47-61.

Mr.K.Ramesh Kumar

- 2001 An Acoustic Study of Vowels in Raj Gondi, In *Studies in Phonetics and Phonology - with reference to Indian Languages*. K.Nagamma Reddy and A.R-Fatihi (eds.) New Delhi: ESS Publishers. Aligarh and Creative Publications

Papers presented/Lectures delivered/Resource Persons

Prof. Aditi Mukherjee

Evaluation of the performance of participants, UGC Orientation Course for College Teachers, Academic Staff College in 2000.

Lectured on 'The unreal boundaries across disciplines', UGC Orientation Course for College Teachers, Academic Staff College, O.U. in 2001.

Prof.K.Nagamma Reddy

'Duration of Sanskrit Speech Sounds'. Workshop on Sanskrit Speech Recognition, Sanskrit Research Academy, Melkote. Held at Indian Institute of Science, Bangalore. January, 2000.

‘Innovations in the Languages of India in News Media’. Presidential Address. Aligarh Chapter of Linguistic Society of India, Aligarh Muslim University, Aligarh . Novemeber, 2000

‘Speech Recognition’. National Workshop on Computational Linguistics. University of Madras, Chennai. November, 2000.

‘Syllable structure and Quantity adjustment in Telugu’. International Conference on Stress and Rhythm, CIEFL, Hyderabad. December, 2000.

‘Acoustic correlates of juncture in Telugu’. Fifth International Workshop on Recent Trends in Speech, Music and Allied Signal Processing, organized by Sangeet Research Academy, Calcutta, ISDL, Trivandrum and Acoustical Society of India (Calcutta Chapter). December, 2000.

‘Perspectives on the Vowel Sounds in Indian Languages’. 3rd International Conference on South Asian Languages organized by School of Humanities and CALTS, University of Hyderabad in collaboration with CIIL, Mysore, at University of Hyderabad. January 2001.

‘Acoustic Phonetics’. International Workshop on Technology Development in Indian Languages. Computer Vision and Pattern Recognition Unit, Indian Statistical Institute, Kolkata. March, 2001.

‘Peoples Languages’. Symposium on Perspectives on Development of India in the 21st Century. On behalf of Indian Academy of Social Sciences in collaboration with Indian Council of Social Sciences Research, Southern Region Centre, Osmania University, Hyderabad. March, 2001.

National Workshop on Language Information Services (US) - India, CIIL, Mysore held in May, 2001. Prepared syllabus on Language Technology and submitted.

'Translatability across Indian Languages'. National Seminar on Information Revolution: Rural & Local Administration (e-governance in Telugu and other Indian Languages), jointly organized by CLS, Andhra Mahila Sabha, Hyderabad, SCIL, Hyderabad. July, 2001.

'Phonetic and phonological structure of word in Telugu'. National Seminar on Word Structure of Dravidian Languages. Organised by the Dravidian University, Kuppam. November, 2001.

Presented a talk on Scottish Language and Culture, the Lions Multinational Cultural Fete, organized by International Association of Lions Club, Lions Bhavan, Paradise Circle, Hyderabad. Pearls Region - L December, 2001.

UGC Refresher Course in Linguistics, CIEFL, Hyderabad . Lectures delivered on Articulatory and Advanced Phonetics (15-16th and 22-23 September 2000) and on Phonetics 2001.

Invited Speaker on Phonetic Theory and Phonology, Text-to-Speech System for Tamil at AU-KCB Research Centre, MIT Campus, Anna University, Chromepet, Chennai. November, 2001.

1st Refresher Course in Research Methodology, Quantitative techniques with computer application in Humanities, Academic Staff College, Osmania University. Lectures delivered on Research in Phonetics (15th December 2001) and Use of Computers in language and linguistics (18th December 2001).

A series of Ten Lectures delivered on Phonetics and Phonology as part of Computational Linguistics at Dravidian University, Kuppam during December 2001.

Prof.V.Swarajya Lakshmi

'Some linguistic features of Telugu official correspondence' at the National Seminar on "Variation in Written language: A functional perspective" Organized by Department of Linguistics, O.U. (coauthored with A.Usha Rani). February, 2000.

Dr.D.Vasanta

'Speech signal processing for the hearing impaired: the role of bimodal speech synthesis'. At the 32nd Annual Conference of the Indian Speech, Language and Hearing Association held in Hyderabad during January 21-23, 2000. (Co-authored With Thomas T.G. & Kauru, M.S.). Served as an Organising Committee member.

'Spatial vs. Conceptual Cognition: The case of Williams Syndrome'. At the First International Conference on Neurology, Language and Cognition held in Trivandrum, Kerala, during December 20-22, 2000. (Coauthored with Borgahain, R. and Venkateswara Rao, M.)

'Structure of the Post graduate course in Clinical Linguistics to be offered by the CIIL, Mysore at a two-day workshop on Clinical Linguistics, jointly organized by CIIL, Mysore, CIEFL, Hyderabad, Hyderabad Central University and CAS in Linguistics, Osmania University in 2001.

Dr.A.Usha Rani

'Some linguistic features of Telugu official correspondence' at the National Seminar on Variation in Written Language: a

functional perspective, organized by Dept of Linguistics, O.U. during February 19-20, 2000. (coauthored with Prof.V.Swarajya Lakshmi).

'Acquisition of the Non-nominative subject in Telugu' at the International Symposium on 'Non-nominative subjects' organized by Institute for the study of Languages and Cultures of Asian and Africa, Tokyo University of Foreign Studies, Tokyo (co-authored with V.Sailaja). 2001.

Participated in the workshop on 'Clinical Linguistics' at CIEFL, Hyderabad, organized by CIIL, Mysore, CIEFL, Hyderabad, Hyderabad University and CAS in Linguistics, Osmania University, during April 20-21, 2001.

Mr.B. Vijayanarayana

'Word Collocations with special reference to Telugu-English bilingual dictionaries' (in Telugu). Paper presented at the Seminar on Special Dictionaries - Problems in Compilation organized by the Dept of Lexicography, P. S. Telugu University, Hyderabad, during March 23-24, 2000.

'Agreement with special reference to Telugu' at the 28th All India Conference of Dravidian Linguists, Idaiyangudi, Tamilnadu, during June 22-24, 2000.

'Subject in Telugu' at the 3rd International Conference on South Asian Languages (ICOSAL-3) hosted by the School of Humanities, University of Hyderabad, during January 4-6, 2001.

As a resource person participated in the Workshop on Standardization of Technical Terminology in Telugu, organized (in collaboration with Literacy House, Hyderabad) by CIIL, Mysore during April 2-9, 2001.

As a resource person participated in the workshop on AnnCorra (annotating Corpora of Indian Languages) conducted by Language Technologies Research Centre, International Institute of Information Technology, Hyderabad, during October 12-14, 2001.

Other Activities

Prof. K.Nagamm Reddy

Organised a Seminar on Perspectives of Development of India in the 21st Century, ICSSR Conference Hall, Osmania University, Hyderabad, in June 2000.

Organised a Lecture-cum-discussion Meet on the importance of Women in Indian Society and their role in development of national building, on 24.11.2001.

Convenor, Indian Academi of Social Sciences. Symposium on emerging challenges in Globalisation and Food Security, ICSSR hall, Osmania University. July, 2001.

Nominated as Secretary, Dravidian Linguistics Association (DLA), Thiruvananthapuram from 2001 onwards.

Prof. V.Swarajya Lakshmi

Directed the National Seminar on “Variation in Written language: A Functional Perspective” organized by the Dept of Linguistics, Osmania University, during February 19-20, 2000.

Dr. D.Vasanta

Organising Committee member, two day workshop on Clinical Linguistics, Jointly organized by CIIL, Mysore, CIEFL,

Hyderabad, Hyderabad Central University, CAS in Linguistics, Osmania University, Hyderabad.

Organising Committee Member, 32nd Annual Conference of the Indian Speech, Language and Hearing Association held in Hyderabad during January 21-23, 2000.

Dr. A.Usha Rani

Organising Secretary, National Seminar on “Variation in Written Language: A Functional Perspective”, Dept of Linguistics, O.U. during February 19-20, 2000

Mr. B.Vijayanarayana

Organising Secretary. National Seminar on Variation in Written Languages: A Functional Perspective during February 19-20, 2000, Hyderabad.

Mr. K.Ramesh Kumar

Organising Secretary for the National Seminar on ‘Tribal Languages in India’ Organized by the Dept of Linguistics, O.U., during February 16-17, 2001.

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