SYNTACTIC DESCRIPTIONS OF BILINGUAL PATTERNS

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1.0 Introduction

1.1 *The psycho-Sociological problems of Bilingualism for study by the Application of Computational Linguistics*

Language contact is a Universal phenomenon, having a tendency towards cultural harmony as one of its manifestations. This brings into effect the operation of phenomenon which is of Sociolinguistic importance. One of the resultants of this phenomenon which is of significance to psycholinguistics is 'Interlinguistic Interference'.

A study of bilingualism as a non-structural factor of interference has been taken up by many linguists, psycholinguists (Weinreich, Epstein and Stern, 1954) and speech pathologists (Berry and Eisenson, 1957).

With the advent of the computer, there are now precise and rapid mean? of analysing a large mass of data related to speech and language.

Bilingualism, referring to the co-occurrence of two languages in an individual (Gumperz, 1964) has been hitherto dealt with as a phenomenon of interference. Here interference refers to 'those instances of either language which occur in the speech of bilinguals as a result of their familiarity with more than one language contact' (Weinreich, 1954). This also implies the rearrangement of patterns that result from the introduction of foreign elements into the more highly structured domains of language, such as the bulk of the phonemic system, a large part of the morphology and syntax and areas of the vocabulary. Consequently, there have emerged interferences at the phonemic, grammatical and lexical levels.

The above formulations lead us to ways of analysing the types of interferences within a bilingual individual or in a bilingual community, making use of the methods of computational linguistics.

Structural relationships between two languages and the concept of language universale (Chomsky, 1965), have led to the development of mechanised translation as a branch of computational linguistics.

Mechanised translation, as the name itself implies, would seek to arrive mechanically at the structural equivalents of the two languages analysed.

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Utilizing this principle, it would be feasible in the same way to find the structural equivalents in the languages spoken by the bilingual individual. These data when compared with the structual analysis of the speech of a monolingual speaking any one of the languages spoken by the bilingual, would give a comparative account of the languages of the bilingual and the monolingual and also would describe the interferences met with at several levels of language structure.

1.2 *The Linguistic Study of Bilingualism*

This complex problem has so many factors involved in it, that, for any detailed study of some of these factors, all other factors have to be eliminated by making certain simplifying assumptions and through proper selection of the subject, his environment and the situation and style of his discourse.

(a) We have taken for our study one Subject, whose background is as given below:

1. Age: Fifty five years.
   Sex: Female
   Class: Middle class.
   Caste: Hindu—Brahmin
2. Educational Background:
   Lower Secondary—Kannada Medium
3. Bilingual Background:
   LI—Telugu (Mother-tongue)
   L2—-Kannada (Language of the region and medium of school education)
   There is no demarcation in the sphere of use of these two languages in the individual.
4. Linguistic background: All members of the Subject's family speak both Telugu and Kannada.

(6) To eliminate the effects of inter-class and inter-caste linguistic manifestations, we have chosen the Subject's discourses restricted to the following situations:

1. One of the authors of this paper, who is a bilingual in Telugu and Kannada and who is of the same social group as the subject conducted the informal interview, in quite a normal and natural conversational set-up (as if, she were merely having a chat with the Subject).

2. The subject's speech was in the form of a series of spontaneous refsponses to a series of questions posed in the course of the informal conversations.

3. Since the subject prefers to speak in Telugu with those who speak Telugu and in Kannada with those who speak Kannada, the investigator, being a bilingual,

spoke in Telugu to get Telugu responses and in Kannada to get Kannada responses.

4. The subject was asked to give her views on some day-to-day topics spontaneously in the two languages on different occasions.

(c) Since most other such studies have dealt with mainly phonological peculiarities or with vocabulary, we have chosen syntax as our main concern.

(d) We use the 'Practical Theory of Syntactic Structure' as our frame-work for our study.

2.0 *Method*

2.1 *Method of obtaining data*

In accordance with the principles outlined under 1.2 above, the data were obtained by eliciting answers for a set of questions (in the course of a conversation). The questions asked were:

1. NIMMA UURU YAVUDU?
2. BENGALXUURIGE ADU BAHALXA DUURAANA?
3. NIIVU ELLIYATANAKA OODIDDIIRI?
4. NIMAGE BENGALXUURINA VAASA ISXITXAVAA?
5. SNEHITARA BAGGE NIMMA ABHIPRAAYAVEENU?
6. NIIVU KATHE PUSTAKAGALXANNU OODUTTIIRAA?
7. NIMMA MANEYALLI YAARU YAARU LDDXAARE?
8. II UURINA BAGGE NIMAGE EENUANISUTTADE?
9. NIMAGE SANGIITADALLI BAHALXA AASAKTI IDEYAA?
10. NAMMA DEESHADA RAAJAKIIYADA BAGGE NIIVU EENU HEELXUTTIIRI?
11. VIDYAARTHIYAVARA GALAATXE BAGGE EENU HEELXUTTIIRI?
12. NIMAGE SINEMA NOODXUVA ABHYAASAVIDEEYAA?
13. NIMAGE HOLIGE EENAADARUU BARUTTAA?
14. BENGALXUURINALLI NIMMA VAASASTHALXA YAAVUDU?
15. SANJE VEELXEYANNU HEEGE KALXEYUTTIIRI?
16. REEDXIYO KEELXUVA ABHYAASA IDEYAA?
17. INDINA YUVAJANAANGADA BAGGE NIIVU EENU HEELXUTTIIRI?

The answers to these questions were obtained independently in the two languages.

2.2 *The Practical Theory of Syntactic Structure and its Metalinguistic Symbolism*

Any surface level sentence in a language has an underlying 'amorphous sentence' S' which is the result of the operation of the 'semantic determinant'* on the amorphous proposition S. This proposition S is made up of a Verb V (taken as a 'primitive concept') and its various 'agruments' collectively represented **as J.**

We have the following relations among the various components of the amorphous sentence S'.

The sentence S' ceases to be amorphous and takes definite linear shape on the application of language specific rules of word-order.

The amorphous sentence is given by:

(1) S' — $*S$

(2) S — $(\text{'J'}\ \text{'V'})$

(3) J — $Z\ \text{'Z''}$

(4) Z' — J

(5) Z — $[P\times\text{'Q'}$

(6) Q — P

(7) P — $\begin{cases}[\Sigma P_{(i)}]\\ [Z]\end{cases}$

(8) $P_{(i)}$ — $\begin{cases}[C]\\ [NO]\\ [AO]\\ [DO]\end{cases}$

(9) C — $(\Sigma C_{(i)})$

(10) $C_{(i)}$ — $(\text{'J}_{(i)}\text{'}\ \text{'V}_{(i)}\text{'})$

(11) NO — $[\Sigma NO_{(i)}]$

(12) $NO_{(i)}$ — $\begin{cases}[\text{'T'}\ NA]\\ [R_1]\\ [R_2]\end{cases}$

(13) T — $\{[T_1], [T_2], \ldots\}$

(14) NA — $[\text{'[AO]'}\ N], \ldots$

(15) N — $\{[N]_1, [N_2], \ldots\}$

(16) AO — $[\Sigma AO_{(i)}]$

(17) $AO_{(i)}$ — $[\text{'[DO]'}\ A]$

(18) DO — $[\Sigma DO_{(i)}]$

(19) $DO_{(i)}$ — $[D\times\text{'Y'}]$

(20) Y — $DO_{(i)}$

(21) A — {[A_1], [A_2], . . .}

(22) D — {[D_1], [D_2], . . .}

(23) R_1 — {[PR_1], PR_2], . . .}

(24) R_2 — {[RR_1], [RR_2], . . .}

(25) {T_1, T_2, . . } — {Lexical determiners like : *a*, *the*, *this*, *my*, etc.

(26) {N_1, N_2, . . } — {Lexical nouns}

(27) {A_1, A_2, . . } — {Lexical adjectives}

(28) {D_1, D_2, . . } — {Lexical adverbs}

(29) {PR_1, PR_2, . . } — {Lexical pronouns}

(30) {RR_1, RR_2, . . } — {Relative pronouns}

(31) V — {VC / VO}

(32) VC — [X J]

(33) X — {VC / VO}

(34) VO — {VK / VI / VT}

(35) VK — {VK_1, VK_2, . . . }

(36) VI — {VI_1, VI_2, . . . }

(37) VT — {VT_1 VT_2, . . .

(38) * — +' '+'

(39) +' — {The 'modalities component' of the semantic determinant *, including psychological and logical associations and formal presentation

(40) + — {The extended Fillmore 'case-role' components

Where the various brackets stand for what is written within each of them below:

(S-structures, C-structures or Conjunct verbs),
[P-structures],
{Alternatives} and
'Optionals'.

If by the repeated application of rules (3) and (4), twice (each time choosing the optional element Z'), we get:

J — Z Z Z

- Z1 z_2 z_3

then

S'—*S

-*{Z_1 Z_2 Z_3 V)

-•, {*1Z1 $*_2z_2$ $*_3z_3$ $*_v$V)

where $*_s$ stands for the way S' is presented (namely: indicative, interrogative, imperative, active, passive, etc.), $*_{i;}$ $*_2$, $*_3$ are respectively case 1, cat,; 2, case 3 the nouns (real or 'virtual') and is the tense and aspect of the verb. As an example, we may have (in English):

S' --* s(*1 Z_1 *2 Z_2 *3 Z_3 *vV)

-- *s(*1Z1 *vV *2V2 *3Z)

— ([John] hit [the bird] [+with a stone]).

2.3 *Transcription of Kannada and Telugu Utterances in the Roman Script*

VOWELS

Kannada:	ಅ	ಆ	ಇ	ಈ	ಉ	ಊ	ಋ	ಎ
Telugu:	అ	ఆ	ఇ	ఈ	ఉ	ఊ	ఋ	ఎ
Roman:	A	AA	I	II	U	UU	RX	E

K	ಏ	ಐ	ಒ	ಓ	ಔ	ಅಂ	ಅಃ
T	ఏ	ఐ	ఒ	ఓ	ఔ	అం	అః
R	EE	AI	O	OO	AU	AW	AX

CONSONANTS

K	ಕ	ಖ	ಗ	ಘ	ಙ
T	క	ఖ	గ	ఘ	ఙ
R	K	KH	G	GH	GW

K	ಚ	ಛ	ಜ	ಝ	ಞ
T	చ	ఛ	జ	ఝ	ఞ
R	C	CH	J	JH	JW

K	ಟ	ಠ	ಡ	ಢ	ಣ
T	ಟ	ಠ	ಡ	ಢ	ಣ
R	TX	TXH	DX	DXH	NX
K	ತ	ಥ	ದ	ಧ	ನ
T	ತ	ಥ	ದ	ಧ	ನ
R	T	TH	D	DH	N
K	ಪ	ಫ	ಬ	ಭ	ಮ
T	ಪ	ಫ	ಬ	ಭ	ಮ
R	P	PH	B	BH	M
K	ಯ	ರ	ಲ	ವ	ಶ
T	ಯ	ರ	ಲ	ವ	ಶ
R	Y	R	L	V	SH
K	ಷ	ಸ	ಹ	ಳ	ಕ್ಷ
T	ಷ	ಸ	ಹ	ಳ	ಕ್ಷ
R	SX	S	H	LX	KSX
K			ಜ		
T			ಜ		
R			JJW		

2.4 *Simple Sentence Patterns*

For convenience in our discussion, we have classified sentences in their increasing order of complexity in accordance with our system of syntactic demarcations. The major patterns are:

1. (V)
la. ([ ])
2ft. ([ ] [ ])
3a. (V[ ])
3b (V[ ]...[ ])
4. (V [(. . .)])
5. (V [(V [(V . . .)])])
6. (V[(V[ ])] [(V[ ])])

3.0 *Results and Discussion*

3.1 *Analysis and Discussion of Date.*

All the answers to the above questions in both the languages were compared,

and the sentences which were found similar in their structure were grouped under one category. These sentences were then classified as examples of the major sentence patterns (given in § 5). The sentence demarcations are according to the 'Practical Theory of Syntactic Structure', where the structure for structure matching between the two languages from the outermost to the innermost structures to the extent they are manifest is brought out through these demarcations.

TYPE 1 (See § 5 above):

None in the data collected.

TYPES 2A AND 2B

Kl : ([[Namma] uuru] [Shriinivaasapura])
Tl : ([[Maa] uurv] [Shriinivaasapuram])
El : ([[My] place] is [Shrinivasapisram])
K2 : ([[Tumba] duuraane])
*T2 : ([[Saanaa] duuramee])
E2 : (([It] is] [[really] [[too] far]])
*K2' : ([[[Tumba] duuraa] [nee]])
T2' : ([[[Saanaa] duuram] [ee]])

(K2' and T2' indicate an alternative syntactic demarcation that matches, them with the English structure E2),

K3 : ([L.S. +tanaka])
T3 : ([L.S. +tanakam])
E3 : ([+Upto L.S.])
K14 .: ([Raajaajinagara+dalli])
T14 : ([Raajaajinagaram-j-ulo])
E14 : ([+At Rajajinagar])
K7 : ([[Maga], [sose], [mommaga]))
T7 : ([[Kadxaku], [koodxaalu], —malxlxi— [manamudxu]])
E7 : ([[My] [[son], [daughter-in-law] =and= [grandson]]])

In all the above:

Type 2a is represented by: K2/T2, K2'/T2', K3/T3, K14/T14 and K7/T7.

Type 2b is represented only by Kl/Tl Here the English equivalent has a link verb *is, (to be),* in it.

All the above type 2a structures are elliptical. Since they are answers to questions, the verb in the question is not repeated in the answer.

In K7/T7 we have the logical 'AND' relation. The equivalent of *and* in English may be omitted as in K7. (Rule (11) of § 3, namely NO is the one that deals with this logical 'AND' relation among coordinate elements).

TYPE 3

K6 : ([Aaaw])$_r$ ([Aadare] ([tumba] alia))
*T6 : ([Aunu]). ([Aite] ([saanaa] leedu)).
E6 : ([Yes]). ([But] (not [much])).
K13 : (([Summane] boliyuvudu), ([asxtxe])),
*T13 : (([Uurake] tecceedi), ([ante])).
El3 : ((([I] like [+to (stitch)]) [a little]), ([That] is [all])).
*K13 : ([([Summane] holiyuvudu)] ([isXtXa])).
T13': ([([Uurake] tecceedi)] (isXtXamu])).
E13' : (([I].like) [+to (stitch, [a little])]),
K16 : ([[Svalpa] svalpa] ide).
T16 : ([[Kowca] kowcam] undi).
E16 : ([Sometimes] ([I] do)).
K4 : ([Nanage] halxlxiine) ([isxtxa])).
T4 : ([Naaku] [palxlxiine] ([isXtxam])).
E4 : ([I] prefer [the village])
K8 : ([Eennu] anisuvudilla)
T8 : ([Eemii] anipicceeleedu)
E8 : (([I] don't feel) [anything])
K9 : ([Aasakti] ide)
*T9 : ([Aasakti] undi)
E9 : (([I] have)]interest]): 'I am interested' (idiomatically).
*K9' : ([Huuw]). (Adaralli] ([[bahalxa] aasakti] ide)).
T9' : ([Aunu]). ([Daaniloo] ([[ninxdxa] aasakti] undi)).
E9' : ([Yes]). ((([I] have) [[great] interest]) [+in it])
(Idiomatically): I am very much interested in it.

In all the above, we have the telescopically repetative structure (V [.;.;.]), where V is often a 'conjunct verb' given by: V—VC, where VC—(V [...]).

TYPE 4:

*K6' : ([Haudu]). ([Aadare] ([[([tumba] oduvudu)] [eenu]] ilia)).
T6' : ([Avunu]). ([Aite] ([[([Saanaa] cadived)] [eemi]] leedu)).
E.6' : ([Yes}), ([But] (([I] don't) (read [much]) [anything]) ,

E6" : ([Yes}).([But] (([I] don't do) [[any] [(reading:[much])]]))
(Idiomatically): I don't read Much,

K12 : ([([[Ol X l X eya] sinema] aadare)] nood X uteene).

*T12 : ([([[Manci] sinema] aite)] cuustaanu).

*K12': ([([[([Cennaagi] iruva)] sinema] aadare)] nood X utteene).

T12': ([([[([Manciga] un X d X e)] sinemaa] aite)] cuuseedi).

E12' : ([+If (([it] is) [a film [([that] is [good])]])] ([I] see[it})).

Kll : ([([Shantiyutavaagi] [(galaat X e] maad X idare))] paravaagilla).

*T11 : ([([Shaantiyutamugaa] ([galaat X aa] ceestee))] paravaaleedu).

Ell : (([It] is [all rightj) [+if (([they] strike) [peacefully])]).

*K11': ([([[Shaantiyutavaada] galaat X e] aadare)] paravaagilla).

T11': ([([[Shaantiyutamaina] galaatxaa] aite)] paravaaleedu).

Ell' : ([X lf (([It] is) [a [peaceful] strike])] ([it] is [all right]))

K15 : ([([Horagad X e] suttaad X uttaa)] kal X eyutteene).

T15 : ([([Bait X a] cut X t X aad X ikoni)] kad X ustaanu).

E15 : (([I] Spend [my time]) [(roaming [about])]).

K10 : ([([[Raajakityada] vyavahaaraane] ([sariyaag] ilia))] enisuttade].

T10 : ([([[Raajakiiya] vyavahaaram.ee]
([sarigga] leedu)) +ani) kanapadxistundi).

E10 : (([It] appears) [+that ([the [political] affairs]
(are not [sound]))]).

K17 : ([[([[Ket X t Xa] gun X agal X] ul X l X) a-var] = u u =
[ol X l X eyavar] +uu] iruttaare).

T17 : ([[([[Ced X d X a] gun X am] un X d X e) vaal X l X] = u u =
[mancivan X 1 X] X ua] un X t X aaru).

E17 : (([There] are) [[people [(having [[bad] qualities])]]
=and— [[good] people]]).

In Type 4, we have the general structure: (V [(VC)]), where VC—(V [(VC)]) or (V [. .]).

N.B. In the case of the examples marked*, the Subject originally gave patterns that were not exact translations but could give an exactly similar pattern in the other language when the pattern of one of the languages was again presented to her.

3.2 *Deviation in the pattern between the two languages:*

TYPE 5

The one example we got of this pattern from the subject does not fully match in the two languages.

K5, : ([([[Ol X l X e] sneehitarannu] maad X ikol X 1 X alu)]
([nanage] ([isx t X a]))).

T5 : ([([([mancigunXamu] unXdXe) vaalXni] sneehinceedi)]
([[naa] isXtXam])).

E5 : (([I] am (fond [of])) [(making [[good] friends])]).

Here the Subject did not give the exact translated versions in the two languages. The use of the word *maadxikolxlxalu* in the sentence K5 does not have an equivalent form in the Telugu language. Similarly, the word *sneehinceedi* in T5 does not have an equivalent form in Kannada.

4.0 *Conclusion and Prospects*

4.1 *Conclusions*

The analysis of these data indicates that the subject has, in her language repertoire, equivalent forms in both the languages. So, it seems that (at least in languages belonging to the same linguistic family) a bilingual speaker can make use of structurally equivalent forms in the languages that he uses.

The analysis also revels that in the examples K5 and T5, the subject does not find the equivalent lexical forms for substitution in either language. Thus 'interference' in the speech is possible when equivalents are not found.

In those instances in the subject finds equivalent forms, interference is easily avoided. When there is 'interference' the sentence pattern itself is different, even when an identical situation is described.

4.2 *Prospects*

Tabulation and counting of equivalent forms in any two languages could also be done on a large scale by computational methods. Such a method would be a precise tool for the comparison of the two languages used by a bilingual.

For such a study vast data have to be gathered under different situations that would include:

(1) Conditioned situations

(2) Spontaneous speech.

or

(3) Free discourse.

We hope to present an analysis of spontaneous speech and free discourses in the two languages of a bilingual on a larger scale and in greater detail in the near future, using the computer.

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