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ABSTRACT

Fifteen articles are presented in this collection on contrastive linguistics: "On Syntactic Levels--One Tertium Comparison is in Contrastive Linguistics" (L. F. Jakobsen and J. Olsen); "Equivalence in Bilingual Lexicography: From Correspondence Relation to Communicative Strategy" (R. R. K. Hartmann); "How Useful Are Word Lists in Contrastive Analysis?" (J. L. Wyatt); "Coarticulatory Propensity: The Case of English and Polish Consonant Clusters" (S. Puppel); "Some General Remarks on Ulrich Blau's Interpretation of Sentences with Referential But Actually Nonreferring Expression Co-occurring with Referential Predicates" (E. Mioduszewska); "Post-transformational Stem Derivation in Fox" (I. Goddard); "Notes on Subjacency as a Syntactic Constraint in Arabic and English" (M. J. Bakir); "The Intonation of Questions in English and Arabic" (S. El-Hassan); "Some Cases of Lexicalization" (B. Korponay); "Contrastive Analysis at Discourse Level and the Communicative Teaching of Languages" (S. Marmaridou); "Connecting L1 and FL in Discourse-Level Performance Analysis" (L. S. Evensen and I. L. Rygh); "How Do Poles Perform English 'Tips of the Slung'?" (K. Dziubalska-Kolaczyk); "Contrastive Studies and the Problem of Equivalence in Translation" (G. Weise); "Accuracy Order for English as a Foreign Language in Poland" (B. Krakowian); and "A Study of Some Factors Affecting the Sequence and Rate of Acquisition of ESL by Adult Refugees in Western Pennsylvania" (M. Siudek). (LB)

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PAPERS AND STUDIES IN CONTRASTIVE LINGUISTICS

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ON SYNTACTIC LEVELS — ONE TERTIUM COMPARATIONIS IN CONTRASTIVE LINGUISTICS*

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In contrastive linguistics one aim is to establish theoretically sound and valid models for description; in other words to find the appropriate tertium comparationis, which is proper for the occasion. This article is meant to contribute to this aim; when occasionally we refer to treatments of the subject in foreign language grammars, it is because, first those grammars are the sole entry to studying the grammar of the foreign language and secondly they all have some theoretical basis or fundamental concept, however vague and implicit.

In both the traditional source language grammars and the target language grammars, it is striking that generally much attention is paid to the elements of sentence, especially to their form and sometimes to their definition, too. The interest taken in the elements of the sentence connects closely with the interest taken in the surface structures and in a receptive approach to language. Normally the elements of the sentence are treated as classes: first the subjects, then the objects etcetera; on rare occasions you find a description of how to combine elements of the sentence in a specific production of sentences. And if you put the question, why some sentence has materialized just this number of elements — there is no answer: in the traditional grammars — i.e. before the era of TG — there is no treatment of principles of conjoining the elements of the sentence. Recently valency grammar, a theory which is quite closely related to surface structure, has been the most rewarding attempt to improve these shortcomings, but somehow it has not prospered according to its deserts — especially in foreign language grammars.

Before trying to substantiate this claim, we want to touch briefly on why valency grammar is a suitable basis for some parts of foreign language grammar. If foreign language grammar intends — among other things — to give in-

* We want to express our sincere gratitude to Mr. Cay Dollerup and Mr. Steen Schousboe, the English Department, University of Copenhagen, for a revision of our English.

structions how to construct correct sentences, this kind of grammar must necessarily refer closely to surface structure and emphasize correct expressions. Moreover it must focus on the points where the expression of the foreign language is especially distant from the source language. In short in this context the differences are more interesting than the similarities; therefore the TG is useless as a model — almost per definition. On the other hand, one must also look for a model with strongly generative power to support the productive aspect of language acquisition; this is found with valency grammar.

Below we confine ourselves to the valency of verbs, although we are aware that other parts of speech have valency too. What we want to prove is, that the rather modest success of the valency theory may be due to a too simple way of thinking: it is generally believed that you can apply valency directly to surface structures; however this is not so.

Valency is conceived as a relation of co-occurrence between item, X, in this case a verb, and another item, Y, named actant; the co-occurrence relation has two dimensions. No. 1: if item X is materialized, the item Y must or can be materialized too (interdependence respectively dependence). This is called quantitative valency. I.e. the Danish verb 'at bo' ('to live') has the valency 2:

1. *Jeg* bor på *Broderskabsvej*
   (I live in the Broderskabvej)

and the corresponding German verb 'wohnen' has the same valency:

2. *Ich* wohne *in der Hindenburgstrasse*

By analogous verbs in two languages we mean verbs whose content is considered analogous. In this connection the expression side is of no interest; therefore the verbs in question need not be genetically related. Naturally the quantitave valency may or may not be identical with analogous verbs. When we compare German and Danish it is more often identical than not; but it is not always so, and one could easily imagine the advantage of dealing with quantative valency by handling pairs of languages less closely related.

3. Der var *tyve tilskuere*
   (There were twenty spectators)
4. Es waren *zwanzig Zuschauer anwesend/da.*

The other part of the co-occurrence relation is the qualitative valency: if the item X is materialized, item Y must be materialized by a certain expression, or alternatively by one of several possible expressions.

5. Han imponerede *tilskuerne*
   (He impressed the spectators)
   dem
   them

6. Er imponierte *den Zuschauern*
   ihnen
7. Er beeindruckte *die Zuschauer*.

Those who want to apply the two parts of the co-occurrence relation as a practical test, should note, that the application of the tests is ordered: the quantitative valency is the first criterion, and the qualitative the second one. The reverse order of the criteria is theoretically possible, but would — in our opinion — lead to other less practical patterns of actants.

Valency is a quality belonging to the verb as a lexical unit, i.e. the abstract, unmaterialized verb. As already mentioned this combines two qualities: the verb specifies the form of each actant (qualitative valency), and the verb determines the number of actants which must or can be materialized together with the verb (quantitative valency. By 'at imponere', respectively 'imponieren', the simple verb in the active voice must be materialized together with one actant: e.g. 'han'/'er'/ (he); which is obligatory. The other one 'tilskuerne'/ /'den Zuschauern' (the spectators) is optional. As far as 'beeindrucken' is concerned, however, it has got two obligatory actants; but such decisions should be left to the native speaker. Generally speaking there ought to be entries concerning the quantitative valency, too, in the dictionary. Since valency is a characteristic of a verb as an abstraction, and, consequently, cannot be experienced d ectly, the estimate and ascription of valency in each case is the result of a calculation, based on occurrent i. e. materialized items. We base our calculation on sentences, where verbs function syntactically as a verb in the simple tense, the active voice, not in the imperative: in short a declarative sentence. The sentence — and not the text — is the calculation frame. Investigating the different possibilities of derivation, one realizes that valency is a characteristic of the abstract verb. We define derivation as the phenomenon that the verb can materialize in different types of verbals, e. g. in declarative and imperative sentences (the active voice), in the passive voice, in the infinitive. What happens then to the quantitative and the qualitative valency of the derivations? We can focus on the passive derivation. 'at imponere' can be derived into;

8. *Tilskuerne* blev imponeret
   (The spectators were impressed)
9. *Tilskuerne* blev imponeret *af ham*
   (The spectators were impressed by him)

In both derivations the quantitative valency has changed: actant 2, which was optional in the active sentence, has now become obligatory, whereas actant 1, obligatory in the active sentence, has now become optional. The qualitative valency has changed too: actant 2 which was in the accusative in the active sentence, now becomes the nominative; actant 1 was nominative, and becomes

accusative, governed by the preposition 'af'; analogously this holds for 'beeindrucken':

10. *Die Zuschauer* waren beeindruckt
11. *Die Zuschauer* waren *von ihm* beeindruckt.

'imponieren' cannot be derived in the same way; but it should be noted, that verbs with a dative actant, only change quantitatively in passive derivations:

12. *Den Zuschauern* wurde geholfen.

It should now be evident, why valency should be attributed to the verb and not to the verbal: valency is a set of potential characteristics of the non-materialized verb; the materialized verb, the verbal, realizes parts of the potential for its actants. We use the active materialization for estimates and denomination of the valency of a verb as a sleight-of-hand, which is necessary in order to create some constants for computing in a world of potentials. This is not a drawback, because the derivations are classes with common regularities, i.e. rules, applicable to a whole class of verbs with the same valency, can be established for every type of derivation. Another possibility for handling the technical problem of the valency denomination could be to separate verbs into active, passive and infinitive constructions etc. as lexical entries with particular valency denominations; this procedure, however, will expand the lexicon heavily.

A frequent error in the valency literature is, thus, to identify the abstract with the materialized level, or, rather to disregard other derivations than the active voice; however this is quite an inadequate description of natural language. The error is normally made in either of two ways. Either the dependence and expressions of each actant is given in the valency denomination without any caution that it applies only to a subset of the possible derivations, or the values of the actants, given in the valency, are listed as functions of sentence elements; this is equally problematic, because the actants take on different values in different derivations. The next level in the description are the sentence elements. Above we defined the actants as items affected in expression and dependence by a verb. The following combinations were possible: interdependence combined with selection of expression (obligatory actant) and dependence combined with selection of expression (optional actant). However, we have a third type of items on the level of elements of the sentence, namely items, that, albeit dependent of the verb, are not selectionally determined by the verb, the loosely connected elements. Typically they are adverbials:

13. Jeg skrev mit foredrag *på Broderskabsvej*
    (I wrote my lecture *in the Broderskabsvej*)
14. Ich schrieb meinen Vortrag *in der Hindenburgstrasse.*

The actants are therefore only a subset of the sentence elements. The interesting thing about the elements of sentence is, that to a large extent they are

autonomous items on the materialized level; i.e. once a given element of the sentence (apart from details in the word order of the adverbials) has materialized, it is assigned the characteristics belonging to this class of sentence elements, no matter they were originally actants or free adjuncts on the level of valency; in case they are actants, no matter what derivations they have undergone. In short: a subjet is a subject with its own expression or expressions, and its own positions, independent of whether the item is the subject of an active sentence or a passive sentence:

15. *Han* imponerede tilskuerne
    (He impressed the spectators)
16. *De* blev imponeret af ham
    (They were impressed by him)
17. *Er* beeindruckte die Zuschauer
18. *Sie* waren von ihm beeindruckt

The particular characteristics of the elements of the sentence are expression and position — the latter being of importance for the linearization of the content of the sentence i.e. the build-up of information.

To the best of our knowledge the languages which are treated in contrastive linguistics, normally the Indoeuropean languages, operate with elements of sentences, such as subject, object ... One should note, that actually these elements have only the name in common. The definition and the function of each element may differ quite a lot in each language. E. g. there are objects in three cases in German, but only in one case in Danish; in German e. g. the subject predicative is the nominative, in Danish the accusative;

19. Der Mörder war *er*
20. Morderen var *ham*
    (The murderer was him)

The positional characteristics of the element need not be the same, either; in German you can more often place the object in the first position of the declarative sentence pattern without producing special stylistic effects. In Danish we generally prefer to pick the subject, if a nominal has to be placed in the first position — with no special stylistic effect.

Consider the following example, which is the beginning of a new paragraph in a text:

21. *Junge oder Mädchen.* Einen weiteren Schritt in Richtung totale Geburtenplanung versprechen japanische und amerikanische Wissenschaftler. Eltern können demnach schon vor der Zeugung mit ziemlich grosser Sicherheit bestimmen, ob es männlichen oder weiblichen Nachwuchs geben soll. (*Die Zeit 6.1.84.* p. 48)

21a. *Et yderligere skridt i retning af total fødselsplanlægning stiller japanske og amerikanske videnskabsmænd i udsigt.
(A further step in the direction of a total birth planning promise Japanese and American scientists).

21b. Et yderligere skridt i retning af total fødselsplanlægning bliver stillet i udsigt af japanske og amerikanske videnskabsmænd.
(A further step in the direction of ... is promised by Japanese and American scientists)

22. Ach so, ein Traum. Ja, wenn das so sicher wäre. *Der Erzählerin* gelingt es, die Fäden zur Wirklichkeit so zu lockern, dass jede Sicherheit verlorengeht.
*Forfatteren lykkes det at knytte trådene til virkeligheden ...
Det lykkes forfatteren at knytte trådene til virkeligheden...
For forfatteren lykkes det at knytte trådene til virkeligheden.

It is noteworthy that the construction in the first translation from German is made acceptable by changing derivation from active into passive. In doing so we succeed in making the Danish sentence element the subject, whereas it is the object in German; and as an element it has its own functions, regardless of its type of derivation, the Danish subject furthermore can be placed in a stylistically neutral position.

In sum: in contrasting the transition from valency over derivation to the elements of the sentence the only comparable thing between languages is the content, not the expression; and therefore it is only a pair of verbs with their respective valencies that are comparable. We must choose analogous pairs of verbs in the two languages. Each verb has its own idiosyncratic valency both quantitatively and qualitatively. Additionally each language has its derivation classes, which can be more or less analogous. As to the infinitive and imperative derivation there is a great similarity between Danish and German, because actant 1 is removed obligatorily when the infinitive is materialized:

23. At imponere tilskuerne var ikke vanskeligt
(To impress the spectators was not difficult)
24. Den Zuschauern zu imponieren war nicht schwierig

whereas actant 1 is optional in the imperative derivation:

25. Gå roligt i seng
(Just go to bed)
26. Gå *du* roligt i seng
(You just go to bed)
27. Geh nur schlafen
28. Geh *du* nur schlafen

As shown the passive derivation is far less analogous, so we must never from a

common grammatical denomination in two languages infer similarities in the phenomenon as such. Finally the two languages are considered as having the same classes of elements of the sentence; but these classes are not all of them specifically analogous in their function; they differ notably as to word order and therefore they contribute in quite different ways to the information build-up.

Thus it is naive to believe that it is usually possible to render a sentence element by an analogous element of sentence; this may be impossible, for instance, when the element is a product of a derivation that is impossible in the second language. The subject, the actant in the sentence:

29. *Jeg* blev hjulpet af min mor
(I was helped by my mother)

cannot be rendered by an analogous subject in German. There exist analogou passive derivations for verbs with an accusative actant in their valency. Bu the analogous pair of verbs 'at hjælpe' and 'helfen' (to help) have not both go an accusative actant; in German the derivation must be:

30. *Mir* wurde von meiner Mutter geholfen

Some of our readers will probably argue that no user of a language is all that naive. But foreign language learners do happen to be that naive. And when they use grammars, even contrastive grammars, they are not disillusioned out of this naivity because the grammars have no valency paragraph and because they describe the sentence element in one chapter, while they normally treat the passive derivation somewhere else.

The connection between the three levels should be described explicitly. To render mechanically a derivation of the source language as the analogous derivation of the target language, i.e. the active voice and the passive voice, is equally naive, as the elements of the sentence have different functions in different languages. This we showed in examples 21 and 22.

Until now we have been treating the levels of the expression side from the virtual to the materialized level, using one single actant as the focus of interest. The same levels can be run through with a combination of actants within the valency of a given verb, following the possible derivations to a certain combination of elements of the sentence. Evidently the valency of a verb is characterised by a combination of actants, quantitatively as well as qualitatively. Here we confine ourselves to the qualitative valency as the most interesting for us. If we further confine ourselves to nominal actants Danish will have the following combinations:

31. 1 actant: nominative
2 actants: 1 nominative 1 accusative
3 actants: 1 nominative 2 accusative

German:

1 actant:	1 nom. or 1 acc. (seldom)
2 actants:	2 nom.
	1 nom. 1 acc.
	1 nom. 1 gen.
	1 nom. 1 dat.
3 actants:	1 nom. 2 acc.
	1 nom. 1 acc. 1 gen.
	1 nom. 1 acc. 1 dat.

but not

1 nom. 2 gen.
1 nom 2 dat.
1 nom 1 gen. 1 dat.

There is no term for the potential of combinations at the valency level. On the level of derivation, however, it is called "Satzbauplan" (sentence pattern). A Satzbauplan is thus a given combination of items on the expression side relative to a class of verbals, i.e. in all a materialization of actants and verbs. A Satzbauplan is a class of materializations, and therefore it follows that the number of Satzbaupläne or combinations is limited.

All derivations can be considered as "Baupläne" (patterns), although not all as Satzbaupläne (sentence patterns). Confining ourselves to the latter we have active and passive Satzbaupläne. The characteristic thing about it is that a specific verb can be derived into different Satzbaupläne: Consider the verb 'at overrække' (to present (something to somebody))/'überreichen'. Both verbs can be derived into a pattern with 3 nominal elements one nom. and two acc. in Danish, and for German one nom., one acc., and one dat.:

32. *En lille pige i hvid kjole* overrakte *dronningen røde roser*
hende dem
(A small girl in a white dress presented red roses to the queen)

German:

33. *Ein kleines Mädchen in einem weissen Kleid* überreichte *der Königin*
ihr
rote Rosen.
sie

The same verb can materialize in a pattern with two items, in both languages, one nom. and one acc., actant 3 (the one that might materialize as an indirect object in acc. resp. dat.) being optional:

34. Musikken spillede. *En lille pige* overrakte *blomster.*
hun dem
(The music was playing. A small girl presented flowers)
35. Die Musik spielte. *Ein kleines Mädchen* überreichte *Blumen.*
es sie

In Danish one can derive verbs with one actant in two patterns, the actant being nom. in the first pattern, and acc. in the second one:

36. *Han og ingen anden* er kommet
(He and nobody else has come; correctly: only he has come).
37. Desværre er der kommet *ham og ingen anden*
(Unfortunately he and nobody else has come).

In German only one pattern can be derived:

38. *Er und niemand anders* ist gekommen
39. Leider ist *er und niemand anders* gekommen.

In the passive voice Danish derives 5 patterns of the verb 'at overrække':

40. Der blev overrakt *dronningen røde roser*
hende dem
41. *Røde roser* blev overrakt *dronningen*
de hende
42. *Dronningen* blev overrakt *røde roser*
hun dem
43. Der blev overrakt *røde roser*
dem
44. *Røde roser* blev overrakt
de

German has only two patterns:

45. Es wurden *der Königin rote Rosen* überreicht
ihr sie
Rote Rosen wurden *der Königin* überreicht
sie ihr
Der Königin wurden *rote Rosen* überreicht
ihr sie
} the same pattern

46. Es wurden *rote Rosen* überreicht.
sie
Rote Rosen wurden überreicht
sie
} the same pattern

In short: combinations need not be the same on the valency and the Satz-

bauplan level. This potential for combination, too, is a neglected field in standard grammars.

Having dealt with the expression side og the syntax of verbs this far, we now focus on the content side. Keeping up with the best traditions from Hjelmslev and the Copenhagen School, we assume that the expression side and the content side are not ordered, but occur simultaneously, bound together by the sign function, and without any rigidly symmetrical or common segmentation between expression and content.

On the materialized level of the content side, i.e. on the sentence level, the different items of expression — mostly sentence elements — are given content values such as agentive, experiencer, instrument, locative and so forth. These are viewed as factors integrated in the acts of the world of the text. We call them roles, and they may be understood as a sort of Fillmore cases, i.e. without the dimensions deep and surface structure. We use the notion of 'roles' in quite a pragmatic way, i.e. without discussing their theoretical standing. The roles are normally connected with sentence elements or parts of these phrases. But on the other hand, one cannot define a specific sentence element by a given role: it is not all subjects that are agentive; true, it goes for a large subset of active sentences, but this is about all, so it is not a sufficient criterion for connecting subject and agentive; consider the following sentences in Danish:

48. *Hun* har skrevet på det foredrag i 2 dage
    agentive
    (She has been writing this lecture for two days)
49. *Hun* forstod sagens sammenhæng
    experiencer
    (She understood the truth of the matter)
50. *Hun* blev set på gaden med en blå cykel
    objective
    (She was seen in the street with a blue bicycle).

If the roles are connected with sentence elements or parts of them, some of the roles will also be connected with actants, i.e. the valency is bound to a subset of the elements of sentence. In fact, the distribution of roles on the actants is idiosyncratic for each verb and is already present on the level of valency; the verb 'at slå ned' (to knock down) has the following distribution: actant 1 is agentive, actant 2 is objective; and this distribution is retained in all derivations:

51. *Tyven* slog *den gamle dame* ned
    1 2
    (The thief knocked the old lady down)

52. *Den gamle dame* blev slået ned *af tyven*
2 1
(The old lady was knocked down by the thief)
53. *Den gamle dame* blev slået ned
2
54. At slå *den gamle dame* ned var ingen kunst
2
(To knock the old lady down was not difficult)
55. Slå *den gamle dame* ned og lad os få det overstået
2
(Knock down the old lady and let us get it over with).

This fact is what was behind the juggling with logical vs. grammatical subjects and objects in the grammar of yesteryear. Thus the following sentence:

56. *Bogen* sælger godt
(The book sells well)

is not an example of the passive voice; we refrain from analysing it so because it would ruin every definition of passive based on form or expression. The adequate description is an active sentence pattern with a specific distribution of roles for the verb 'to sell'; normally the subject is agentive, but here it is objective. By describing the phenomenon only on the content side, we still make an essential point, namely that the subject is objective, a point which it has in common with the content side of most passive constructions.

In a contrastive point of view analogous verbs, even with the same quantitative valency, may distribute the roles differently on the various actants. The classic example is:

57. *Jeg* mangler penge til en ny bil
(I have not got the money for a new car)
58. Das Geld für ein neues Auto fehlt *mir*

In our opinion 'jeg'/'mir' might be interpreted as an experiencer; it is hard to name a role for the second nominal element of sentence. But we have made our point: that the varying distribution of roles on the actants is bound to be a source of error in the target language, and that 'roles', therefore, is a suitable level of description.

The more complex the constructions, the more adequate is this mode of description, e.g.

59. *Hun* er ikke let at hjælpe
(She is not easy to help)
60. Ihr zu helfen ist nicht leicht.

Possibly the distribution of roles is only one component which can be referred to in a systematic description of the content selection between verb and actant; another dimension is a sort of semantic feature screen. This can be illustrated with another classic:

61. *Han* ankom hertil (DIR)
    (he arrived here)
62. Er kam *hier* an (LOC)

As the content counterpart to the whole text as an item of expression, we will introduce the *discourse world*, i.e. the totality of events, which is built up by the total content in the text. This world contains a number of acts, a number of individuals (in a very broad sense, including objects) that are involved in these acts; and in addition, other factors which are also part of the events, such as time, place, cause etc. In the absence of a better name we call these items content items. On the content side they are so firmly outlined, that it is possible to refer to them internally in the world of discourse.

Another level of description on the content side is "Stelligkeit" (a German term); we might here call it figuration. Verb and actant relate to each other in the valency, i.e. on the expression side, in the same way which act and argument relate to each other on the content side. How many items of content, i.e. arguments, can be distinguished relative to a given act?

Considering the verbs 'at overrække' (to present to)/'überreichen', the situation is quite unprobelmatic: there are three arguments to the act, just as there are three actants to the verb. However, there is not always a one to one correspondence between valency and figuration; in other words: figuration is not just valency, transformed into a formula of predicate logic design. In order to illustrate the issue we cite:

63. Hvis Grønlands vindue mod Vest *bliver planket til*, vil det betyde, at der kommer færre oplysninger om Inuit til landet.
    (If Greenland's window to the West is boarded up, it means, that less information about INUIT reaches the country)

We talk about 'at planke til', which we feel has three arguments, but only two actants in the active version, which forms the basis of the abstract level:

64. Man planker Grønlands vindue mod Vest til
    (They board up Greenland's window to the West).

Thus the actants are 'man' and 'Grønlands vindue', but as an argument of the event there is an argument, 'some boards', too. In principle, we find the same situation in German. The same proportion, one argument more than the number of actants, is found in some verbs like 'zudecken' and 'zuparken', where the argument with the role instrument is not materialized as an actant/element of

sentence:

65. Man hatte den Eimer zugedeckt
66. Man hatte die Ausfahrt zugeparkt.

We have not found any 'zubrettern'; in this sense an analogous sentence must represent the three arguments by three actants:

67. Man verschlägt Grönlands Fenster mit Brettern.

A higher number of arguments is not quite unusual in those cases, where one argument is an instrument, e.g. 'at dolke nogen' (to stab somebody), 'at spidde nogen' (to spike somebody). But a higher number of arguments can also be found with other verbs, i.e. 'at skulle' (to be obliged to)/'müssen',

68. Du skal spise din mad
    (You must eat your dinner)
69. Du musst aufessen.

On the content side there is an argument which is left unspecified, ,,the demanding instance".

Whereas the number of actants can vary in different derivations, the number of arguments is constant:

70. Den gamle dame lå myrdet på trappen. Morderen må have haft travlt.
    (The old lady was lying, murdered on the stairs. The murderer must have been in a hurry)
71. At finde den gamle dame myrdet på trappen var uhyggeligt.
    Jeg. gøs. Morderen måtte have haft travlt.
    (Finding the old lady murdered on the stairs was uncanny.
    I shuddered. The murderer must have been in a hurry).

In (70) there is an argument for 'myrdet', an agentive, which can be materialized in the following sentence by an actant/element of the sentence in a definite form, i.e. an already known individual in the discourse world. In (71) there are two additional arguments in the first sentence, an agentive for 'at finde', and one for 'at myrde'. In principle the situation is the same in German.

The research into figuration is still in the making, and we will not go into further discussion of the theoretical backing of this here. But we want to draw the attention to a phenomenon which has been quite well-known for a long time: the cases where valency is higher than the figuration. We have in mind the so-called formal subjects and objects in Danish, materialized by 'det'/'den', in German 'es':

72. Det støvregner
    (It drizzels)

73. Es nieselt.
74. Han har kvajet den noget i denne sag.
(He has made an ass of himself in this case)
75. Er hat es ihm angetan.

(74) and (75) are not analogous.

These formal items do not seem to represent an argument, or to refer to anything in the discourse world, and they have no substitution. According to German valency grammar they do not belong to the valency of the verb because of the lack of substitution, i.e. they are rejected as actants. But they are not identified as something else, in a lucid way. We think that this attitude represents a undue confusion of expression and content: on the content side they function — just as well as other items — as a subject or an object with their own positions and connection with sentence patterns, on the materialized level; and they are normally interdependent items. In short, we think they meet every demand that can be made of an actant. Contrastively, it seems even more reasonable to emphasize their status as actants, as their absence in the construction makes ungrammatical sentences; a position we find strengthened by the very fact that we cannot predict their obligatory presence, since they have no content, do not refer to anything in the discourse world, and do not represent a role. The same can be said about the 'true' reflexive items, i.e. reflexive actants without substitution, e.g.

76. Han tog *sig* pænt af børnene
(He took good care of the children)
77. Er nahm *sich* der Kinder gut an.

Once again, then: the status of the reflexive items is here quite obvious; in German they are inflected both in the accusative and in the dative, they have a position in the sentence equal to that of objects of the same value, and they are part of the canonical combinations of actants in the sentence patterns (here verbal+obj. refl. acc.+obj. gen.). They agree with the subject in person:

78. Du tog *dig* pænt af børnene
(you took good care of the children)
79. Du nahmst *dich* der Kinder gut an.

This indicates perhaps that there is a reference between subject and reflexive object in the discourse world: *but* the reflexive items carry no role, and from the point of view of argument it is therefore not possible either to figure out their obligatory presence. In Danish we have

80. Jeg huskede det længe
(I remembered it for long)

or

81. Jeg erindrede det længe

but in standard German:

82. Ich erinnerte *mich* dessen lange
83. Ich erinnerte *mich* lange daran

with one actant more than in Danish. In this connection we can refer to a contrastive pair:

84. *Bogen* sælger godt
(the book sells well)
85. *Das Buch* verkauft *sich* gut.

The Danish sentence is a rare construction, whereas the German pattern is quite normal.

Consider the following sentence

86. Man verkauft *das Buch* gut.

(85) and (86) are two active constructions. The item ('das Buch') in (86), the normal construction, is actant 2 connected with the role of objective, but in (85) it is actant 1 connected with the same role. The number of nominal actants is the same in the two constructions; but in construction (85) the gap which actant 2 left was taken by a reflexive item without a role. This is the normal mechanism in German.

We have argued — convincingly we hope — that it is an advantage for purposes of description to distinguish rigidly between expression and content and between the virtual and the materialized level in the valency theory. Only in this way it is possible to develop a model that makes as much as can be explicit, and thereby reduces the demand on the intuition.

Particularly the narrower syntax of sentence has always been a great barrier in foreign language learning, especially when languages with an abundance of inflexional form differences are involved, and there the intuition quickly fails. Contrastive grammar is regarded as a remedy against pure intuition, but without a well thought out and well-defined tertium comparationis with a distinction between content and expression and with distinct levels, no progress can be made in contrastive grammar. Thus the mode of concept, the syntactic representation itself, is part of the tertium.

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EQUIVALENCE IN BILINGUAL LEXICOGRAPHY: FROM CORRESPONDENCE RELATION TO COMMUNICATIVE STRATEGY

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One of the perennial problems in the compilation of bilingual dictionaries lies in the management of translation equivalence. This short article (which is based in part on a paper read at the 1984 SLE meeting in Manchester/Salford) proposes a dynamic and macrolinguistic framework for its linguistic study and lexicographical presentation.

The multifaceted notion of interlingual equivalence and its relevance to translation, foreign-language learning and bilingual lexicography is probably comprehensible only in an interdisciplinary perspective. In my view it cannot be adequately treated as a static correspondence relation between pairs of linguistic systems, but must be viewed as a dynamic process within the wider context of the bilingual speaker's code-switching strategies.

I have dealt with the more general issues of lexicological theory and the study of communicative strategies elsewhere (Hartmann 1976, 1985); here we are concerned primarily with their application to bilingual lexicography. Before that, however, it will be necessary to review and criticize the main approaches to equivalence. It is possible to group them under three headings, (a) comparative lexical semantics, (b) contrastive text semantics, and (c) the study of inter-language strategies, and characterize them in terms of their theoretical presuppositions and methodological procedures.

Comparative lexical semantics in the wake of Ernst Leisi and others (cf. Hartmann 1975, 1976) has been static in outlook and microlinguistic in technique. Its representative studies have been criticized as intuitive, incomplete and inconclusive. In reaction, the proponents of contrastive text semantics have argued for a more macrolinguistic approach to lexical comparison (following such authors as de Beaugrande and Dressler), which has brought

an opportunity to continue the long tradition of stylistic, rhetorical and translation-based studies, but in practice has tended to remain static (cf. Hartmann 1980). More recently, dynamic and macrolinguistic lines of enquiry ave been opened up by some applied socio- and psycholinguistic studies of n terlingual communicative strategies (cf. Blum and Levenston (1978), Faerch n d Kasper (1984).

From the work on inter-language strategies we are led to conclude that equivalence is not a static correspondence relation between independent linguistic systems, but the process and result of dynamic code-switching operations. We see emerging a catalogue of interlingual communication acts of which the following List (1) of types of equivalents from the culinary domain may be a representative extract:

(1a) literal translation/substitution, e.g. *Suppe//soup*
(1b) transposition, e.g. *Butterbrot//bread and butter*
(1c) modulation, e.g. *Rindfleisch//beef*
(1d) transfer/borrowing, e.g. *Strudel//strudel*
(1e) loan translation, e.g. *Schwarzwälder Kirschtorte//Black Forest gateau*
(1f) adaptation/functional approximation, e.g. *Jause//(break for) snack. (afternoon) tea/coffee*
(1g) explanatory gloss/circumlocution, e.g. *Orangerulle//Danish soft cheese with ground almonds and Grand Marnier*

The first three equivalence operations are based on the main translation procedures distinguished in the 'comparative stylistics' of Vinay and Darbelnet (1958); the other four are surrogate 'metaphrase' strategies in cases of partial or zero lexical equivalence, taken from the literature on translation theory and bilingual lexicography.

This has important implications for the interlingual dictionary. In the monolingual dictionary, the compiler relies on paraphrase relations to establish semantic similarity or synonymy between lexical items. In bilingual lexicography, various processes of metaphrase come into play to help find target language equivalents. The aim is (according to Zgusta 1971:294) "to coordinate with the lexical units of one language those lexical units of another language which are equivalent in their lexical meaning". The lexicographer must be at least intuitively aware of the various strategies that are available for this purpose. We could perhaps best describe such a code-switching ability as the bilinguals's familiarity with the text processing conventions in both languages.

What I have characterized above as the comparative semantic paradigm can hardly be the sole basis for the coordination of equivalent lexemes, particularly as such lexicological analysis is often based on the results of previous (and by definition limited) lexicographical codification. It also tends to en-

courage the false view that lexical equivalence can be achieved as a one-to-one correspondence of formal items. The paradigm of contrastive text semantics, with its insistence on parallel texts from corresponding language varieties, has refined our understanding of how words behave in complete discourse and in different text types. This has brought a more realistic approach to the problem of lexical divergence (one-to-many), which can now be interpreted in terms of co-text and collocation. The third paradigm, by concentrating on interlingual transfer strategies, challenges the neat structural patterns of microlinguistic lexicology and macro-linguistic textology and insists instead on the many-to-many nature of equivalence relations. However, by moving into focus such imponderables as pragmatics, communicative competence and contact phenomena, it may put in doubt the very notion of equivalence.

Some authors have suggested that the idea of a single notion of equivalence should be given up in favour of a range of differentiated approximation types, from total or complete equivalence, via partial coverage, to zero or nil equivalence. Mary Snell-Hornby has made this quite explicit: "The first goal for research lies in the need for more adequate bilingual dictionaries based, not on the illusion of equivalence among lexemes, but on the awareness that partial coverage and non-equivalence are a reality of interlingual comparison" (1983:247). In a more recent paper (1984), she illustrates this with the difficulty of treating the multiply divergent descriptive verbs of English and German — as in Examples (2) to (6) below — in terms of one-to-one dictionary equivalents.

(2) Bedsteads, cupboards, sofas were propelled out upon the balcony and *hurled* from there into the courtyard.
(3) Meanwhile, Otto had *flung* himself upon Arthur like a young bear.
(4) He tugged the ruby from his finger and *flung* it at her.
(5) They drank. They smoked. All twelve smokers *tossing* the butts on to the tiled roof that sloped towards the farm buildings.
(6) Offenbar hatte sie erwartet, daß ich aufspringe und Steine *schleudere*, um die Leute zu vertreiben wie eine Gruppe von Ziegen.

How is the lexicographer to relate the various kinds of 'throwing' to bilingual lexical pairs that would behave as functional equivalents in particular texts?

The primary aim of bilingual lexicography should be the provision of a word or expression that fits the given co-text exactly. This is the so-called 'translational principle', formulated by Ladislav Zgusta (1984:147) as follows: "The dictionary should offer not explanatory paraphrases or definitions, but real lexical units of the target language which, when inserted into the context, produce a smooth translation". Zgusta starts his argument with Example (7),

quoted from an earlier paper by Arnold Lissance:

(7a) *Entschlußkraft*
(7b) **ability to make up one's mind* (*make decisions*)
(7c) *initiative*

What is needed is not a paraphrase or gloss (such as 7b), but a functional equivalent that carries values and connotations in the target text (7c) which are similar to those of the lexical item in the source text (7a). Zgusta then considers a number of limitations to the execution of this principle and illustrates the varying treatments of lexical equivalence by reference to the entry *Pumpernickel* in four different German-English dictionaries.

(8a) ... *pumpernickel*
(8b) ... *Westphalian rye bread*
(8c) ... (gastr.) *pumpernickel, Westphalian rye bread*
(8d) ... (comest.) (bread) *pumpernickel*

But before the lexicographer can present his equivalents with or without explanatory paraphrase, with or without semantic gloss, with or without register label, he will need to muster the whole arsenal of interlingual code-switching strategies to find the appropriate equivalent.

One method to test and illustrate the possibilities would be to observe both translating and dictionary making in action. I have attempted this by comparing the subsequent versions in the translation of a literary text and then checking whether and how the resulting lexical equivalents are supplied in various bilingual dictionaries. From the genesis (in the archives of the Australian National Library, Canberra) of Arthur Wesley Wheen's translation of Erich Maria Remarque's anti-war novel *Im Westen nichts Neues* (1929), we may glean some of the inter-language strategies at work (cf. Hartmann 1981). Thus, to render the initial sentence of the book (Example 9), it takes this fluent English translator about six attempts to arrive at a satisfactory version (rejections in parentheses):

(9a) Wir liegen neun Kilometer hinter der Front.
(9b) (We now lie/Today) We are lying six miles behind the front.
(9c) We are (resting) at rest five miles behind the front.

Simple substitutions and transpositions are more straightforward than modulations and transfers in case of partial or nil equivalence. Thus, the follow-up sentence (10) presents no problem, while the third sentence (11) is fraught with numerous difficulties.

(10a) Gestern wurden wir abgelöst.
(10b) Yesterday we were relieved.

(11a) Jetzt haben wir den Magen voll weißer Bohnen und Rindfleisch und sind satt und zufrieden.
(11b) Now with (a belly) stomachs full of (haricots and beef/beans/pork and beans) bully-beef and beans we are (stuffed) replete and at peace.
(11c) (Now we have) now our (stomachs) bellies are full of (bully)beef and (beans) haricot hash and we are satisfied and at peace.
(11d) And now our bellies are full of beef and haricot (hash) beans and we are satisfied and at peace.
(11e) (Now) And now our bellies are full of beef and haricot beans (and we). We are satisfied and at peace.

An alternative method has been advocated recently by Herbert Ernst Wiegand (1985). He has observed by means of individual 'protocols' how a monolingual target-language dictionary can be used to check the grammatical, semantic and stylistic appropriateness of a translation. (This, incidentally, points to a new technique for empirically testing some of the assumptions made about dictionary use for purposes of text production). Item (12) illustrates the translation and modification of the title of a passage (from *Time*, about the new French government's record in office), (13) exemplifies the treatment of a crucially important sentence:

(12a) Unhappy Anniversary
(12b) Unglückliches Jubiläum
(12c) Jubiläum ohne Feier
(13a) Last week, though, neither President Mitterrand nor his ruling Socialist Party observed the second anniversary of his mandate with so much as a public toast.
(13b) Aber letzte Woche gab es von Mitterrand und seiner regierenden sozialistischen Partei aus nicht einmal einen öffentlichen Toast auf das zweite Jubiläum seines Mandates.
(13c) Aber letzte Woche wurde nicht einmal ein öffentlicher Toast von Mitterrand oder seiner regierenden sozialistischen Partei auf das zweite Jubiläum seines Mandates ausgebracht.

According to the evidence from the protocol, the text encoder had difficulties with the choice of verb to collocate with *Toast* (*ausbringen*), with the direct transfer of *Mandat* (is it a 'false friend'?), with the two related idiomatic expressions *observe the anniversary* and *propose a toast*, and with their German counterparts.

If it is true, as I believe, that these operations lie at the heart of the process of equivalence-seeking, they ought to be reflected in the bilingual dictionary, which we can regard as the result of many separate equivalence acts performed by the lexicographer. If we examine the existing German-English

dictionaries (from Adler's *Appleton Dictionary* 1848 and Elwell's *Westermann Dictionary* 1849 to Terrell's *Collins Dictionary* 1980 and Sawers' *Harrap Dictionary* 1982) for the way they handle some of the equivalents that turn up in the Remarque/Wheen translation, we find that the incidence of errors and omissions in the dictionary seems to correlate with the difficulties that face the translator. Thus, there are relatively few problems with full equivalents like (14) or divergent/convergent items like (15).

(14a) *Front*
(14b) *front*
(15a) *ablösen*
(15b) *relieve (guard/sentinel)*
(16a) *weiße Bohnen*
(16b) *haricot beans*
(17a) *liegen*
(17b) *lie, rest, be quartered/stationed/located*
(18a) *den Magen voll*
(18c) *full stomach/belly/tummy*

Even the more technical or culture-specific words (like 16) eventually receive a satisfactory treatment. However, many idiomatic collocations (e.g. 17a (milit.) or 18) are inadequately covered.

The check-list of interlingual switching strategies (1 above) could be used to classify and improve lexical equivalence types in the bilingual dictionary. Thus, Item (1f), *Jause*, is a word with regional associations that probably requires adaptation or functional approximation. Entry (19) from the *Collins German-English Dictionary* (1980) marks the word with a regional label and supplies two senses and equivalents, but fails to cover the meaning that this word often has in Austria, i.e. the institution of afternoon tea or coffee, usually accompanied by biscuits or cake.

(19) *Jause* f —, -n (Aus) *break (for a snack)*; (Proviant) *snack. eine ~ halten* or *machen: to stop for a snack.*

This aspect of meaning discrimination is related to another issue often ignored in the literature: the 'directionality' of the interlingual look-up operation. The words *break* and *snack* are satisfactory functional equivalents of *Jause*, but in the English-German part of the dictionary they are not included. This has the effect of orienting the entries *break* and *snack* to the English learner of German reading a German text or the German learner of English composing an English text, while possibly limiting the usefulness of the dictionary for the purposes of German composition and English reading comprehension. Most bilingual dictionaries have to compromise on translation

direction and activity type. As Hans-Peder Kromann and his colleagues (1984:211) have demonstrated with examples like (20), special care must be taken in the presentation of equivalents to prevent the user from generating erroneous utterances (20c).

(20a) *change ... verändern, ändern ...*
(20b) *mind ... Verstand, Geist*; (opinion) *Meinung*
(20c) **die Meinung verändern*
(20d) *die Meinung ändern*

We conclude then that the notion of interlingual equivalence is not a fixed, single correspondence relation, but a shifting, directional process based on a number of communicative code-switching operations. This dynamic aspect of approximative lexical coordination deseves to be explored further, not just for the benefit of bilingual dictionaries and their users.

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HOW USEFUL ARE WORD LISTS IN CONTRASTIVE ANALYSIS?

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If word lists are a reflection of languages, and if some words mark grammatical function, it would seem that the calculated frequencies of those function-indicating words would be useful in constructing profiles of the frequency of at least some particular linguistic constructions. Although the ordering of the linguistic units within a corpus would not be recoverable from a word list, the frequency of those linguistic constructions could be of considerable interest, especially so if word lists of pairs of languages could be contrasted in some meaningful way.

For instance, taking English and Spanish as an example, it would be of interest to some to know the relative frequencies of Aux elements (modals, perfectives, and duratives), passives, negatives, interrogatives, adverbial clauses, subordinate clauses, and other clause types.

Function words indicate the presence of these constructions, and one would expect to find these words on adequate word lists.

Two well-known word lists are first juxtaposed in this paper, and a search is made for function words which would indicate the occurrence in each word list corpus of the constructions listed above. After noting the problems encountered, still another word list will be examined, this one for Spanish without a counterpart for English. It will be seen that this third list, while vastly superior for the purpose of contrastive analysis, is lacking in some word discriminations to indicate the frequency of some of the syntactic constructions mentioned above.

The writer will suggest some additional criteria for word lists and will suggest that the production of useful word lists for the purpose of contrastive analysis is possible by the individual linguist making use of mainframe CRT terminals or even personal computers.

The word lists first considered are Edward L. Thorndike and Irving Lorge's *The Teacher's Word Book of 30,000 Words* and Victor García Hoz' *Vocabulario usual, vocabulario común y vocabulario fundamental.*

These word lists were selected for two principal reasons: first, because they represent monumental tasks of assembling and counting words from reasonably similar sources, and second, because they were published within nine years of each other, representing the state of the art of making word lists in the mid 1940's and 50's. These lists are roughly comparable in several respects.

The third list to be discussed is Alphonse Juilland and E. Chang-Rodríguez' *Frequency Dictionary of Spanish Words*, begun in the mid 1950's and published in 1964, the product of hand coding and processing on the early electronic computers that appeared on American university compuses.

Under ideal circumstances, if word lists are to be compared, they should have been created according to the same criteria of word definition, word selection, and statistical procedure. The Thorndike and Lorge list and the García Hoz list differ substantially in these respects, but even so it would seem that they share a lot in common.

The Thorndike and Lorge word list was based on a corpus totalling millions of words from the following sources: the Thorndike general list published in 1931 and drawn from a wide variety of selections ranging from juvenile books to literary classics, and including history, school primers, concordances, newspaper prose, textbooks, spelling lists, and foreign language text vocabularies; the Lorge magazine count, the Lorge word count based on juvenile books, and the Lorge-Thorndika semantic count.

Although not stated in the Thorndike and Lorge work, García Hoz described the following arbitrary method used by Thorndike in determining when to stop counting words in a source: when 20,000 different words were identified, counting continued until 30,000 different words were identified. The Thorndike and Lorge list of 30,000 words lists separately those words appearing at least once per 1,000,000 words and those words appearing at least once per 4,000,000 words. This main two-part list of 30,000 words is also accompanied by lists of words occurring at least once per 4,000,000 words but not so often as once per 1,000,000 words, words occurring four times per 18,000,000 words, the first 500 most frequent words on the Thorndike and Lorge list, the second 500 most frequent words on the list, and lists corresponding to the last two lists mentioned but based on the original Thordnike list.

The García Hoz word study established three vocabulary lists: one representing a list of 12,913 "ordinary" words (i.e. not rare or unusual) based on a Spaniard's familiar life, social life in general not involving institutions (such as church and state), institutional life, and cultural life; another list comprising 1,963 words included in the common vocabulary representing those words which occurred in each of the categories reflecting Spaniard's life, and a list

of 208 fundamental words, those appearing on the common vocabulary list but of exceptionally high frequency.

García Hoz used samples of 100,000 words for each word category reflecting the sectors of Spanish life. He stated that he did not use larger samples because new words appeared so seldom and previously found words repeated themselves so frequently.

The Juilland and Chang-Rodríguez word list (called a dictionary in the title) is by far the most elaborate of the three lists discussed in this paper. It consists of 5,024 words drawn from samples of the following categories of Peninsular Spanish literature: dramatic, fictional, essayistic, technical, and periodical. The total corpus consisted of approximately 25,000 sentences containing about 500,000 words. The five samples from literature produced between the two World Wars each consisted of approximately 100,000 words appearing in randomly selected sentences. The Juilland and Chang-Rodríguez list shows for each item: its frequency, a dispersion coefficient from 100 down to 0 the result of combining simple and complex techniques to show the degree to which an item populated the entire corpus versus a part of the corpus, and a coefficient of usage intended to predict more accurately than frequency or dispersion the probable occurrence of the word in samples of the language beyond the corpus. (This latter coefficient is derived from a technique of combining the frequency and dispersion coefficients).

The alphabetic listing of the 5,024 words with their three coefficients is accompanied by a numerical listing, in descending order, with three columns under the headings of usage, frequency, and dispersion. The order of the words in each column is different, since the coefficients are ordered, not the words corresponding to the coefficients. The three columns are divided into 11 groups, the first 10 representing 500 word groupings based on the usage coefficient.

A common attempt in the production of the Thorndike and Lorge, García Hoz, and Juilland and Chang-Rodríguez lists was to select a corpus representative of the language as a whole. The procedure varied, but the goal was the same. And the list makers attempted to utilize a sample of adequate size. While the Thorndike and Lorge approach extended to millions of words and combined lists based on disparate criteria and procedures, the García Hoz and Juilland and Chang-Rodríguez lists were quite similar in utilizing sample sizes of 400,000 and 500,000 words, respectively.

Aside from statistical procedures, a major point of departure was just what constituted a word. For some purposes a word is defined simply as a run of alphabetic characters bounded by spaces or punctuation marks. This simple definition ignores a number of problems and was not the sole method used in any of the three lists. But two of the lists would have been considerably more suitable for contrastive analysis had a number of distinct forms not been subsumed under common forms, and had certain distinctions of word function been

made. The Juilland and Chang-Rodríguez list excelled in some ways in establishing the criteria for words.

Turning to the individual word lists, we shall discuss the "words" each of them listed.

The Thorndike and Lorge list: Nouns forming regular plurals are listed in the singular form only, but those with irregular plurals are listed in both singular and plural forms. While a very few words are labeled as to form class or part of speech, many, many word shapes representing more than one form class are not marked. In the case of verbs, regular finite and participial forms are not listed but subsumed under the infinitive form, but irregular forms are listed separately. Practically no compound nouns written as more than one word appear on the list, but it must be supposed that a number of such words were broken down into their individual constituents, such as washing machine, fountain pen, long distance, etc.

The García Hoz list: Words are defined in much the same way as in the Thorndike and Lorge list, but with some distinctions. This list does not indicate part of speech, but this information is in no way as essential in Spanish as in English. Verb forms are treated much the same as in English, except that regular and irregular finite and participial forms are collapsed into the infinitive form. Collapsing unlike forms of the same function and like forms of different functions leads to some chaotic results in this list. Of the four Spanish definite articles differentiated for singular and plural and masculine and feminine, only the masculine singular form appears, with *el* representing occurrences of itself and *la*, *los*, and *las*. And because of the collapsing of forms just mentioned, the direct object forms *los* and *las* were also subsumed under the definite article *el*.

The Juilland and Chang-Rodríguez list: This list gives part of speech for each item, and while it groups morphologically and syntactically unique items and gives frequency totals for the combined usages, it also gives totals for each of the unique items. An example is the listing under a single form of the various first person pronouns representing singular, plural, masculine, and feminine categories as subject, direct object, indirect object, reflexive object, and prepositional object.

Similarly, all forms of verbs are grouped under the infinitive form. Ambiguous forms as to tense, person, and mood are differentiated.

Groupings of nouns and adjectives bring together under a single form those items differentiated by singular and plural on the one hand, and masculine and feminine on the other.

The groupings of morphologically and syntactically unique items upset an otherwise alphabetical listing, but no frequency information about individual items is lost.

Only to the smallest degree are forms in context with other items given.

The few with context include contractions written as one word (*al* and *del*), *el, los, la, las* with *que*, and *para* with *que*.

Identical forms with different syntactical functions are for the most part distinguished, but there are some outstanding exceptions.

The two word interrogative *por qué* ('why') is given as a single item, but not two word interrogative *para qué* ('what', 'for what reason', 'for what purpose'). Curiously, most but not all interrogatives distinguished in writing from homonymns by an acute accent are listed as separate items. The exceptions include the interrogative *qué* ('which', 'what') which may be either adjectival or pronominal. Thus, the form *que* is listed only as a conjunction and as a pronoun, not accounting for *qué* as an interrogative adjective and as an interrogative pronoun. Another exception is *cuánto*, which may be an interrogative adjective or an interrogative pronoun (with the terminations *-o*, *-os*, *-a*, *-as*) or an interrogative adverb. It would seem almost certain that *qué* and *cuánto* (*-os*, *-a*, *-as*) occurred in the word list corpus.

As a first effort to see what frequency lists might reveal about a pair of languages, English and Spanish in this case, let us see whether we might be able to make a contrastive statement about two seemingly unambiguous function words, *and* in English and *y* in Spanish, both conjunctions.

In the first place, the Thorndike and Lorge general list does not give an individual count for *and* but includes the word in the list of items occurring more than 100 times per million words. A sub list, the Lorge magazine count, gives the frequency of *and* as 138,672 occurrences in a corpus of nearly a million words. We calculate, then that in the list *and* accounted for nearly 14% of all word occurrences.

Turning to the García Hoz fundamental vocabulary, we find that *y* occurred 15,254 times in the 400,000 words used to establish the list of usual words, from which we may calculate that *y* accounted for 3.8% of all word occurrences. Making use of these two percentages, we may conclude that English uses *and* 3.68 times more frequently than Spanish uses *y*. This contrastive statement is erroneous to the extent that the definition of what constitutes a word differs. Lorge in general counted a run of alphabetic characters between punctuation and blanks as a word, but he collapsed forms and differentiated some few items by part of speech, and he recognized a few items as compounds. García Hoz, on the other hand, collapsed into single items singular and plural forms, masculine and plural forms, look-alike forms such as articles and object pronouns and nouns and adjectives, and as infinitives finite and infinite verb forms and present and past participles.

While the contrastive statement above may be fairly accurate, there is no logical way to relate frequencies to the number of different words. The subsuming of words under a common form makes this relationship impossible to establish.

Even with identical criteria for the definition of a word, there are problems of the type offered by matching Spanish *también* in English and English *but* in Spanish.

También is matched in English by *also* and *too*, but not all occurrences of *too* match *también*. *Too* must be differentiated to sort out occurrences indicating degree and those meaning *also*, and the latter occurrences of *too* must be linked with *also* as single items to match *también*, preferably without losing their own identities as lexical items.

A problem also exists in dealing with the Spanish items *pero*, *mas*, and *sino*, which *but* in English matches. But all occurrences of *but* are not matched by these Spanish items.

Having encountered problems in making contrastive statements concerning what might have been considered easy cases, let us go on to determine whether occurrences of several major syntactic constructions in the word list corpora may be inferred from the Thorndike and Lorge and García Hoz word lists:

Verb Phrase Type

It is not possible to infer verb phrase type, since neither list indicates part of speech, and hence lacks the further syntactic distinction of verbs as transitive, copulative, or intransitive.

Aux Elements

It would be interesting to compare the relative frequency of modal, perfective, and progressive constructions in English and Spanish by means of word lists. These constructions involve function verbs that look like other verbs not used in these constructions.

Neither word list makes this possible. The discovery and counting of these optional Aux elements would require marking verb forms followed by an infinitive, the occurrence of the perfective verbs *have* in English and *haber* in Spanish followed by a past participle, and a progressive or durative verb followed by a present participle.

Passives

Since neither list distinguishes transitive verbs, it is impossible to make a contrastive statement concerning the use of the passive construction in English and Spanish. Also, neither list marks the passive function verbs *to be* and *ser*, nor the prepositions introducing agents. Further, in Spanish the alternate passive marker *se* is not distinguished from *se* as a reflexive pronoun, nor from *se* as an indefinite subject pronoun nor *se* as an allomorph of the singular and plural third person indirect object pronoun.

Negatives

Since English negatives are marked by a single negative word (ignoring the fact that some English negatives are identical with certain interrogative words and are not generally considered negatives, as in *I do not have any.* and *Do you have any*? versus *some* in each case), it is reliable to some extent to count occurrences of *no, no one, nobody, never*, etc. But since Spanish may contain a number of negatives in a single negative statement, their is no way to account for the number of negative statements. In Spanish one may say the equivalent of *I have not never seen nobody no place.*

Interrogatives

The Thorndike and Lorge and García Hoz lists are not useful in accounting for the occurrence of interrogatives in the corpora used for the lists, since neither distinguishes between forms used as relative pronouns, adverbials, or interrogatives. English orthography does not distinguish between the form *who* in *I know who is here*, and *Who is here*? (nor in the case of other like forms). Spanish does make this distinction in writing, marking the interrogatives with acute accents, but the García Hoz list discards this distinction by collapsing forms under the unmarked relative and adverbial forms.

Subordinate Clauses

Adopting for the purpose here a special meaning of the term subordinate clause (a clause in Spanish with subjunctive mood and introduced by a subordinating conjunction requiring subjunctive mood), it is not possible to identify these clauses in Spanish because the García Hoz word list does not consider compound conjunctions as single words, but as invidual words in their own right. Practically all subordinating conjunctions in Spanish, in the sense of the term used here, are compound. An exception is *aunque*, which may be used in a non subjunctive clause, but with a meaning difference.

Clauses in the corpus for the Thorndike and Lorge word list matching the the Spanish subordinate clauses as defined here are signaled when the equivalent conjunctions in English consist of a single word, but not when the conjunctions are compound.

Some subordinating conjuctions are compound words in both English and Spanish, others are written as one word in English but as compounds in Spanish, and in at least one instance equivalent subordinating conjunctions in both languages are single words (*although* and *aunque*).

Some of the subordinating conjunctions in English matching counterparts

in Spanish requiring subjunctive take subjunctive in English, as in *in order that he may go*, but others take indicative, and others do not take a finite verb, as in *He went without my knowing it.*, which in Spanish is rendered with subjunctive in the subordinate clause: *Él salió sin que yo lo supiera.*

Other Clauses

Among clauses not mentioned above are those joined by the simple conjunction pairs *and-y* and *or-o*, which we shall call coordinating conjunctions. The presence of these clauses in the word list corpora cannot be established because these same forms conjoin nouns, adjectives, adverbs, and verbs. Of course, in these latter instances a transformational viewpoint could argue that when the conjunctions join other than full clauses they join what is left of full clauses after transformations.

Another type of clause is the correlative clause, as in English *The more you do that the more I become annoyed.*, which contains two such clauses. Clauses of this type cannot be accounted for in either word list because there is no accounting for compound forms, nor context of forms, such as the listing *the more ... the more* and *cuanto más ... cuanto máas.*

Still other types of clauses exist, but the problems in dealing with them are similar.

Turning once again to the Juilland and Chang-Rodríguez word list for Spanish, we find that while it is vastly more elaborate than either of the other two in that it gives part of speech for each item, and retains most of the distinctions between interrogatives and other similar forms, it is deficient for contrastive analysis in not carrying further syntactic distinctions within form classes, in not recognizing compound function words, and in not providing important contextual information.

We must conclude that the word lists considered here are not very useful for contrastive analysis. Word lists could be very useful, however. Those who would use word lists, though, may have to wait a very long time for others to produce those lists.

One might well consider making his own special purpose word lists for contrastive analysis. One could code only the specific items of interest in pairs of languages and consider other words in the corpus in the simplest way possible, simply as undifferentiated unique items or even as "occurrences of a word", nothing more.

The clerical tedium of data entry for computer processing has been greatly alleviated by modern text processing terminals and personal computers. If one has the ingenuity to design adequentely coded text files and the patience to create those files, the individual applied linguist can rather easily produce his own word lists for contrastive analysis, making use of a suitable high level

programming language for manipulating human language, such as SNOBOL4 or a dialect of that language, a text editor, or a word processing system.

Even the tedium of keyboard data entry may be about to end. A hand operated optical character reader for personal computers to retail for less than $500 has just recently been announced. This device has been described as able to read a number of type fonts and capable of learning non standard fonts. With a reported speed of less than four seconds per line, perhaps the day of the individual word list maker has arrived.

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COARTICULATORY PROPENSITY: THE CASE OF ENGLISH AND POLISH CONSONANT CLUSTERS

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0. General considerations

In a recent discussion of speech gestures, Lindblom (1983) has pointed out that what speech and nonspeech movements have in common is a tendency towards a minimization of energy expenditure. In what follows an attempt will be made to show that this may also be the case with the initial and final consonant clusters in English and Polish. Thus, the consonantal phonotactic constraints will be viewed here as adhering to the principle of "economy of effort" (often referred to as "ease of articulation") which is an important aspect of motor behaviour in general, and of speech gestures in particular.

In the present article I will purport to demonstrate that there exists a "propensity" towards a preferred phonotactic structure in larger consonant clusters, i.e., three- and four-member clusters, and that this propensity is in fact assimilatory (i.e., coarticulatory) in nature.

In previous studies of consonant clusters, much attention was focused on the intra-cluster arrangements that had led researchers to posit the existence of something like the "sonority principle" (cf. Jespersen (1926); Hooper (1976)), which, while being a valid concept, is but one aspect of consonantal phonotactics. It seems then that one might profitably carry considerations concerning the consonantal configurations a little further through a notion such as Sigurd's (1965) principle of "vowel adherence".

Basically, the principle states that consonants in clusters vary with respect to their preferred distance to the sonority peak, i.e., the vowel. This means that there are intra-cluster variations which are directional, and that there exist regroupings due to the number of consonants and the distance between the participating consonants and the vowel.

The principle of vowel adherence must be viewed as part of the dominant principle of economy of effort and as an indication that speech gestures do indeed exhibit a tendency towards the minimization of physiological energy expenditure. This tendency makes certain arrangements in larger phonotactic patterns more preferable, which, as Lindblom (1983) notes, has some generality across languages. Moreover, the principle of vowel adherence implies a more dynamic treatment of consonant clusters, not merely as static configurations of segments, but rather as groupings in which the segments' readiness to coarticulate with a preceding (following) vowel increases (decreases) with respect to their adjacency to the vowel. Thus, it is only natural to expect that there exist relative degrees of compatibility between consonantal and vocalic segments, which regulate the extent of coarticulatory effects.

Following Lindblom (1983:241), we accept the following hypothesis (1):

> "Segments that are more difficult to coarticulate show up in positions remote from each other, whereas more compatible sounds tend to be relatively more adjacent in the syllable".

This hypothesis is central to our present discussion, however, since it is of a rather general nature, its scope will be narrowed to only one particular type of coarticulatory propensity, namely that existing between adjacent consonant--vowel complexes. Therefore, it seems important at this point to supplement Lindblom's hypothesis by the following hypothesis (2):

> The larger a given consonant cluster is, the more probable it is that a sonorous consonant will be inserted in the slot directly adjacent to the preceding (following) vowel.

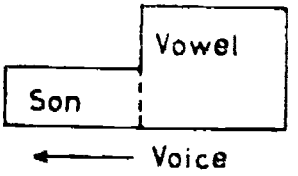
This derivative "sonorant insertion" hypothesis claims that the sonority of certain consonants is expected in certain environments and may thus be treated as a special case of the principle of vowel adherence which, in turn, seems to capture a growing coarticulatory propensity in increasingly complex consonant groupings.

The particular case of the application of the principle of vowel adherence discussed here, has to do with the carrier nature of the slow vocalic gestures carried out by larger and slower extrinsic muscles of the tongue versus much briefer but highly information-loaded consonantal gestures, carried out by smaller, faster, and lighter intrinsic muscles of the tongue (cf. Hardcastle 1976:129). Let us notice at this point that it is a well-known phonetic fact that if two or more consonants are grouped together, they invade the temporal domain of the adjacent vowel and shorten it, relative to the number of participating consonants. Thus, a tendency to prefer a sonorant consonant in the position directly adjacent to the vowel peak may be regarded as a natural production safeguard against excessive temporal distortion of the vowel. This so-called "synergy constraint", which governs static spatial relations among

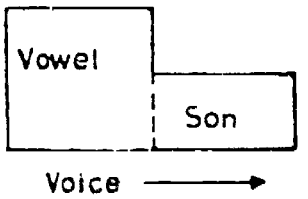
articulators, together with the "rate constraint" (cf. Lindblom 1983:220), which operates dynamically on any articulatory movements, seem to secure a sufficient spreading of voicing, either to the left of the vowel (with preceding clusters) or to the right of the vowel (with following clusters) in order to maintain the salient character of the vocalic element. This mechanism of „phonation spreading" then constitutes the very essence of the type of coarticulatory propensity discussed here.

The above-described "phonation spreading" mechanism may be illustrated by the following diagrams:

(a) in prevocalic clusters



(b) in postvocalic clusters



where the domain of voicing is spread leftward or rightward by virtue of the formation of the vowel-sonorant complex in order to prolong the physiological dimension of vocal cord vibration in vowel-consonant aggregates, especially if the consonant part is built by a sequence of three or more segments.

The above-described tendency operates in English and Polish in the following arrangements within consonant-vowel complexes (where reference is made to only one major division of consonants, namely that into [obstruent] and [sonorant] types):

(a) the initial clustering includes the following possibilities: CV, CCV, CCCV (both in English and Polish), and CCCCV (in Polish);
(b) the final clustering comprises the following configurations: VC, VCC, VCCC, VCCCC (both in English and in Polish).

Obviously, the greatest freedom of occurrence of both obstruents and sonorants takes place in the single margin which is thus most difficult to analyze in terms of the type of coarticulatory propensity postulated here. However, within the two-, three-, and four-member clusters one may observe an interesting tendency in the location of obstruents and sonorants with respect to the

vowel peak. Namely, as the clusters grow in complexity, the probability of the occurrence of a sonorant consonant directly adjacent to the vowel increases, which seems to result from the application of the machanism of "phonation spreading".

The following section presents the initial and final English and Polish clusters. They are analyzed with respect to discernible phonotactic patterns of distribution of obstruent and sonorant consonants.

1. Initial and final clusters in English[1]

Initial clusters in English include the following combinations (note that next to the presented patterns are indicated the number of occurrence of a given configuration and the corresponding percentage with respect to the total number of clusters of a given type which is indicated in the parentheses):

(1) two-member clusters (27):
  (a) [obstruent] [sonorant] — 22/81.5%
  (b) [obstruent] [obstruent] — 5/18.5%
(2) three-member clusters (7):
  (a) [obstruent] [obstruent] [sonorant] — 7/100%

Final clusters in English (i.e., in British English) include the following configurations:

(3) two-member clusters (68):
  (a) — [sonorant] [obstruent] 36/53%
  (b) — [obstruent] [obstruent] 30/44%
  (c) — [sonorant] [sonorant] 2/3%
(4) three-member clusters (67):
  (a) — [sonorant] [obstruent] [obstruent] 41/61%
  (b) — [obstruent] [obstruent] [obstruent] 22/33%
  (c) — [sonorant] [sonorant] [obstruent] 4/6%
(5) four-member clusters (15):
  (a) — [sonorant] [obstruent] [obstruent] [obstruent] 13/87%
  (b) — [obstruent] [obstruent] [obstruent] [obstruent] 2/13%

Preliminarily, it is evident from the above data that a very clear correlation exists between sonority and vowel adherence on the one hand and the complication of the phonotactic structure of consonants, on the other. More precisely, the percentage of occurrence of a sonorant consonant, adjacent to

[1] For complete lists of initial and final English clusters, as well as a list of final Polish clusters see Fisiak (1968) and all the works cited therein, Cygan (1971), and Puppel (1976). All counts referred to in the present text are based on these analyses.

the vowel peak, increases with the number of consonants participating in the structure of both prevocalic and postvocalic clusters. Subsequently, one should add that the observed propensities fully account for hypotheses (1) and (2) with respect to the English data.

2. Initial and final clusters in Polish[2]

The Initial clusters comprise the following combinations:

(6) two-member clusters (206):
- (a) [obstruent] [obstruent] — 103/50%
- (b) [obstruent] [sonorant] — 82/40%
- (c) [sonorant] [obstruent] — 16/7.5%
- (d) [sonorant] [sonorant] — 5/2.5%

(7) three-member clusters (114):
- (a) [obstruent] [obstruent] [sonorant] — 63/55.3%
- (b) [obstruent] [obstruent] [obstruent] — 31/27.2%
- (c) [sonorant] [obstruent] [sonorant] — 11/ 9.6%
- (d) [obstruent] [sonorant] [obstruent] — 5/ 4.4%
- (e) [obstruent] [sonorant] [sonorant] — 2/ 1.75%
- (f) [sonorant] [obstruent] [obstruent] — 2/ 1.75%

Notice that clusters (c) and (e) are in fact special instances of sonorant insertion.

(8) four-member clusters (10):
- (a) [obstruent] [obstruent] [obstruent] [sonorant] — 7/70%
- (b) [obstruent] [obstruent] [obstruent] [obstruent] — 2/20%
- (c) [obstruent] [obstruent] [sonorant] [obstruent] — 1/10%

The final clusters include the following types of arrangements:

(9) two-member clusters (92):
- (a) — [sonorant] [obstruent] 35/38%
- (b) — [obstruent] [obstruent] 30/32.5%
- (c) — [obstruent] [sonorant] 20/22%
- (d) — [sonorant] [sonorant] 7/7.5%

(10) three-member clusters (21):
- (a) — [sonorant] [obstruent] [obstruent] 9/43%
- (b) — [obstruent] [obstruent] [obstruent] 6/28.5%
- (c) — [obstruent] [obstruent] [sonorant] 4/19%
- (d) — [sonorant] [obstruent] [sonorant] 2/ 9.5%

[2] The number of initial clusters referred to in the text is based on a list of initial Polish clusters contained in the Appendix.

Again, cases (9d) and (10d) are special instances of the mechanism of sonorant insertion.

(11) four-member clusters (7):
  (a) — [sonorant] [obstruent] [obstruent] [obstruent] 4/57%
  (b) — [obstruent] [obstruent] [obstruent] [obstruent] 3/43%

As with the English material, a preliminary analysis of the Polish data suggests quite clearly that there exists a high correlation between the possibility of occurrence of a sonorant segment in the position directly adjacent to the vowel along with the internal expansion of the consonant clusters.

Another observation concerns the fact that Polish allows for a much richer number of combinations of the obstruent and sonorant consonants in each of the discussed groups. This fact very strongly accounts for Hockett's (1955: 104 ff) claim that the more consonants a language has, the greater is the ratio of obstruents to nonobstruents. This is certainly the case with the Polish inventory of consonants.

3. Conclusions

The presentation of the English and Polish prevocalic and post-vocalic consonant configurations suggests the following conclusions:

(a) with the increasing number of consonants participating in phonotactic patterns, there tends to exist an increased propensity towards the insertion of a sonorant segment immediately adjacent to the vowel peak;
(b) this tendency surfaces demonstrably in both languages, though more clearly in English, which seems to be primarily due to a smaller consonant inventory in English;
(c) the mechanism of sonorant insertion chiefly seems to secure the maintenance of some kind of balance between the voicing-devoicing parameters within the vowel-consonant complexes in both languages. The balance, which is achieved through the spreading of voicing either leftward or rightward, increases the salience of the vocalic nucleus and thus enables its phonetic existence;
(d) subsequently, sonorant insertion may be viewed as activated by the mechanism of "phonation spreading".

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APPENDIX

Initial consonant clusters in Polish

(1) two-member clusters:

(a) [obstruent][obstruent]: (103)

bʒ	— brzask	gd͡ʑ	— gdzie	sp	— sport
bʑ	— bzik	gʒ	— grzebać	sp	— spierać
bz	— bzy	gv	— gwara	st	— stop
χt͡ɕ	— chce	gv'	— gwizd	st'	— stiuk
χt͡ɕ	— chciwy	gʑ	— gzik	sʃ	— zszywać
χʃ	— chrzest	gz	— gzyms	ʃtʃ	— szczapa
χf	— chwała	kt͡ɕ	— kciuk	ʃk	— szkoła
t͡sf	— cwal	kχ	— khaki	ʃk'	— szkic
t͡ʃt͡ɕ	— czcić	kp'	— kpina	ʃp	— szpada
t͡ʃt͡ʃ	— czczy	kʃ	— krzak	ʃp'	— szpieg
t͡ʃk	— czkać	ks	— ksero	ʃt	— sztorm
t͡ʃt	— cztery	kʂ	— książka	ʃf	— szwedzki
t͡ʃf	— czworo	kt	— kto	ɕt͡ɕ	— ściana
t͡ɕp	— ćpać	kf	— kwant	ɕp'	— śpiew
t͡ɕf'	— ćwierć	kf'	— kwiat	ɕf'	— świat
db	— dbać	pχ	— pchać	tχ	— tchórz
dʒ	— drzewo	pʃ	— pszenny	tk	— tkanina
dv	— dwór	ps	— psota	tʃ	— trzask
d͡zb	— dzban	pt	— ptak	ts	— tse-tse
d͡zv	— dzwon	st͡ɕ	— ścina	tf	— twarz
d͡ʑg	— dźgać	sχ	— schody	tf'	— twierdza
d͡ʑv'	— dźwigać	stʃ	— szczupać	vb'	— wbiegać
d͡ʒd͡ʒ	— dżdża	sf	— sfora	vb	— wbudować
gb	— gbur	sk	— skubać	fχ	— wchodzić
gd	— gdakać	sk'	— skinąć	ft͡ɕ	— wcierać

ftʃ	— wczepiać	ft	— wtorek	zv	— zwada
vd	— wdeptać	vz	— wzamian	zg	— zgaga
vd͡z	— wdzierać	vz	— wziąć	zg'	— zginać
fk	— wkuć	zb	— zbadać	zʒ	— zżerać
fp	— wpust	zb'	— zbierać	zz	— zziębnąć
fp'	— wpisać	ft͡st'	— cwibak	ʒb'	— żbik
vʒ	— wżerać	zd	— zdanie	ʒv	— żwawy
fs	— wsadzić	zd͡z	— zdzierać	ʒv'	— żwir
fɕ	— wsiadać	zd͡ʒ	— zdżar		
fʃ	— wszyć	zv'	— zwierać		

(b) [obstruent] [sonorant]: (82)

bl	— blacha	kw	— kłos	tl'	— tlić się
bw	— błona	km'	— kminek	tw	— tłum
br	— brama	kn	— knować	tr	— trawa
χl	— chleb	kɲ	— knieja	vj	— wjazd
χw	— chłop	kr	— kres	vl	— wlot
χm	— chmura	pl	— plon	vl'	— wliczać
χm'	— chmiel	pw	— płot	vw	— włożyć
χv	— chrapać	pn	— pnącze	vm'	— wmieszać
t͡sl'	— clić	pɲ	— pnie	vm	— wmawiać
t͡sw	— cło	pr	— prawy	vn	— wnosić
t͡sm	— cmentarz	ʒɲ	— żniwa	vɲ	— wnikać
t͡sn	— cnota	sj	— sjesta	vr	— wrak
t͡ʃw	— człon	sl	— slogan	zj	— zjazd
t͡ɕm	— ćma	sw	— słony	zl	— zlot
dl	— dla	sm	— smar	zl'	— zliczyć
dw	— dłoń	sn	— sny	zw	— złoty
dm	— dmuchać	sr	— sroka	zm	— zmora
dn	— dno	ʃl	— szlachta	zm'	— zmiana
dr	— droga	ʃm	— szmata	zn	— znak
fl	— flet	ʃm'	— szminka	zɲ	— zniez
fr	— frak	ʃn	— sznur	zr	— zraz
gl	— glon	ʃr	— szrama	zr	— źrebię
gw	— głowa	ɕl	— ślad	ʒl	— żleb
gm	— gmach	ɕl'	— śliwka	ʒw	— żłób
gn	— gnać	ɕm'	— śmiech	ʒm'	— żmija
gɲ	— gnić	ɕn	— śnieg	ʒm	— żmudny
gr	— grom	ɕr	— środa		
kl	— klasa	tl	— tlen		

(c) [sonorant] [obstruent]: (16)

lv'	— lwica	mg'	— mgiełka	rt	— rtęć
lv	— lwa	mʒ	— mżawka	rv	— rwać
lʒ	— lżejszy	mʃ	— msza	rv'	— rwie
wg	— łgać	rdz	— rdza	rʒ	— rżysko
wz	— łza	rd	— rdest	wk	— łkać
wʒ	— łże				

(d) [sonorant] [sonorant]: (5)

ml	— mleko
mw	— młody
mn	— mnożyć
mɲ	— mnich
mr	— mrok

(2) three-member clusters:

(a) [obstruent][obstruent][sonorant] — (63)

tʂkl	— ckliwy	tkn	— tknąć	ftr	— wtrącać
tʃkn	— czknąć	tkl'	— tkliwy	vzl	— wzlot
dʒgn	dźgnąć	tʃm'	— trzmiel	vzm	— wzmóc
gʒm'	— grzmi	tʃn	— trznadel	vzm'	— wzmianka
gʒm	— grzmot	fχw	— wchłonie	vzɲ	— wznieść
pχw	— pchła	vdr	— wdrapać	zvr	— zwracać
pχn	— pchnąć	vgl	— wgląd	vzr	— wzrok
sχr	— schron	vgw	— wgłębić	zbl'	— zbliżyć
skl	— sklep	vgɲ	— wgnieść	zbl	— zblednąć
skw	— skłon	vgr	— wgryzać	zbw	— zbłądzić
skn	— skneścić	vzn	— wznowić	zbr	— zbroja
skr	— skrót	zvw	— zwłoka	zdj	— zdjęcie
spl	— splot	fkl	— wklejać	zdw	— zdławić
spw	— spłata	fkw	— wkładać	zdm	— zdmuchnąć
spr	— sprawa	fkr	— wkraczać	zdr	— zdrowy
str	— strona	fpl	— wpleść	zgw	— zgłosić
ʃkr	— szkrab	fpw	— wpłata	zgn	— zgnoić
ʃpr	— szprycha	fpr	— wprawa	zgɲ	— zgnić
tχn	— tchnąć	fsw	— wsłuchać się	zgr	— zgraja
tχɲ	— tchnienie	fsl'	— wślizgnąć się	zvl	— zwlec
kɲ	— tknie	fsr	— wśród	bʒn	— brzmi

(b) [obstruent] [obstruent] [obstruent] — : (31)

bzd	— bzdura	stʃ	— strzał	fʃtʃ	— wszczepić
dʒv	— drzwi	stf	— stwór	fɕtɕ	— wścibiać
gʒb'	— grzbiet	stf'	— stwierdzić	vzb	— wzbogacić
kʃt	— krztusić się	ʃkf	— szkwał	vzb'	— wzbijać
pʃt	— przytyczek	tkf'	— tkwić	vzd	— wzdychać
pjtʃ	— pszczoła	fpʃ	— wprzód	vzg	— wzgórze
sχf	— schwytać	fsk	— wskoczyć	zdʒ	— zdrzemnąć się
skʃ	— skrzat	fsp	— wspak	zdzv	— zdźwigać
skf	— skwar	fsp'	— wspierać	zgʒ	— zgrzyt
skf'	— skwierczeć	fst	— wstawić	zgv	— zgwałcić
spʃ	— sprzątać				

(c) [sonorant] [obstruent] [sonorant] — : (11)

mdl'	— mdli	mgl'	— mglisty	rʒn	— rżnąć
mdw	mdłość	mgɲ	— mgnienie	rʒɲ	rżnie
lgn	— lgnąć	mkn	— mknąć		
lgɲ	— lgnie	mkɲ	— mknie		
mgw	— mgła				

(d) [obstruent] [sonorant] [obstruent] — : (5)

brv	— brwi	drʒ	— drżeć
drv	— drwal	trf	— trwać
drv'	— drwi		

(e) [obstruent] [sonorant] [sonorant] — : (2)

smr	— smród
zmr	— zmrok

(f) [sonorant] [obstruent] [obstruent] — : [2]

mɕtɕ	— mściwy
mʃtʃ	— Mszczonów

(3) four-member clusters:

(a) [obstruent][obstruent][obstruent][sonorant] — : (7)

pstr	— pstry	vzdr	— wzdrygnąć się
fskr	— wskrobać się	vzgl	— wzgląd
vzbr	— wzbronić	zdʒbw	— źdźbło
vzdw	— wzdłuż		

(b) [obstruent][obstruent][obstruent][obstruent] — : (2)

fskʃ	— wskrzesić
fstʃ	— wstrzelić

(c) [obstruent][obstruent][sonorant][obstruent] — : (1)

skrf	— skrwawić

SOME GENERAL REMARKS ON ULRICH BLAU'S INTERPRETATION OF SENTENCES WITH REFERENTIAL BUT ACTUALLY NON-REFERRING EXPRESSIONS CO-OCCURRING WITH REFERENTIAL PREDICATES

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Within Ulrich Blau's model (Blau, 1978), the co-occurrence of non-referring terms with referential predicates always results in the truth-valuelessness of a sentence in which such a co-occurrence takes place. Consequently, all of the sentences below are predicted to be neither true nor false.

(a) 1. The present King of France visited the exhibition
1a The exhibition was visited by the present King of France
2. The present King of France bought the car from Mary
2a Mary sold the car to the present King of France
3. The archbishop of Manchester read the lesson
3a The lesson was read by the archbishop of Manchester

(b) 4. The present King of France is standing next to me
4a I am standing next to the present King of France

(c) 5. Winnie the Pooh likes honey
6. Winnie the Pooh hates honey
7. Winnie the Pooh likes football

(d) 8. Pegasus has wings
9. The present King of France is male
10. The round square is round
11. The female King of France is bald
12. The round square is big

Group (a) contains pairs of sentences differing by the syntactic position in which the non-referring term occurs. It has been argued by Wilson

(1975:31) that sentences in which non-referring terms occur in other than subject position (as in 1a, 2a, 3a) are felt to be false rather than neither true nor false. Yet, the sentences are assigned the truth value ½ in Blau's model.

Sentences structurally similar to (1) — (3a), but containing only referring terms, such as

13. Mary visited the exhibition
13a The exhibition was visited by Mary
14. John bought the car from Mary
14a Mary sold the car to John
15. John read the lesson
15a The lesson was read by John

have generally been recognized as synonymous, ie, as expressing the same proposition (cf. Katz 1972). This is justified by the fact that the sentences of each pair above are true under exactly the same set of truth-conditions, the only possible difference being that of focus.

If sentences such as (13)/(13a), 14/(14a), (15)/(15a) are recognized as synonymous on the level of truth-conditions (and there are no arguments to the contrary), then there is no reason to treat (1)/(1a), (2)/(2a), (3)/(3a) as non-synonymous. So the sentences of each pair ((1)/(1a), (2)/(2a), (3)/(3a)) should be assigned the same truth-value.

The only way to account for the intuitively felt difference between (1) and (13), (2) and (14), (3) and (15) is to mark (1), (2), (3) as neither true nor false, with (13), (14), (15) being true or false depending on the state of affairs. The assignment of ½ to (1), (2), (3) is both semantically (reference failure) and formally (non-referring term co-occurring with referential predicates) justified. If (1), (2), (3) are said to be truth-valueless, then so should (1a), (2a), (3a).

The slight difference in the intuitive evaluation of (1) and (1a), (2) and (2a), (3) and (3a) may be explained by pragmatic factors. Because of the difference in focus in the sentences of each pair and due to our knowledge of the world, we have more reasons to recognize (1a), (2a), (3a) as not true than we have in the case of (1), (2), (3). We have no semantic reason, however, to treat the latter as truthvalueless and the former as false.

In spite of the opinions to the contrary, it seems that the assignment of ½ to (1) — (3) and to similar sentences, as predicted by Blau's model, is fully justified.

Sentences (4)/(4a) are examples of the same situation which is exemplified by the pairs of sentences under (a). However, Fodor (1979) claims that not only (4a) is felt to be false, but (4) should be assigned this truth-value as well. Her argument rests on the reasoning: since it is possible to make a list of people standing next to me, and since it can be shown that the King of France

is not one of them[1], (4) is false. However, the fact that we may empirically prove that the King is not standing next to me, shows only that (4) is not true, and does not necessarily show that it is false. The assignment of falsity to (4) would be valid only under the assumption that anything that can be shown not to be the case was false rather than, more generally, not true. Then, however, the difference between

4. The King of France is standing next to me

and

16. My brother is standing next to me (assumption: I have a brother but he is not standing next to me)

would be lost. It seems that Fodor's claim that (4) is false rather than truth-valueless follows from her confusing the intuitions about sentences being not true with those about sentences being false. Since intuitions are too vague in this case to be decisive, the difference between falsity and truth-valuelessness must be predicted by a theory. Yet, on theoretical grounds, the arguments for assigning the truth-value $\frac{1}{2}$ to (1) — (3a) apply with the same force as in the case of (4)/(4a).

Sentences under (c) contain non-referring terms only. It has been argued by Fodor (1979) that only (7) may be said to be truthvalueless, with (5) and (6) being true and false, respectively. Her position seems to be supported by intuitions.

According to Blau, (5) — (7) are all truthvalueless since 'Winnie the Pooh' is a non-referring term, and 'like' and 'hate' are referential predicates. His analysis, though theoretically justified, is, nevertheless, counterintuitive.

Apparently, the simplest solution to account for the intuitions within Blau's is to include Winnie the Pooh in the individual domain D. Then, the expression 'Winnie the Pooh' becomes referential and (5) — (7) can be assigned truth-values in agreement with intuitions. Yet, if Winnie the Pooh can be said to exist in Milne's world, then so can the King of France in some possible ficticious world. Consequently, all non-referring (but non-contradictory) expressions could be claimed to have referents in some possible world and all those referents might be included in the domain of individuals D on the same grounds as Winnie the Pooh could. Then the distinction between referring and non-referring terms collapses and the intuitions for which it was to account are no longer grasped.

Another solution might be to analyse sentences which contain non-referring terms only, differently than all other sentences. The assignment of truth-values

[1] In other words, it can be shown that the concept of 'the King of France' is not specified with respect to the property expressed by the relation of 'standing next to' me. The notion of specification plays an important role in Fodor's method of assigning truth-values to sentences. More will be said about it in relation to sentences from group (c).

to such sentences could be done in an entirely different way — for example with the help of the notion of specification.[2] A sentence would then be true if the concept(s) expressed by the individual term(s) is positively specified for the property expressed by the predicate, as in (5). In (5) the concept expressed by the term 'Winnie the Pooh' is positively specified with respect to the property of liking honey.[3] A sentence would be false if the concept(s) expressed by the individual term(s) is negatively specified for the property expressed by the predicate. This is the situation described in (6). Finally, a sentence is neither true nor false, if the concept(s) expressed by the individual term(s) is unspecified for the property expressed by the predicate as in (7).

If this solution was to be accepted, the sentence

17. The King of France is bald

would be assigned the truth-value: neither true nor false, not because of reference failure but because of the fact that the concept expressed by the definite description 'the King of France' is unspecified for the property expressed by the predicate 'is bald'.

There are at least two reasons for rejecting this solution. The first one is connected with the analysis of analytic sentences containing non-referring terms only, ie. sentences such as (8) — (10). If the notion of specification is to underlie the assignment of truth-values to such sentences, then (8) — (10) will all be predicted to be true, since in each case the concept expressed by the non-referring term in subject position is automatically specified for the property expressed by the predicate due to the analyticity of a sentence.

This gives intuitively acceptable results in the case of (8) and (9) but leads to an unacceptable situation in the case of

10. The round square is round

The notion of specification predicts the sentence to be true and, at the same time, the fact that (10) contains a contradictory term makes the sentence false. Consequently, the sentence is both true and false. The same situation arises if the sentence is analysed within a bivalent logic system.

Blau's approach, however, does not lead to such unacceptable consequences. Within his model, (10) as well as (8) — (9) are predicted to be neither true nor false because of reference failure.

The second reason for rejecting the analysis of sentences from group (c) based on the notion of specification is a methodological one. Such an analysis

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[2] This notion is used by Fodor (1979) as a basic concept on which the assignment of truth-values to all sentences (i.e. not only those which contain non-referring terms) depends.

[3] In fact, what 'likes' expresses is a relation and not a property. The concept of specification, however, can be equally well applied to relations as to properties.

requires a new theoretical apparatus conceptually different from that used by Blau. The only justification for its introduction is its application to the analysis of sentences such as those under (c). Therefore, if intuitions about such sentences could be accounted for in a way more closely related to Blau's original model, this way should be preferred to the analysis based on the concept of specification.

One such way is to combine Blau's model with the concept of possible worlds. We could imagine a situation in which sentences from group (c) (and similar ones) are assigned truth-values not relative to the real world but relative to a possible world in which the referents of individual expressions used in the sentences exist. Each of such worlds would have its own domain of individuals D and extensions of predicates. Truth-values would be assigned in agreement with the rules of Blau's model but relative to the respective domains D and extensions of predicates. In this way (5) — (7) would be assigned the truth-values: true, false, and truthvalueless, respectively. From the perspective of the real world, the sentences would be truthvalueless, as predicted by Blau. Those who are familiar with the possible world which the sentences describe would thus know the truth-values which the sentences have in that possible world. Those who lack such knowledge would be able to evaluate the sentences only from the perspective of the real world, in which the sentences are truthvalueless. Although supplementing Blau's model with some concepts of possible worlds semantics constitutes an involved problem for formalization, it seems to be the only solution if an intuitively valid account of sentences containing exclusively non-referring terms is to be provided without employing ad hoc theoretical constructs.

Since within Blau's model all sentences with non-referring terms co-occurring with referential predicates are assigned the truth-value $\frac{1}{2}$, analytic sentences and sentences with contradictory terms (group (d)) having the properties described above are also predicted to be truthvalueless[4], which is intuitively acceptable. Such an analysis is also theoretically justified because, as mentioned earlier, it does not lead to the unacceptable situation in which sentences such as (10) are judged to be both true (because of their analyticity) and false (because of the occurrence of contradictory terms) — the situation to which an analysis based on bivalent logic leads.

Blau's interpretation of sentences with non-referring terms rests on his division of argument positions of predicates into referential (r) and non-referential (n). The criteria of the division are not very convincing.

Blau divides predicates into referential and non-referential according to the same intuitive criteria on which Katz (1979) bases his classification —

[4] In a real world, but not necessarily in some possible world. In any possible world, however, sentences with contradictory terms will always be truthvalueless.

predicates are assigned the superscripts r and n on the case to case basis. Differently than Katz, whose classification once established does not change[5], Blau maintains that the division of predicates into referential and non-referential is context-dependent, ie one and the same predicate may be referential or non-referential depending on the context.

For example, the predicate 'search for' has its second argument position non-referential in

18. Pizarro searched for Eldorado

but referential in

19. Mr Brown searched for his daughter

under the assumption that Mr Brown has a daughter.

Both those claims, i.e. the acceptance of intuitive criteria for the division of predicates into referential and non-referential and of context-dependent nature of the classification, significantly diminish the explanatory power of Blau's model.

The division of predicates into referential and non-referential is to account for our intuitions concerning the inferences derivable from sentences in which the predicates occur. If the division is based on the very intuitions for which it is to account then the model can have only descriptive but not explanatory power.

In Blau's system, the semantic model predicts what happens if a predicate is referential and what happens if it is non-referential. However, Blau does not give any rules stating in which contexts predicates are referential and in which they are not. The claim that a predicate is referential it it has referential terms as arguments and non-referential otherwise is spurious because the division of predicates has been introduced in order to be able to predict what kind of terms a predicate must have as arguments for a sentence to be true or false. Consequently, the division into referential and non-referential predicates is a precondition (ie is anterior) of such choice of terms (referential or non-referential) as arguments that would guarantee the sentence being true or false (but not truthvalueless).

The question is what, other than intuitive, criteria may be used to divide predicates into referential and non-referential.

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[5] Exceptions occur, however. In the case of generic sentences referential positions lose their referentiality, and in the case of the transparent reading of 'believe', a non-referential position becomes referential.

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POST-TRANSFORMATIONAL STEM DERIVATION IN FOX

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Fox (also known as Mesquakie) is an Algonquian language spoken at present in the state of Iowa. Dialects of the same language are spoken by the Sauk (known in Oklahoma by the compound name Sac and Fox) and the Kickapoo, now in Oklahoma and Coahuila, Mexico. The Fox and the Kickapoo especially are renowned for their cultural and linguistic conservatism. The documentation of Fox is unusual for a North American Indian language, consisting largely of materials written by speakers. The Sac and Fox William Jones (1871—1909), a student of Franz Boas, collected a volume of dictated texts and wrote a grammatical sketch. Truman Michelson (1879—1938) collected a large body of textual material by paying Indians to write out myths, descriptions of rituals, personal narratives, and the like using the Fox syllabary. These manuscripts and Michelson's field notes are now in the Smithsonian Institution, and a number of them were published by Michelson in phonetic transcription, with translations and notes. A sketch of Fox based on Jones's texts and the first text edited by Michelson was published by Leonard Bloomfield, and this has been corrected and amplified by materials collected by Paul Voorhis in the field in 1967. My own study of the language has been based entirely on the written sources.

The Fox syllabary, actually an alphabetic script written syllabically, is of European origin. It probably came to the Fox in the nineteenth century from neighboring Potawatomi Indians who had learned to write in this fashion from French Roman Catholic priests. The syllabary writes all of the phonemic distinctions of Fox except for the phoneme /h/ and vowel length, but these omitted features have a very high functional load. Word boundaries are often marked by a dot, but not even the most careful writers are consistent in this. There is no punctuation, capitalization, or hyphenation, and the syllables are simply written one after the other, from margin to margin and top to bottom,

page after page. The syllabic texts are hence not particularly easy to read, but Michelson's notes and translations (usually based on translations written or dictated by young, school-educated Foxes) permit one to be confident of the correct interpretation of all but a relatively small residue of problematical passages. In this paper Fox is transcribed with /h/ and vowel length (/:/) marked, on the basis of phonetic information from Jones, Michelson, and Voorhis, and with /sh/ and /ch/ used as digraphs in their normal English values. The examples are from the original syllabic texts or from Jones.

Fox has a very simple phonology, inflections that are exuberant but generally free of irregularities, and a complex system of stem derivation of the polysynthetic type (though Fox is really only mildly polysynthetic by North American standards). Stem derivation interacts with sentence formation, both in the concatenation of lexical items and in the formation of complex sentences. In fact, in some cases stems are formed after transformational processes have modified the underlying structure of the sentence. It is these aspects of Fox stem formation that are the focus of the present paper. (My allusion to transformational processes is strictly for descriptive convenience; I magine that the facts would remain challenging for any model of sentence formation).

In order to make the examples comprehensible, it will be necessary to begin with a survey of some basic features of Fox grammar.

Fox has two genders, animate and inanimate. Verb stems come in pairs, one for each gender, intransitives showing agreement with the subject and transitives with the object. Verbs also show inflectional agreement with their subjects and objects. Some basic nouns and a few intransitive verbs have stems that consist of a single morpheme, but the canonical Fox stem consists of an initial, a final, and optionally a medial:

(1) *wa* : *peshkesiwa* 'he (animate) is white' (initial *wa* : *peshk-* 'white'+ abstract animate intransitive final *-esi-*; inflectional endings [for independent indicative mode]: 3sg. *-w-*, anim. sg. *-a*).

(2) *wa* : *peshkya* : *wi* 'it (inanimate) is white' (initial *wa* : *peshk-* +abstract inanimate intransitive final *-ya:-*; inflectional endings the same except for inan. sg. *-i*).

(3) *wa* : *peshkinameshke* : *wa* 'he has white skin' (initial *wa* : *peshk-* + medial *-inameshk-* 'skin'+abstract anim. intr. final *-e:-*; inflection as in [1]).

(4) *ki* : *shkeshwe* : *wa* 'he cuts him (off, up)' (initial *ki* : *shk-* 'severed, cut off, cut through'+concrete transitive animate final *-eshw-* 'cut, operate on by cutting edge in the manner or with the resulting state indicated'; inflectional endings for third person singular animate acting on third person animate).

(5) *ki* : *shkeshamwa* 'he cuts it (off, up)' (initial *ki* : *shk-* + transitive inanimate final *-esh-*; glosses as in [4]; inflectional endings for third person singular animate acting on inanimate).

(6) *ki* : *shkikwe* : *shwe* : *wa* 'he cuts off his head' (initial, final, and inflection as in [4] + medial *-ikwe* :- 'neck').

(7) *ki* : *shkatamwa* 'he bites it off' (initial *ki* : *shk-* + trans. inan. final *-at-* 'bite, operate on by mouth or teeth in the manner or with the resulting state indicated'; inflection as in [5]).

Initials, medials, and finals may be internally morphologically complex, and in particular each type of stem component may be derived from a stem. Components derived from stems may be identical to the stem, modified by some phonological or morphological process, or suppletive.

Derived initials:

(8) *asha* : *ha* 'Sioux Indian' (noun stem *asha* : *h-*): *asha* : *ha* : *towe* : *wa* 'he speaks Sioux' (derived initial *asha* : *h-* + anim. intr. final *-a* : *towe* : 'speak (so, such a language)').

(9) *nemato* : *wa* 'he sets it upright' (trans. inan. stem *nemat-*); *apiwa* 'he sits, is (there)': *nematapiwa* 'he sits upright' (derived initial *nemat-* + derived final *-api*). Initials derived from verb stems lack the gender association of the stem.

(10) *nemasowa* 'he is standing' (anim. intr. stem *nemaso-*): *nemaswise* : *wa* 'he lands feet first' (derived initial *nemasw-* + anim. intr. final *-isa:-* 'fall, fly, speed' [regular umlaut of *a:* to *e:* before the ending]).

Derived medials:

(11) *ihkwe* : *wa* 'woman' (noun stem *ihkwe* : *w-*); *pye* : *to* : *wa* 'he brings it' (trans. inan. stem): *pye* : *tehkwe* : *wa* 'he brings home a wife' (derived initial *pye* : *t-* + derived medial *-ehkwe* : *w* + abstract anim. intr. final *-e:-*).

(12) *ohka* : *tani* 'his feet' (noun stem *-hka* : *t-*; 3 sg. possessor *o-*, inan. pl. *-ani*) : *apika* : *sowa* 'he warms his (own) feet '(initial *ap-* 'warm' + derived medial *-ika:-* 'foot, feet' + final *-(e)so-* 'act on oneself by heat'); *papi* : *wika* : *te* : *wa* 'he has small feet' (initial *papi* : *w-* 'small (pl.)' + derived medial *-ika* : *t-* 'foot, feet' + abstract final *-e:-*).

(13) *owi* : *shi* 'head': *ko* : *kitepe* : *nowa* 'he washes his (own) head' (initial *ko* : *k-* 'wash, immerse' + suppletive medial *-tepe:-* 'head' + anim. intr. final *-(e)no-* 'act on oneself by hand').

Derived finals:

(14) *a* : *chimowa* 'he narrates, tells his story' (anim. intr. stem *a* : *chimo-* [initial *a* : *t-* 'tell' + final *-imo* 'speak (with regard to oneself)']):

menwa : *chimowa* 'he talks sensibly' (initial *menw-* 'good' + derived final *-a* : *chimo-*).

(15) *natome* : *wa* 'he calls him, them' (trans. anim. stem *natom-* [initial *natw-* 'seek' + final *-m* 'act on by speaking']): *ki* : *watome* : *wa* 'he goes around calling them' (initial *ki* : *w-* 'go about' + derived final *-atom-*).

(16) *nakamowa* 'he sings' (anim. intr. stem *nakamo-*): *we* : *pina* : *ke* : *wa* 'he starts to sing' (initial *we* : *p-* 'begin' + suppletive anim. intr. final *-ina* : *ke:-* 'sing').

Distinct from the processes of primary derivation, though not in every case sharply distinct, are numerous processes of secondary derivation. Secondary derivation operates on complete stems, is generally transparent both morphologically and semantically, and involves the suffixation of finals having for the most part grammatical rather than lexical functions. Forms made by secondary derivation include: (verbs from verbs) causatives, applicatives, indefinite-object intransitives, double-object transitives, reflexives, reciprocals, passives, diminutives; (nouns from verbs) agent nouns, instruments, abstract nouns; (verbs from nouns) verbs of being, possession, obtaining; (nouns from nouns) diminutives.

The derivation of stem components from stems is morphologically (or lexically) governed. *ihkwe* : *wa* 'woman' and *neniwa* 'man' both form noun finals, but only *ihkwe* : *wa* forms a medial. Many stems do not form derived initials or finals. In such cases elements are concatenated by forming a compound stem consisting of a pre-stem particle (called a prenoun or preverb) and a simple or compound stem:

(17) *wi* : *ke* : *chi pesetawe* : *wa* 'he listens to him carefully' (preverb *wi* : *ke* : *chi* 'carefully' + trans. anim. stem *pesetaw-* 'listen to'; inflectional affixes as in [4, 6]).

(18) *wa* : *peshki kohpichi nenoswa* 'white buffalo' (prenoun *wa* : *peshki* 'white' + compound noun stem *kohpichi nenoswa* 'buffalo', itself consisting of prenoun *kohpichi* 'wild' + noun *nenoswa* 'bovine').

In some cases derivation and compounding are both possible:

(19) *ki* : *wi natome* : *wa* 'he goes around calling them' (in the same passage as the derived stem in [15]).

(20) *we* : *pi nakamowa* 'he starts to sing' (much less common than the derived stem in [16]).

As the examples show, prenouns and preverbs are typically derived from initials by the suffixation of *-i* (compare [18] with [1—3]; [19] with [15]; [20] with [16]). Before *i* (and in certain other environments) the morphophonemic

process known as mutation takes place, replacing *t* by *ch* and some cases of *n* by *sh*; hence the final consonant of an initial may show an alternation between *t* and *ch* or between *n* and *sh*. The present discussion will concentrate on derived (multi-component) verb stems and compounds with preverbs; the behavior of prenouns in compound nouns is parallel but shows fewer syntactic complexities.

Since whether or not a given stem has a given derived component is morphologically determined, the choice between a derived stem and a compound stem to express a given concatenation of elements is also morphologically determined, rather than based on syntactic or semantic factors. (This does not, of course, rule out the possibility that when both types of concatenation are morphologically permitted their use may be syntactically or semantically differentiated). The morphological determination of this choice is clear from cases of syntactically and semantically parallel expressions that show the two different morphological patterns of concatenation:

(21) *menowa* 'he drinks' (stem *meno-*) does not form a derived final; hence it appears with preverbs: *ki* : *shi menowa* 'he has finished drinking'; *nahi menowa* 'he sure can drink'.

(22) *wi* : *seniwa* 'he eats' (stem *wi* : *seni-*) forms a derived final *-isenye:-*; hence the equivalent concatenations are derived stems: *ki* : *shisenye-* : *wa* 'he has finished eating'; *nahisenye* : *wa* 'he sure can eat'.

Preverbs are set off by full word boundaries, except for a small set of proclitic preverbs (set off by/=/ in the transcription used here), which are all inflectional or quasi-inflectional. Fox writers often mark the word boundary between a (non-proclitic) preverb and a following preverb or simple verb stem, though less frequently than other word boundaries. Words that are not preverbs may occur in the midst of a compound stem, between two preverbs or a preverb and the stem: these may be either enclitic particles (here marked with a preceding /=/), fully independent words, or even brief subordinate clauses. Syntactically, however, a compound stem is just as much a unit as a simple stem; the pronominal prefixes, the proclitics, and initial change (an ablauting process that operates on the first vowel of a stem) all apply to the first preverb (if any) of a compound stem:

(23) *neta* : *pi* *na* : *te* *asha* : *ti* : *hani*. 'I have been to get arrowheads'. (Compound stem consisting of preverb *a* : *pi* 'be back from' + simple stem *na* : *t(e)-* 'go after', separated by word boundary; inflected with first person pronominal prefix *net-* added to the full compound stem, hence before the preverb. [The suffix in this form happens to be -Ø; *asha* : *ti* : *hani* 'arrowheads']).

(24) *kewi* : *ke* : *chi=cha* : *h=meko* *pesetawa* : *petoke*. 'So you probably really listened carefully to them'. (Compound stem *wi* : *ke* : *chi*

pesetaw- [as in 17]; inflected with *ke-*, second person prefix, and *-a : petoke*, dubitative mode suffix for 2 sg. acting on 3 anim. Enclitic particles [not preverbs] *=cha : hi* 'so, for' [with regular sandhi] and weak emphatic *=meko*, occurring in the preferred "Wackernagel's Law" position after the first phonological word in the phrase).

(25) *e : shki kano : nehka* 'the one who first spoke to you'. (Compound stem *ashki* 'first' + *kano : n-* 'speak to'; participial inflection consisting of initial change on the first vowel of the compound stem [here *a* replaced by *e*:] and *-ehka*, suffix for 3 sg. on 2 sg. Contrast *ke : no : nehka* 'the one who spoke to you', with no preverb and the initial change on the simple stem).

(26) *e : h=pwa : wi=ke : h=meko=pi owiye : hani kashki pye : notaminichi*. 'And it is said no one could ever reach it'. (Compound stem *pwa : wi* 'not' + *kashki* 'be able to' + *pye : not-* 'come to'; inflected with aorist proclitic preverb *e : h=* and aorist suffix *-āminichi*, obviative [secondary third person] acting on inanimate. Enclitic particles *=ke : hi* 'and, but [topic shift]', *=meko*, and *=pi* 'it is said'. Independent word *owiye : hani* 'someone, anyone (obviative)').

(27) *pwa : wi e : shimena : ke ishawiye : kwe* 'if you (pl.) don't do as we tell you'. (Compound stem *pwa : wi* [see no. 26] + *ishawi-* 'do (so)'; inflection *-ye : kwe*, 2 pl. subjunctive. Fully inflected verb *e : shimena : ke* 'what we tell you (to do)' included between preverb and stem).

A set of initials that plays a prominent role in Fox are the deictic anaphoric initials called in Algonquian grammar relative roots. These ordinarily indicate cross-reference to a lexical specification of certain attributes of the verbal action. They are listed here in the form they take as preverbs, with variant shapes in parentheses.

(28) *ishi* (*in-*, *ish-*) 'thus, in (such) a way; there, to (there)'.

(29) *tashi* (*tan-*, *tash-*) 'there, at (that place)'.

(30) *ochi* (*ot-*, *och-*) 'thence, from (that place, cause, or reason), to/from (that direction)'.

(31) *ahkwi* (*ahkw-*) 'that far, to (such a linear extent)'.

(32) *ahpi : hchi* (*ahpi : ht-*, *ahpi : hch-*) 'that much, to (such) a degree [of strength, speed, age, etc.])'.

(33) *taswi* (*tasw-*, *tash-*) 'so much, so many'.

The glosses used for (28—33) are not to be taken a literal translations. In particular, the relative roots do not have a deictic force by themselves, though they are typically used in conjunction with deictic words and hence deictic

glosses are convenient. For most verb stems the use of the appropriate relative root is obligatory to indicate anaphoric cross-reference to the lexical specification of the attributes indicated:

(34) *i* : *nah=ne* : *h=wi* : *na tashi peseshe* : *wa*. 'He too listened there'. (The verb phrase consists fundamentally of *peseshe*:- 'listen' and *i* : *nahi* 'there'; the preverb *tashi* [29] is obligatorily present to provide cross-reference from the verb stem to the deictic particle. Other particles: *=ne* : *hi* 'too' and emphatic third person pronoun *wi* : *na*, with regular encliticization and sandhi).

(35) *i* : *nah=cha* : *h=ne* : *h=wi* : *na tana* : *chimoha* : *pi*. 'She too was instructed there'. (Fundamentally *-a* : *chimoh-* 'instruct' [derived final from the stem *a* : *chimoh-*] and *i* : *nahi* 'there'; the relative root providing cross-reference is here the initial *tan-* [29] in the derived stem *tana* : *chimoh-*. Other particles, see [24, 43]).

(36) *nene* : *htawi=meko ishi wi* : *hpoti* : *waki*. 'They eat together in separate groups'. (*nene* : *htawi* 'in separate groups' indicates the manner in which the activity was done and is cross-referred to by the preverb *ishi* [28] in the compound verb stem *ishi wi* : *hpoti-*: 'eat together (thus)'; *=meko* [24, 26].)

(37) *a* : *phene=mekoho wi* : *h=ine* : *neti* : *ye* : *kwe* 'for you to think of each other equally' (The manner particle *a* : *hpene* 'equally, all alike' is cross-referred to in the verb stem by the initial *in-* [28]; the final is *-e* : *neti*:- 'think of each other'; *wi* : *h=* is the future proclitic preverb, here indicating a purpose clause; *=mekoho* is a variant of *=meko* [24, 26, 36].)

Some inherently locative verbs do not use *tashi* (etc., 29) for cross-reference to locative expressions: *i* : *nahi owi* : *kiwa* 'he dwells there'.

In addition to the use of relative roots in cross-reference just illustrated (and a few idiomatic usages), there is also a characteristic use of relative roots in forms that center on the notions these roots convey. In this construction the verb is in what is called the changed conjunct mode. The relative roots are characterized by the pattern of vowel ablaut called initial change (cf. [25]), with certain irregularities, giving the following shapes: *e* : *n-*, *e* : *sh-* (28), *e* : *h=tan-*, *e* : *h=tash-* (29) irregularly makes this form with the aorist preverb *e* : *h=*), *we* : *t-*, *we* : *ch-* (30), *e* : *hkw-* (31), *e* : *hpi* : *ht-*, *e* : *hpi* : *hch-* (32), *e* : *tasw-* (33). (Note, however, that if one or more preverbs precede the relative root the rule that initial change affects the first vowel of the first preverb applies, and the relative root appears without change.) These forms have various non-verbal syntactic functions in the surface structure. Typically they are in an equational construction with a deictic (e.g. *mani* 'this', *i* : *ni* 'that') or are

cross-referred to by the same relative root in another verb stem:

(38) *i : ni=meko=ne : h=ni : na e : ye : ki e : ne : nemena : ni.* 'That is also how I think of you too'. (*i : ni* 'that' equated with *e : ne : nemena : ni* 'how I think of you' [initial *e : n-* (changed form of [28] + final *-e : nem-* 'think of'; conjunct inflection for 1 sg. on 2 sg.]; *=meko* [24, 26, 36]; *=ne : hi* 'too' [35, with same sandhi]; *ni : na* 'I'; *e : ye : ki* 'also').

(39) *i : ni=cha : h=meko ne : h=ni : na e : shi kashki kano : bena : ni.* 'So that is the only way I can speak to you also'. (Same construction as [38], with compound stem *ishi* ['(thus)'; 28, with change] + *kashki* ['be able to'; 26] + *kano : n-* [25] 'be able to speak to (thus)'; *=cha- : h=meko* [24]; *ne : h=ni : na* [38]).

(40) *e : h=tanehkwe : hichi* 'at her head' (Irregular changed conjunct 3 sg. cf *tanehkwe . hi-*: initial *tan-* [29] + medial *-chkwe:-* 'head' + abstract final *-hi-*).

(41) *e : h=tashi wa : se : ya : piya : ni* 'where I see light' (Changed conjunct 1 sg. of compound stem *tashi* [29] + *wa : se : ya : pi-* 'see light').

(42) *e : hpi : htose : kwe : hiki i : ni wi : h=ahpi : htose : yakwe.* 'We shall walk at whatever pace they may walk'. (Lit. 'Whatever-pace-they--walk-at (is) that pace-that-we-shall-walk-at'. Equation between the changed conjunct of two occurrences of the stem *ahpi : htose:-* [relative root *ahpi : ht-* (32)+final *-ose:-* 'walk']; the first is 3 pl. of the dubitative sub-mode; the second is 1 pl. inclusive of the future. In the second form the initial change is on the future proclitic preverb *wi : h=*, but since long vowels are not modified by initial change the changed form of *wi : h=* is *wi : h=*).

Stems that do not require *tashi/tan-* in cross-reference make this form with the aorist proclitic preverb *e : h= : e : h=owi : kichi* 'where he dwells, his home'.

The pattern of Fox derived and compound stems clearly raises interesting questions regarding the nature of the lexicon and the relation between the lexicon and actual sentences. Analyses of Algonquian languages treat the concatenation of preverbs with simple stems as a matter of productive sentence formation, distinct from the processes of stem derivation; dictionaries of Algonquian languages list preverbs and stems as separate lexical items but do not systematically include combinations of preverbs and stems. This traditional mode of description obviously corresponds to a traditional model of linguistic structure, one in which stem-formation processes are distinct from sentence--formation processes. Even the simplest of Fox utterances are handled awkwardly by such a model, however. Such a model, for example, does not capture the obvious parallelism between *ki : shisenye : wa* 'he has finished eating' (22) and *ki : shi menowa* 'he has finished drinking' (21). It seems clear that com-

pound stems like *ki* : *shi meno-* do not belong in the lexicon as the lexicon is ordinarily conceived. If so, the Fox data suggest that virtual concatenations like **ki* : *shi wi* : *seni-* (see 22) also do not belong in the core lexicon either, even when they are realized as derived stems (in this case *ki* : *shisenye*:-). Of course, part of the lexical entry for *wi* : *seni-* 'eat' would have to account for the derived final *-isenye*:-. And, to be sure, an enriched conception of the lexicon might well permit the entry of *ki* : *shisenye*:- in some component part and, indeed, might permit the listing or indexing of lexical concatenations like *ki* : *shi meno-* and other productive associations between words. It would remain the case, however, that any model of the lexicon and the syntax that interacts with it would have to account for the fact that stems like *ki* : *shisenye*:- come about as the result of the same syntactic processes of sentence formation that produce compound stems like *ki* : *shi meno-*. Pairs of stems like these differ in their morphology but not in their syntactic or semantic structure.

A further argument against taking a stem like *ki* : *shisenye*:- to be lexicalized comes from a consideration of the extent to which *ki* : *sh-* and other initials function like grammatical morphemes rather than lexical elements. *ki* : *sh-* is virtually a perfective aspect marker and with certain inflections makes clauses with the meaning 'after':

(43) *ki* : *shi ne* : *se* : *ha* : *chini* 'after he cured them' (Compound stem *ki* - : *shi* + *ne* : *se* : *h-* 'cure'; inflected for 3 sg. acting on 3 anim. in the changed iterative mode).

(44) *ki* : *shina* : *ke* : *chini* 'after he sang' (Stem consisting of initial *ki* : *sh-* + final *-ina* : *ke*:- 'sing' [16]; inflected for 3 sg., changed interative).

Given their grammatical function, expressions of the type {*ki* : *sh-* 'after' + VERB} (43, 44) clearly involve syntactic derivation, which would be awkward enough if stems like (44) were listed in the lexicon. But it must further be evident that a model of language that required the listing of some such expressions (e.g. 44) in the lexicon (in some form) while excluding others (e.g. 43) would be defective.

These contrasting morphological patterns are found in other grammatical constructions as well. Idiomatically, the changed conjunct of stems containing the relative root *ahpi* : *ht-* (32) is used with the meaning 'while':

(45) *e* : *hpi* : *hchi ne* : *se* : *yakwe* 'while we are living' (Changed conjunct 1 pl. inclusive of the compound stem *ahpi* : *hchi ne* : *se*:-; *ne* : *se*:- 'recover, survive, live,).

(46) *e* : *hpi* : *hchi ki* : *ke* : *noyakwe* 'while we are celebrating a clan-feast' (Same as [45], with stem *ki* : *ke* : *no-* 'celebrate a clan-feast').

(47) *e* : *hpi* : *htose* : *chi* 'while he was walking' (Changed conjunct 3 sg. of the

stem *ahpi* : *htose*:-, consisting of initial *ahpi* : *ht-* [32] + final *-ose*:- 'walk').

(48) *e* : *hpi* : *htetone* : *mowechi* 'during a speech' (Changed conjunct indefinite-subject form of *ahpi* : *htetone* : *mo-*: *ahpi* : *ht-* + final *-etone* - : *mo-* 'speak').

It is instructive to compare examples (42) and (47). Even if the stem *ahpi* - : *htose*:- 'walk at (such) a pace' (as in 42) is considered to be lexicalized, the morphologically identical stem in (47) would have to be analyzed in another way in order to account for its specialized grammatical function. A syntactic derivation of the construction {*e* : *hpi* : *ht-* 'while' + VERB} (45, 46, 47, 48) is evidently indicated, even in those cases where morphological derivation would have to follow (47, 48).

The same patterns are found in an idiomatic construction meaning 'just as VERB' consisting of *mani* 'this' + the changed conjunct of a verb stem containing *in-* (28). The *in-* may be the initial in the stem or may appear as the preverb *ishi*:

(49) *mani=meko e* : *shi pi* : *te* : *ya* : *hkwi* : *chi* 'just as he entered the woods. (Changed conjunct 3 sg. of the compound stem *ishi* [28; changed form *e* : *shi*] + *pi* : *te* : *ya* : *hkwi*:- 'enter woods').

(50) *mani e* : *na* : *pichi* 'just as she looked' (Changed conjunct 3 sg. of the stem *ina* : *pi-*, consisting of the initial *in-* [28] + final *-a* : *pi-* 'look'),

As in the comparable case of the stem in (47), the stem *ina* : *pi-* (50) in this construction is presumably distinct from the morphologically identical *ina* : *pi-* 'look (thus, there)'.

The fact that the concatenations in (44, 47, 48, 50), like those in (22, 35, 37, 38, 40), result in stems without preverbs while those in (21, 34, 36, 39, 41, 43, 45, 46, 49) result in stems with preverbs is a fact of morphology and not of syntactic or semantic category. The preverb is a morphological device, and the processes that derive preverbs, derive components from stems, and form stems from components are morphological processes. To distinguish between the two types of concatenations (e.g. that of 43 and that of 44) by analyzing one but not the other as being in the lexicon would amount to taking these formal devices and processes to be basic syntactic-semantic categories, hence falling into the fundamental (though, regrettably, extremely common) error of confusing morphological processes with grammatical categories. (It is presumably irrelevant that different criteria for inclusion would apply in the writing of a dictionary of Fox intended to serve as a reference work).

The two types of concatenation in Fox verb stems differ only in morphology, and, of course, this morphology has consequences for the language and must be accounted for. In terms of the usual generative metaphor, a substantial

amount of this morphological derivation, including some suppletion (16, 44), must take place quite late in the derivation of sentences. But the comparison of the different types of verbal derivation in Fox, in which a particular type of syntactic-semantic unit may encompass one or more words, or parts of words, has made it clear that these formal devices and processes do not directly correspond to the grammatical categories that they express. The failure to distinguish between process and category has even more serious consequences in most discussions of sentence syntax, which treat the sentence as an independent entity on the false assumption that the sentence is a grammatical category. The sentence is a formal device, a morpho-syntactic process, and, as in the case of words, the scope of syntactic-semantic categories may range over one sentence or more than one sentence. Elaboration of this point will have to be left to another study.

Another feature of Fox stems that would not be accounted for if stems were simply listed in a conventionally conceived lexicon is what may be called the paradgmatic relationships among related stems. Compare the following:

(51) *pemose* : *wa* 'he walks (along)' (Initial *pem-* 'along' + final *-ose:-* 'walk').

(52) *pemi we* : *pose* : *wa* 'he starts walking (along)' (Preverb *pemi*; initial *we* : *p-* 'begin' + final *-ose:-* 'walk').

In terms of its surface structure the stem in (52) is clearly preverb *pemi* + stem *we* : *pose:-*, but in terms of its derivation it results from a syntactic concatenation of the initial *we* : *p-* 'begin' and the stem *pemose:-* 'walk (along)' (51). A preverb *we* : *pi* exists, but a compound stem ***we* : *pi pemose:-* is not attested. Instead, this concatenation induces a morphologically governed adjustment in the order of elements involving stem decomposition and derivation, resulting in (52). The reordering conforms to an overall pattern according to which whenever the initials *we* : *p-* and *pem-* occur in the same stem, *we* : *p-* is preferred as the stem initial and *pem-* is relegated to the preverb *pemi*:

(53) *pemipahowa* 'he runs (along)' (Initial *pem-* + final *-ipaho* 'run').

(54) *pemi we* : *pipahowa* 'he begins to run (along)' (Preverb *pemi*; initial *we* : *p-* 'begin' + final *-ipaho* 'run').

Similar fixed patterns are found for certain other combinations of initials. In such cases a static lexicon would obviously not be able to account for the morphological and semantic relations among stems and compound stems and the occurrence and non-occurrence of different combinations.

In some cases syntactic derivation involving two underlying sentences precedes the morphological derivation of stems. This is seen is a set of examples that show the incorporation of the verb stems of complement clauses into the

verbs of the main clauses that govern them. These verbal complements (animate intransitives in all cases noted) are incorporated as derived initials. Morphologically they are derived by suffixing a *-w-*, with the same morphophonemic adjustments as before the derivational suffix *-wen-* used to form abstract nouns: umlaut of stem-final *-a:-* to *-e:-* in the stems subject to this (cf. 10); insertion of *-o-* after stem-final consonant. The same morphology is used to derive from intransitive stems initials that are construed with the general meaning of the verb rather than as complements:

(55) *atame* : *wapiwa* 'he sits and smokes, he smokes sitting' (Derived initial *atame* : *w-* from intransitive verb stem *atama:-* 'smoke' + *-w-* [with umlaut; cf. *atame* : *wa* 'he smokes']; final *-api-* 'sit' [9]).

(56) *a* : *manowite* : *he* : *wa* 'he thinks about sex' (Initial *a* : *manow-* from stem *a* : *man-* 'be lustful' + *-ow-* [cf. *a* : *manwa* 'he is lustful, he desires sex']; final *-ite* : *he:-* 'think').

The simplest cases of complement incorporation involve two intransitive verbs with the same subject:

(57) *mi* : *shitepe* : *wa* : *pata* : *niwa* 'he [a bird] seems to have a fuzzy crest on his head' (Initial from *mi* : *shitepe* : *wa* 'he has a fuzzy [crest on his] head', complement of *-a* : *pata* : *ni-* 'seem, appear (so)').

The higher verb may also be an inanimate intransitive:

(58) *sha* : *kwe* : *nemowina* : *kwatwi*. 'It looks as if they were unwilling'. (Initial from intransitive stem *sha* : *kwe* : *nemo-* 'be unwilling', complement of inan. intr. final *-ina* : *kwat-* 'appear (so)').

If the verb of the complement clause has a compound stem, a derived initial from the simple stem of the complement is incorporated in the usual way and the preverbs of the complement become preverbs of the verb thus derived:

(59) *e* : *h=ki* : *shi=meko* *ne* : *se* : *wite* : *he* : *nichi* *okwisani*. 'His$_i$ son$_j$ thought he$_j$ was already well'. (Surface morphology: compound stem consisting of preverb *ki* : *shi* 'have already, have finished [21]' + *ne* : *se* : *wite* : *he:-* 'think (self) recovered'. Derived from sentence with higher verb *-ite* : *he:-* 'think' and complement clause with compound verb *ki* : *shi ne* : *se:-* 'have already recovered, already be well').

When the subjects of the higher and lower verbs are different, subject-to-object raising (or better, copying) precedes the incorporation of the complement verb. Compare (59), with the animate intransitive final *-ite* : *h:-* 'think', to (60, 61),

with the transitive animate final *-e* : *nem-* 'think of, regard':

(60) *ki* : *shi ki* : *ke* : *nowe* : *nemaki* 'when I imagined they were through with the gens festival' (Surface morphology: preverb *ki* : *shi*; derived initial *ki* : *ke* : *now-* from *ki* : *ke* : *no-* 'celebrate a gens festival', + trans. anim. final *-e* : *nem-* 'think of, regard (so)'; inflection for 1 sg. on 3 anim. [suffix *-aki*]. Derivationally the lower verb is a compound stem *ki* : *shi ki* : *ke* : *no-* 'have finished celebrating a gens festival'; *ki* : *shi* must be construed with the lower verb, since to construe it with the higher verb would give the incorrect meaning: 'after I thought they were celebrating a gens festival')

(61) *keki* : *shi=meko yo* : *we nepowe* : *nemenepena*. 'We had thought you were already dead'. (Surface morphology parallel to [59], with *=meko* [24], *yo* : *we* 'in the past'; inflection for 1 pl. on 2nd [prefix *ke-* + suffix *-enepena*]. Lower verb *ki* : *shi nep-* 'have already died, already be dead', with *nepow-* the regular derived initial [cf. 56]).

That the subject of the complement is copied as the object of the higher verb rather than raised is shown by the fact that when the lower verb is present it retains the inflection for subject:

(62) *ni* : *h=kehke* : *nemekwa e* : *h=katawi nepo* : *hiwaki ni* : *hka* : *na*. 'Let my friend know that I am about to die'. (*ni* : *h=kehke* : *nemekwa* 'he will/should know about me' [trans. anim. *kehke* : *nem-* 'know about' inflected for 3 sg. on 1 sg., future; the 1 sg. object is the copy of the subject of the lower sentence]; *e* : *h=katawi nepo* : *hiwaki* 'that I am about to die on him' [with the 3 sg. subject of the higher sentence copied into the lower sentence as the object of a derived transitive verb indicating indirect effect: *nepo* : *hiw-* 'die on', from intransitive *nepo* : *hi-* 'die (diminutive)', the affective form of *nep-* 'die']; preverb *katawi* 'be about to'; *ni* : *hka* : *na* 'my friend' [note the *-m̃* entirely typical *m̃* "reverse anaphora"]).

When the raising of the lower verb takes place, non-verbal complements are also raised and distributed in the higher sentence according to the derived surface syntax:

(63) *nekotahi i* : *niye* : *ka oto* : *te* : *weniwa* : *chima* : *pi*. 'It is said of them that they have a town somewhere'. (3 anim. passive of a stem with trans. anim. final *-a* : *chim-* 'tell about' incorporating the underlying sentence *nekotahi i* : *niye* : *ka oto* : *te* : *weniwaki* 'they have a town somewhere'; inflection: 3 pl. anim. *-waki*. *nekotahi* 'somewhere' must be construed with the lower verb *oto* : *te* : *weni-* 'have a village' [a derived verb of possession that does not require the relative root *ten-* (29)] and

not with *-a* : *chim-* 'tell about'; *i* : *niye* : *ka* 'they (absent, not recently mentioned)').

Some additional complications are present in the following text fragment, which contains two successive examples of raising and incorporation:

(64) *"nahi, manahka netana* : *chimo we* : *chi-na* : *wahkwe* : *ki"*, *iwa.* *"i* : *nahi ni* : *chi-neniwaki tana* : *chime* : *waki aka* : *sani"*, *iwaha.* '"Now I will tell the experience I had over [in the] south', he said. '"At that place my fellow men said there was a Kaw", he said'. (As translated by Horace Poweshiek, a native-speaker of Fox).

The higher verbs are animate intransitive *-a* : *chimo-* 'tell one's story, tell about one's own experiences' (14) and transitive animate *-a* : *chim-* 'tell about'. Both show subject-to-object raising (or copying), the first verb being a derived reflexive. The locatives in both sentences (*manahka* 'over yonder' + *we* - : *chi-na* : *wahkwe* : *ki* (in the) south'; *i* : *nahi* 'there'), although cross-referred to by the relative root *tan-* (29) on the higher verbs, are raised from the lower sentences. They must be construed with the lower verbs, even though in each case the verbal part of the lower verb has been deleted and the *tan-* is all that is left. The general notions of 'doing' and 'being' seem not to be overtly incorporated into higher verbs but, as it were, substituted for by the appropriate relative root. In the second sentence the lower verb can be assumed to have been *tanesi-* 'be around, be there', a stem consisting of *tan-* + the abstract animate intransitive final *-esi-* (1); when the stem was raised and incorporated the abstract final was deleted. For another example, note that *e* : *shimena* : *ke* 'what we tell you to do' (27) has the relative root *in-* (28) construed in the meaning of *ishawi-* 'do so' (here with mutation of *n* to *sh* and initial change of *i-* to *e*:-; final *-im* 'act on by speaking, tell' [15]). The other words in (64) are: *nahi* 'Well!, Now!'; *iwa, iwaha* 'he said'; *ni* : *chi-neniwaki* 'my fellow men (=the other men I was with)'; *aka*: *sani* 'Kaw Indian (obviative)'.

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NOTES ON SUBJACENCY AS A SYNTACTIC CONSTRAINT IN ARABIC AND ENGLISH

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1. Ever since Chomsky's seminal "Conditions on Transformations" (Chomsky 1973) was circulated, subjacency has gained increasing importance as a principle governing movement transformations in the syntax of natural languages. It has even been proposed as the feature that distinguishes movement rules from binding rules when it was suggested that the distinction between these be eliminated (cf. Chomsky 1980). Subjacency can be stated as follows:

(1) In a structural configuration of the form
$c[\ldots Y \ldots_b [\ldots_a [\ldots X \ldots] _a \ldots] _b \ldots Y \ldots]_c$
no rule may move X, which is in the cyclic category a
to position Y in c if c includes a cyclic category b
which includes a.

That is, moved elements may only cross one cyclic category, but never more than one. S and NP were taken to be the only cyclic categories in English since they were the only categories within which we could notice the transformational cycle at work. In this article I shall first, investigate the validity of this universal principle and whether or not it can account for the multitude of movement processes that Arabic and English exhibit. And, second, if it fails to do so, what other alternative(s) can be proposed to replace it.

Evidence for subjacency as a principle governing movement rules came from its ability to account for certain cases where movement of elements, both to the left and right, seemed to be blocked. Some of these cases were explained in terms of rather special constraints such as Ross's *Complex NP Constraint* (cf. Ross 1968), and Chomsky's *Subject Constraint* (cf. Chomsky 1973), as may be illustrated in the following.

Sentence (2) with structure (2.a) is ungrammatical because the movement of the *wh*-elements is from within a sentence that is dominated by a NP — i.e. CNPC.

(2) *who did John give the book to the man who met?

(2.a) $\bar{s}_1$[who s_1[did John give the book to $_{NP}$[the man$\bar{s}_2$ [who s_2[met *t*]]]]]]

whereas sentence (3) of structure (3.a) is grammatical since the movement of the *wh*-element has not been from a complex NP.

(3) who did you meet?

(3.a) $\bar{s}$[who s[did you meet *t*]]

And sentence (4), with structure (4.a), is ungrammatical because the *wh*-element has moved out of a subject NP — i.e. the Subject Constraint).

(4) who was a picture of taken?

(4.a) $\bar{s}$[who s[was $_{NP}$[a picutre of *t*] taken]]

These two constraints — the CNPC and the Subject Constraint — were subsumed by subjacency in that the ungrammaticalness of (2) and (4) is now seen as a result of moving the *wh*-element over two cyclic categories (nodes), NP and S_1, and NP and S respectively.

Further evidence for subjacency was furnished by sentences that exhibit extraposition from NP. Chomsky (1975:85-86) argues that the ungrammaticalness of (5.c), where a relative clause is extraposed to the end of the sentence is the result of the violation of subjacency also.

(5.a) the only one that I like of Tostoy's novels is out of print

(5.b) the only one of Tolstoy's novels that I like is out of print

(5.c) *the only one of Tolstoy's novels is out of print that I like

(5.a) is presumably of structure (5.d).

(5.d) $_{NP_1}$[$_{NP_2}$[the only one *that I like* of Tolstoy's novels]] is out of print

The extraposed material 'that I like' has moved over one cyclic node, NP_2, in (5.b), and therefore it is rightly predicted to be grammatical; whereas the extraposition of this material results in ungrammaticalness in (5.c) because it has crossed two cyclic nodes, NP_2 and NP_1, thus violating subjacency.

Arabic seems to agree with the above facts and would therefore furnish further evidence for subjacency as a universal principle governing the movement of constituents. While the movement of *wh-elements* in (6) of structure (6.a) is acceptable, no *wh*-element can move out of a complex NP to the

[1] Throughout the paper, the original place of the moved element will be indicated by the symbol *t*.

beginning of the sentence. This can be seen from the ungrammaticalness of (7), with structure (7.a).

(6) man qaabal-ta?
who met-you
(who did you meet)

(6.a) $\bar{s}$[man s[qaabal-ta t]]

(7) maðaa ?ahabba al-rajul-u al-fataat-a allatii gara?at what liked def-man-nom def-girl-acc who read (what did the man like the girl who read)

(7.a) $\bar{s}_1$[maaðaa s_1[?ahabba al-rajul-u NP[al-fataat-a $\bar{s}_1$[alatii s_1[qara?at *t*]]]]]

In (6) the *wh*-element has moved over one cyclic node — the S, so it is predicted to be grammatical. But (7) is predicted to be ungrammatical since it violates subjacency. The *wh*-element, as is seen in (7.a), has moved over two cyclic nodes at least — the NP and S_1. We are, of course, assuming for the moment that S and NP are cyclic in Arabic, in analogy to the state of affairs in English.

Similarly, extraposition from NP is only acceptable when it abides by subjacency as is seen in the following sentences modelled after those in Akmajian (1975).

(8.a) ðahara ta^{c}diil-u qaanuun-in *?aqarra-hu al-majlis-ui*
appeared modification-nom- law-gen instated-it def-council-nom
al-wataniyy-u fii al-jariidat-i
def-national-nom in def-newspaper-gen
(a modification to a law *instated by the Parliament* appeared in the newspaper)

(8.b) ðahara ta^{c}diil-u qaanuun-in fii al-jariidat-i *?aqarra-hu al-majlis-u al-wataniyy-u*
(a modification of a law appeared in the newspaper *that was instated by the Parliament*)

We are confronted with the interesting fact that (8.a) has two readings. In the first, the underlined relative clause modifiers the noun *ta^{c}diil*, but in the second, the clause modifies the noun *qaanuun*. On the other hand, in (8.b), we get only one reading — i.e. that where the relative clause modifies the noun *ta^{c}diil*. The second reading is out. The reason behind this is that it is only when this clause is related to the higher NP that it can be extraposed. If it is related to the lower NP its extraposition to the end of the sentence will be blocked because it violates subjacency. It will have to cross two cyclic nodes, the two NP's.

As for the Subject Constraint, no corresponding cases can be attested in Arabic to those found in English. This will be taken up presently as one of the cases where subjacency seems to be too lax to account for the various aspects of movement of elements.

In spite of this correspondence between the two languages in their abidence by subjacency, one can easily find cases to the opposite in the syntax of both Arabic and English. Some of these cases are out-right violations of it, in that we have in both languages grammatical sentences showing elements that have moved over two or more cyclic nodes. Others are cases of blocked movement that abides by this principle. The importance of these cases stems from the question they raise about the validity of this principle and whether it can stand in the face of these counterexemples.

2.1. It was realized very early that subjacency runs into difficulty in some cases of *wh*-movement in complex sentences. *Wh*-elements seem to be capable of moving from embedded sentences to the beginning of the matrix sentence. Although this process is not universal to all languages it is interesting to note that both Arabic and English tolerate such unbounded movement. Sentences like (9) of structure (9.a), and (10) of structure (10.a) are examples of such phenomenon in the two languages.

(9) what did you claim that John has done?

(9.a) $\bar{s}_1$[Comp[what] s_1[did you claim $\bar{s}_2$[Comp[that] s_2[John has done *t*]]]]

(10) maaðaa ʔaraada muhammad-un ʔan yafᶜala samiir-un?
what wanted Muhammed-nom that do Samir-nom
(what did Muhammed want Samir to do)

(10.a) $\bar{s}_1$[Comp[maaðaa] s_1[ʔaraada muhammad-un $\bar{s}$[Comp[ʔan] s_2[yafᶜala samiir-un *t*]]]]

In both sentences the *wh*-elements *what* and *maaðaa* have moved over two cyclic nodes; S_2 and S_1. Subjacency has thus been violated. In fact, the extraction of *wh*-elements is possible from more deeply emebedded sentential complements of a certain class of verbs termed as 'bridges'. Thus the *wh*-element can possibly cross more than two cyclic categories (nodes).

The extraction of *wh*-elements was distinguished by Chomsky (1977) from the clause-bound movement of such elements in simplex sentences. First, it is only allowed in certain contexts where the matrix verb is one of a class of verbs that allow such movement (cf. Erteschik 1973).[3] And secondly, to save subjacency, the movement of *wh*-elements in such sentences was stipulated to be successive. It moves first to the *Comp* position of $\bar{S}_2$ — the typical landing site for *wh*-elements in both Arabic and English — crossing one cyclic node — S_2. Then a second step movement follows by moving the element from its new site to the *Comp* of $\bar{S}_1$. The two steps of movement abide by subjacency.

[3] This subcategorial restriction on *wh*-extraction could not be determined for Arabic, where the extraction seems freer than that which is found in English.

2.2. The second case of violation to subjacency obtains in sentences that show *wh*-elements or phrases that have moved out of NP's to the beginning of the sentence. Such sentences are found in both Arabic and English as evidenced in (11) of structure (11.a) and (12) of structure (12.a).

(11) of whom did Renoir paint a picture?
(11.a) $\bar{s}$[of whom s[did Renoir paint NP[a picture PP[*t*]]]]
(12) ᶜamma ʔalqaa al-šaaᶜir-u qasiidat-an?
about-what recited def-poet-nom poem-acc
(what did the poet recite a poem about)
(12.a) $\bar{s}$[ᶜamma s[ʔalqaa al-šaaᶜir-u NP[quasiidat-an PP[*t*]]]]

In both sentences the *wh*-phrases have moved over two cyclic nodes; the NP and S, thus apparently violating subjacency. Nevertheless, the two sentences are grammatical.[3]

The first suggestion to solve this problem may be in giving up subjacency as a constraint on this case of movement, or to specify these cases with some idiosyncratic feature indicating their markedness and peculiarity to individual languages. But this seems to be a far fetched solution in view of their occurrence in such unrelated languages as Arabic and English are.

Yet, the markedness of such sentences seems to lie elsewhere. In such sentences the *wh*-element originates in phrases that tolerate extraposition from their dominating NP's. In both Arabic and English it is possible to extrapose post-nominal PP-complements and VP-complements out of the NP.

In Arabic the extraposibility of PP-complements seems to be governed by certain features as the indefiniteness of the NP, and some not very well-defined notion of close semantic relationship between the PP and the head noun. On the other hand, the extraposition of *al-haal*, the VP- (or S-) complement, seems to be freer. Likewise, the extraposition from NP in English seems to be restricted to certain contexts and to be governed by some semantic factors, albeit less restrictive than those governing the same process in Arabic.

It seems that the grammaticalness of *wh*-movement is limited to only those cases where the *wh*-phrases represent extraposable categories. This can be witnessed in the difference in judgement about sentences like the following. While sentence (13.b) from (13.a) is acceptable, (14.b) from (14.a) is not, in spite of the fact that they exhibit the same process, i.e. PP-complement extraposition.

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[3] We need not be concerned with the evidence for assigning such an origin to these moved elements. Suffices it to say that the head noun and the prepositional phrases that these *wh*-phrases replace constitute one unit the constituency of which can be successfully tested by the ordinary methods of substitution, movement, and deletion.

(13.a) ʔalqaa al-šaaᶜir-u qasiidat-an ᶜ*an al-ᶜiraaq-i* ʔams-i
recited def-poet-nom poem-acc about def-Iraq-gen yesterdaygen
(the poet recited a poem about Iraq yesterday)

(13.b) ʔalqaa al-šaaᶜir-u qasiidat-an ʔams-i ᶜ*an al-ᶜiraaqi-*

(14.a) ʔištaraa samiir-un xaatam-an *min ðahab-in* ʔans-i
bought Samir-nom ring-acc from gold-gen yesterday-gen
(Samir bought a gold ring yesterday)

(14.b) *ʔištaraa samiir-un xaatam-an ʔams-i *min ðahab-in*

The same difference in judgement can be seen between (13.c) and (14.c).[4]

(13.c) ᶜamma ʔalqaa al-šaaᶜir qasiidat-an ʔams-i
about-what recited def-poet-nom poem-acc yesterday-gen
(what did the poet recite a poem about)

(14.c) *mimma ʔištaraa samiir-un xaatam-an ʔams-i
from-what bought Samir-nom gang-acc yesterday-gen
(what did Samir buy a ring of)

One may suggest an identical underlying structure for (13.a) and (14.a) like that in (13.d) and (14.d) respectively.

(13.d) s̄[s[ʔalqaa al-šaaᶜir-u NP[qasiidat-an PP[ᶜan al-ᶜiraaq-i]] ʔams-i]]

(14.d) s̄[s[ʔištaraa samiir-un NP[xaatam-an PP[min ðahab-in]] ʔams-i]]

Then the extraposition in (14.b) of the PP will give the following derived structure:

(13.e) s̄[s[ʔalqaa al-šaaᶜir-u NP[qasiidat-an] ʔams-i PP[ᶜan al-ᶜiraaq-i]]]

In (14.a) no extraposition is possible, so no parallel structure to that in (13.e) obtains.

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[4] Likewise, adjectives do not extrapose outside their dominating NP, and therefore, they cannot be questioned. But the VP- (or S-) complements, together with AP's occupying the same position and achieving the same function, can be questioned because they are extraposable, as the following:

(i) (a) ʾištaraa zayd-un sayyaarat-a-hi al-jadiidat-a ʾams-i
bought Zaid-nom car-acc-his def-new-acc yesterday-gen
'Zaid bought his new car yesterday'

(b) *ʾištaraa zayd-un sayyaarat-a-hu ʾams-i all-jadiidat-a

(c) *ʾayya ʾištaraa zayd-un sayyaarat-a-hu ʾams-i
'which Zaid bought his car yesterday?'

and

(ii) (a) raʾay-tu zayd-an mubtasim-an ʾams-i
saw-I Zaid-acc smiling-acc yesterday-gen
'I saw Zaid smiling yesterday'

(b) raʾay-tu zayd-an ʾams-i mubtasim-an

(c) kayfa raʾay-ta zayd-an ʾams-i
'how did you see Zaid yesterday?'

The inference we can draw from the parallelism between extraposition and *wh*-movement in these examples is that the *wh*-element does not move out of the NP; rather, the PP in which the *wh*-element originates is first extraposed outside the NP, then *wh*-movement will follow. That is, at the time the *wh*-element moves to the beginning of the sentence, it is not within the NP. Therefore its movement will not violate subjacency since it will presumably cross ONE cyclic node -- the S. This can be illustrated in (13.f) which is the structure of (13.c).

(13.f) $\bar{s}$[comp[^{c}amma] s[ʔPalqaa al-šaa^{c}ir-u NP[qasiidat-an] ʔams-i PP[t]]]]

This analysis can be naturally extended to sentences (11) and (12). In analogy to (13.f) the structure of (11) will not be (11.a) but (11.b) below. Similarly, the structure of (12) will be (12.b) rather than (12.a).

(11.b) $\bar{s}$[comp[of whom] s[did Renoir paint NP[a picture] PP[*t*]]]
(12.b) $\bar{s}$[comp[amma] s[ʔalqaa al-šaa^{c}ir-u NP[quasiidat-an] PP[*t*]]]

We can conclude here that through the process of extraposition, the existence of which receives evidence independent of *wh*-movement, we can explain this apparent violation to subjacency that occurs in both Arabic and English.

2.3. English exhibits a third case of violation to subjacency. This is found in sentences discussed by John Ross in his 'Constraints' (Ross 1968). Ross says that while in sentence (15) of structure (15.a) — slightly modified to correspond to the syntactic framework adopted here — the NP *the money* is not relativizable, it can be relativized in sentence (16) of structure (16.a), which is identical to (15.a).

(15) I am discussing the claim that the company squandered *the money*
(15.a) $\bar{s}_1$[s_1[I am discussing NP$_1$[the claim $\bar{s}_2$[that s_2[the company squandered NP$_2$[the money]]]]]] (Ross 4.42.b)
(16) I am making the claim that the company squandered *the money*
(16.a) $\bar{s}_1$[s_1[I am making NP$_1$[the claim $\bar{s}_2$[that s_2[the company squandered NP$_2$[the money]]]]]] (Ross' 4.42.a)
(15.b) *the money which I am discussing the claim that the company squandered
(16.b) ? the money which I am making the claim that the company squandered

Questioning the NP *the money* in these sentences will give similar results.

(15.c) *what where you discussing the claim that the company squandered?
(16.c)? what were you making the claim that the company squandered?

• Chomsky (1977) suggests this analysis for preposition stranding within object-NP's.

In both relativization and questioning, the *wh*-element in (16.b) and (16.c) has crossed two cyclic nodes, the NP and S (assuming that the movement is from the Comp of $\bar{S}_2$). Ross suggests that the two sentences (15) and (16) may have different deep structures, and the deep structure of (16) is such that the movement of *wh*-element will not violate subjacency (his CNPC). He also notices that such exception to his constraint is shared by other sentences containing expressions like *make a proposal that S, have a feeling that S, have a chance to VP*, and *have hopes that S* (Ross 1968:77-80), which allow relativization and questioning (i.e. *wh*-movement) from within the S-complement of their object NP. Ross, however, confesses to the adhocity of this (structure-building) solution and leaves the question open to new insights.

It seems that one can make use here of the notion of reanalysis that syntactic configurations sometimes undergo. As a diachronic process, reanalysis has been one of the main processes responsible for language change; but as a device in the synchronic mechanism of linguistic competance, the notion has received new emphasis in recent years (cf. Hornstein and Weinberg 1981). One can devise for English a rule of reanalysis, highly marked though it may be, that states that in the domain of a VP, a V and the following NP may be reanalysed as a complex V. This rule should be limited to elements that can satisfy the condition of semantic possibility if reanalysed, though they need not have actual manifestations as words. The above underlined expressions are semantically-possible predicates. With the possible exception of *have a chance to VP*, they all have word equivalences; claim, propose, feel, hope, and possibly chance (?). On the other hand, *discuss the claim* in (15) cannot be reanalysed as a semantically possible predicate.

Thus, after (16), in which the V and its NP complement make a semantically possible predicate, undergoes this process of reanalysis, its underlying structure will become like (16.d).

(16.d) $\bar{s}_1[s_1[I\ _{VP}[be\text{-}ing_V[make\ the\ claim]\ \bar{s}_2[that\ _{s_2}[the\ company\ squandered\ \textit{the money}]]]]]$

The *wh*-movement, in relativization and questioning, is assumed to be successive. First, the *wh*-element that originates in place of *the money* moves to the Comp of $\bar{S}_2$, then it moves to the beginning of the matrix sentence, i.e. to the Comp position of $\bar{S}_1$. This second movement will not violate subjacency now since it is a movement over one cyclic node; the S_1. And because this process is highly marked, one should not expect to occur crosslinguistically. That Arabic does not exhibit corresponding examples to (16) is only expected and would emphasize the highly marked nature of this process.

3.1. We are also confronted with a different set of counter-examples to subjacency. These are cases where subjacency is found too lax, since the

movement of some elements is blocked even though it abides by this constraint i.e. the movement is over ONE cyclic node. Both Arabic and English exhibit sentences where the movement of elements results in ungrammaticalness although it apparently abides by subjacency.

3.2. Arabic and English differ in their tolerance of extraction from PP's. While Arabic does not tolerate preposition stranding, English does. This is seen from the following.

(17) what did Mary put her suitcase on?
(18) who did John confide in?
(19) *maaðaa waða^{c}at zaynab-u kutub-a-haa ^{c}alaa
what put Zainab-nom books-acc-her on
(what did Zainab put her books on)
(20) *man ʔaxaða muhammad-un al-kitaab-a min
who took Muhammed-nom def-book-acc from
(who did Muhammed take the book from)

In English the movement of a *wh*-element from a PP was assumed to abide by subjacency since it crosses one cyclic node; the S, as is seen from (17.a) and (18.a).

(17.a) $\bar{s}$[$_{Comp}$[what] s[did Mary put her suitcase $_{PP}$[on *t*]]]

(18.a) $\bar{s}$[$_{Comp}$[who] s[did John confide $_{PP}$[in *t*]]]

If we give a similar status to PP's in Arabic as that given to English PP's then there are no principled grounds on which we could block preposition stranding in Arabic since the extraction of *wh*-elements from PP's will be subjacency abiding. Yet, the facts of Arabic, as sentences (19) and (20) indicate, are not so.[6]

However, the stranding of prepositions in English is not limited to cases like (17) and (18). It extends to other structural configurations in which it becomes an obvious case of violation of subjacency. We may expect that preposition stranding will not be possible from PP's within a NP, since this will violate the constraint by moving the *wh*-element over two cyclic nodes; the NP and S. In fact this was given as the reason why (4) was ungrammatical. But in English, we do find grammatical sentences where the extraction seems to have been from a PP-complement of a NP. These are sentences like (21) of structure (21.a).

[6] Admittedly, our analysis of Arabic is weakened by the uncertainty of what the cyclic categories in Arabic are. This is an empirical question and must await further research. However, this will not have much bearing on the present discussion since cyclicness will not be taken as the determiner of why a certain category b bounds movement.

(21) who did they steal a picture of?
(21) $\bar{s}$[Comp[who] s[did they steal NP[a picutre PP[of *t*]]]]

The movement of the *wh*-element in this sentence was explained in the following way, suggested in Chomsky (1977). It was hypothesized that sentences like (21) undergo a readjustment rule that does not differ much in structural consequence from extraposition. Chomsky suggests that this rule takes the PP-complement outside the domain of the NP. As such, (21.a) will become (21.b).

(21.b) $\bar{s}$[Comp[who] s[did they steal NP[a picture]PP[of *t*]

This, as is seen from (21.b) will have the effect of making the movement of the *wh*-element from within the PP to the Comp of $\bar{S}$ a 'bounded' movement that abides by subjacency since it will cross only one cyclic node; the S.

There are, though, two objections to this analysis. First, it is limited to this case only. Sentences like (4), where the movement of the *wh*-element is also from a PP-complement of a NP, are still ungrammatical. There is no reason why the readjustment rule should not apply to structures like (4.a) in order to render the movement of the *wh*-element acceptable. That it should be limited to PP-complements of object NP's is strange, and goes without explanation.

Second, the fact that this readjustment rule has the same effect as that of PP-extraposition from NP's would make one expect that preposition stranding will be acceptable in extraposed PP's. This is, however, a wrong prediction. Preposition stranding is not possible in these cases as was noted by Ross (1968:156) and Koster (1978:46, 97). This can be seen from (22) and (22.a) (Koster's (116.a) and (116.b)).

(22) he saw a picture, yesterday, of Bill
(22.a) *who did he see a picture, yesterday, of *t*?

In addition to this, preposition stranding is not possible from time and place adverbials (PP's). These are directly dominated by the VP or the Predicate Phrase, and for them, a NP source cannot be motivated. *Wh*-movement from them would abide by subjacency since it will cross one cyclic node; the S. But ad sentences (23) and (24) of structures (23.a) and (24.a) show, this movement is ungrammatical.

(23) *what did you see him in? (From 'I saw him in the playgrounds')
(23.a) $\bar{s}$[Comp[what] s[did you see him PP[in *t*]]]
(24) *what will Mary meet John at? (From 'Mary will meet John at Christmas')
(24.a) $\bar{s}$[Comp[what] s[will Mary meet John PP[at *t*]]]

All this directs us towards a new point of view about the possibility of extraction from PP's in English. Extraction from PP cannot be viewed now as the general process it used to be considered before, the exceptions being only cases of marked nature. Rather, English is like Arabic here, with these cases of preposition stranding as exceptional cases to be explained by some special provision. In other words, both languages disallow extraction of elements from a PP in general, with some exceptions in English. But if this is as true as it looks, then how would it be explained in terms of subjacency?

In all these cases where the extraction from PP is blocked in English their movement would have abided by subjacency since it would have crossed one cyclic node; the S. This shows that possible extractions from PP's in English cannot be explained by subjacency. Further evidence to this comes from French and Italian, which do not allow preposition stranding (cf. Hernstein and Weinberg 1981, and references therein). What is interesting here is that in these two languages, the $\bar{S}$ and not S is the bounding node. As such, the extracted material from PP would not have crossed any cyclic node, assuming for the moment that PP in these languages is not cyclic, and subjacency would predict the grammaticalness of this extraction. Unfortunately, the prediction is not born out.

3.3. A second case where movement is blocked with no violation of subjacency is provided by Arabic. This is the case of impossiblity of extracting elements from nominalization structures. In Arabic, various categories can move to the beginning of the sentence, i.e. to the left of the verb as in (25.a) and (25.b).

(25.a) qaabalat faatimat-u *muhammad-an*
met Fatima-nom Muhammed-acc
(Fatima met Muhammed)
(25.b) *muhammad-an* qaabalat faatimat-u

However, in the analogous structure of nominalization, this movement is blocked as is seen in (26.a) and (25.b).

(26.a) sarra-ni ʔinšaad-u al-ʔatfaal-i *al-ʔugniyat-a*
pleased-me singing-nom def-children-gen def-song-acc
(the singing of the song by the children pleased me)
(26.b) *sarra-ni *al-ʔugniyat-a* ʔinšaad-u al-ʔatfaal-i

We may posit an underlying structure for (25.b) as (25.c), and for (26.b) as (26.c).

(25.c) $\bar{s}$[*muhammad-an* s[qaabalat faatimat-u *t*]]
(26.c) $\bar{s}$[s[sarra-ni *al-ʔugniyat-a* NP[ʔinšaad-u al-ʔatfaal-i *t*]]]

The movement of the noun *al-ʔugniyat-a* in (26.c) has only been over ONE cyclic node; the NP, a movement that is predicted to be acceptable by subjacency. However, the output of such movement is ungrammatical.

3.4. A third case of blocked movement that abides by subjacency is that of sentences in Arabic where the extraction of PP-complements from attributive adjectives is impossible. This can be seen in sentences (27.a) and (27.b).

(27.a) laday- naa talabat-un kibaar-un *fii al-sinn-i*
have-us students-nom old-nom in def-age-gen
(we have old students)
(27.b) *laday-naa *fii al-sinn-i* talabat-un kibaar-un

In (27.b) the underlined PP has moved to the left of the head noun as (27.c) shows.

(27.c) s̄[s[laday-naa PP[fii al-sinn i] NP[talabat-un AP[kibaar-un PP[*t*]]]]]

The movement does not violate subjacency since the PP has moved over two nodes, the AP and the NP, only one of which is cyclic, i.e. NP.

The same fact obtains in English in sentences like (28.b) which is derived from (28.a) by moving the PP-complement to the end of the sentence as illustrated by (28.c).

(28.a) all reviews written by him were well-read
(28.b) *all reviews written were well-read by him
(28.c) s̄[s[NP[all reviews AP[written PP[*t*]]] VP[were well-read] PP[by him]]]

Subjacency will wrongly predict that (28.b) is grammatical since the movement of the PP has crossed only one cyclic node, the NP.

These examples might be compared to other examples where the movement of elements out of AP's is possible in both languages. In Arabic *wh*-phrases that originate in PP's within predicative AP's can move to the beginning of the sentence as is seen from (29.a) of structure (29.b).

(29.a) maᶜa man kaana muhammad-un kariim-an?
with who was Muhammad-nom generous-acc
(who was Muhammed generous with)
(29.b) s̄[Comp[maᶜa man] s[kaana muhammad-un AP[kariim-an PP[*t*]]]]

In English, *wh*-elements can be extracted out of AP's too. This is seen in (30.a) and (31.a) of structures (30.b) and (31.b) respectively.

(30.a) on what was John dependent?
(30.b) s̄[Comp[on what] s[was John AP[dependent PP[*t*]]]]

(31.a) what was Bill sure of?
(31.b) $\bar{s}$[Comp[what] s[was Bill AP[sure PP[of t]]]]

In all these cases the *wh*-movement has not crossed more than one cyclic node; the S. But it may be noticed that the possibility of extraction from predicative AP's is limited only to AP's to which verbs are subcategorized, i.e. AP's dominated by VP. AP's which do not branch from VP's do not allow movement of elements out of them. This can be seen from the ungrammaticalness of the following sentences borrowed from Koster (1978:83).

(32.a) John looked at her, full of excitement
(32.b) *what did John look at her, full of?
(32.c) *of what did John look at her full?

Sentences (32.b) and (32.c) are ungrammatical although the *wh*-element in (32.b) has moved over only one cyclic node; the S. The same is true of (32.c) where the *wh*-phrase has moved over one cyclic node; the S. The movement in these two sentences is blocked though, in spite of the fact that it abides by subjacency.

4.1. The two sets of facts in the previous sections seem to direct us away from subjacency and towards suggesting another interpretation of the restrictions that govern movement. Subjacency, which has not only shown that it it is too strict in some cases, has been found to be too lax in some other cases. The above discussion has revealed that in two unrelated languages as Arabic and English are, there are cases of acceptable movement that should have been blocked by this principle on the one hand, and on the other, there are cases of blocked movement that is allowed by it.

In reviewing the above cases we can see that only the second type of counter-examples to subjacency (i.e. those where subjacency appears to be too lax) poses real problems to this principle. Those are the cases of the impossibility of preposition stranding in Arabic, and its marked nature in English discussed in section (3.2); the impossibility of moving elements outside nominalization structures in Arabic, in analogy to the same process in corresponding sentential structures, in (3.3); the impossibility of moving elements from an AP that is within a NP outside this NP in Arabic and English; and the impossibility of moving elements from an AP in English, except in cases of predicative AP's branching from a VP, in (3.4).

All this suggests that the major categories such as *NP*, *PP*, and *AP* function as islands which elements cannot cross when moved. That is, except for some highly marked processes, major categories block the movement of elements outside their boundaries. But entertaining this suggestion necessitates the consideration of two things: the various aspects of change in our outlook toward

the constraints of movement; and the exceptional cases that were dealt with above and which caused the giving up of subjacency, and those that may arise with the postulation of this alternative basis for the constraint on movement.

4.2. The first question that arises in this connection is whether or not subjacency can be retained by extending the concept of cyclicness to all major categories. If categories other than NP and S were taken to be cyclic, then all cases in which movement was blocked without violating subjacency in its older definition, as in (1), will now be explained as violations of this principle. The unacceptability of the movement will be correctly predicted. This will explain blocking the movement of *wh*-elements out of PP's in Arabic and English exemplified in (19), (20), (22.a), (23), and (24), because PP will be a cyclic node and the movement would have to be over two cyclic nodes: the PP and S.

But preposition stranding, allowed in English, will constitute a problem now. The movement of *wh*-elements from PP's that branch from a VP will violate subjacency, which will now wrongly predict the ungrammaticalness of (17) and (18). Nor will this extended version of cyclicness be able to explain why no extraction is possible in Arabic of elements outside nominalization structures, as in (26.b), in spite of the fact that this movement abides by subjacency i.e. the element crosses ONE cyclic node; the NP.

Analogically, this version of subjacency will wrongly predict the possibility of moving elements outside PP's in either language to the left or right of the PP. This is impossible as is seen from (33.a) and (34.a) of structures (33.b) and (34.b) respectively.

(33.a) *sir-tu al-tariiq-i fii
walked-I def-way-gen in
(I walked in the way)
(33.b) s[s[sir-tu NP[al-tariiq-i] PP[fiii *t*]]]
(34.a) *John met her the park in
(34.b) s[s[John met her NP[the park] PP[in *t*]]]

This version of subjacency will, of course, account for the unacceptability of sentences in Arabic and English that exhibit movement of *wh*-elements outside AP's that are not dominated by VP, as in (32.b), since this movement will have to cross two cyclic nodes; the AP and the S. But this will render the movement of *wh*-elements from AP's dominated by VP ungrammatical because it violates subjacency, a wrong prediction evidenced in the grammaticalness of sentences (30.b) and (31.b). This discrepancy in the behaviour of movement from AP's is noticed in Dutch too. Koster (1978) presents evidence from Dutch that although PP's can precede the AP's that they branch from when these are dominated by VP, this movement is not possible in sentences where the AP

is outside the domination of the VP, as in (35.b) from (35.a), borrowed from Koster (1978:84).

(35.a) Bill heeft [ziek *van epwinding*] naar haar gekeken
Bill has sick of excitement to her looked
(35.b) *Bill heeft *van opwending* [ziekt *t*] naar haar gekeken

The essential question that is asked here is how justified is our assignment of cyclicness to all major categories. PP's and AP's do not exhibit the richness of structure existent in S and NP in either Arabic or English to ascertain of this property in them. And it is doubtful whether further research will arrive at any definite answer to this question.

On the other hand, the general property that these categories share and which seems to account for the similarities on their syntactic behaviour is that they are the maximal projections of the basic lexical categories. Within $\bar{X}$ — theory, that has succeeded in accounting for these cross-categorial similarities, they are X^n's (cf. Jackendoff 1977). The maximal projection of N is NP; of P is PP; and of A is AP. The maximal projection of V is $\bar{S}$, and not VP as was suggested in the earlier literature in the theory (for arguments for such consideration, cf. Jackendoff (1977:Ch. 2)).

The four major categories, namely $\bar{S}$, NP, PP, and AP are to be considered the categories that bound movement in both Arabic and English. I shall hypothesize that if movement takes place, it will have to be restricted to the boundaries of these categories. The new constraint on movement can be tentatively formulated as follows:

(36) In a structural configuration of the form
$[\ldots Y \ldots_a [\ldots X] \ldots_a \ldots Y \ldots]$
No rule can move the element X which is in the category a to position Y if a is X^n.

This condition will account for a variety of cases that could not be handled by subjacency in what I feel to be a more uniform treatment. In the following sections I shall deal with the various aspects of movement that were discussed before so as to see how this condition will fare.

4.3. This condition will explain the ungrammaticalness of preposition stranding in Arabic evidenced in (19) and (20), since the *wh*-element will cross a bounding category; the PP. Condition (36) will therefore provide the correct prediction. The impossibility of preposition stranding in French and Italian (referred to in section (3.2)) will receive a similar explanation.

The facts of English, however, are not always in accordance with this condition. As was mentioned in section (3.2), preposition stranding in English is possible only in PP's that branch directly or indirectly from a VP. Extraction

from a PP-complement of a subject-NP is not possible as in (4). Nor is it possible from time or place PP's that branch from S (or PredP) as in (23) and (24), or from extraposed PP's that have moved out of their VP-dominated original source to, probably, direct daughterhood of S as was seen in (22.a). The impossibility of extraction follows from the bounding condition directly.

However, the possibility of extraction from PP's that branch from VP directly or indirectly (i.e. PP-complements of object-NP) poses a problem to this condition. The extraction, which is in violation of this condition is still acceptable. Hernstein and Weinberg (1981) present a solution to this problem by motivating, on independent grounds, a general process of reanalysis in English (referred to above) which involves the VP. They propose that "in the domain of VP, a V and any set of contiguous elements to its right can form a complex V." This process has the form of (37).

(37) V → V* (where V c-commands all elements in V* (cf. Hornstein and Weinberg 1981:60)

Reanalysis applies in the base and precedes all transformations. Thus a structure like (38.a) may be reanalysed as (38.b),

(38.a) $\bar{s}$[s[John VP[v[bought] a fur coat PP[for Mary]]]]
(38.b) $\bar{s}$[s[John VP[v[bought a fur coat for] Mary]]]

and a structure like (39.a) may be reanalysed as (39.b).

(39.a) $\bar{s}$[s[Bill VP[v[bet] everything PP[on wh]]]]
(39.b) $\bar{s}$[s[Bill VP[v[bet everything on] wh]]]

The movement of the *wh*-element in (39) is now in accordance with the bounding condition since there is no bounding category to cross. At the stage where the *wh*-movement applies to move the *wh*-element from its position to the Comp position at the beginning of the sentence, there is no PP node to block it because has been reanalysed and the derived structure does not contain a PP branching from VP; it has been erased.

In this light, sentences (17) and (18) will not pose any problem for the bounding conditon. The underlying structure of these two sentences, before reanalysis or any transformation have applied, is (17.b) and (18.b) respectively.

(17.b) $\bar{s}$[s[Mary VP[v[put] her suitcase PP[on wh]]]]
(18.b) $\bar{s}$[s[John VP[v[confided] PP[in wh]]]]

Reanalysis may apply here changing (17.b) to (17.c) and (18.b) to (18.c).

(17.c) $\bar{s}$[s[Mary VP[v[put her suitcase on] wh]]]
(18.c) $\bar{s}$[s[John VP[v[confided in] wh]]]

The *wh*-movement will not violate our condition now. There is no bounding PP

node in the movement path. The movement will give us structures (17.d) and (18.d).

(17.d) $\bar{s}$[comp[what] s[did Mary vp[v[put her suitcase on] *t*]]]
(18.d) $\bar{s}$[comp[who] s[did John vp[v[confide in] *t*]]]

Reanalysis will also explain why (21) is grammatica. !though it constituted an apparent violation of the bounding condition. The deep structure of (21) is (21.b).

(21.b) s[s[they vp[v[steal] np[a picture pp[of wh]]]]]

Reanalysis may apply to change this into (21.c).

(21.c) $\bar{s}$[s[they vp[v[steal a picture of] wh]]]

The movement of the *wh*-element now, will not cross a bounding node since the boundaries of PP are creased, and therefore the movement is in accordance with the bounding condition.

The impossibility of extraction from PP's that are not daughters of VP, or related to it in any way — i.e. c-commanded by V — is explained by this addition to our mechanism, because these PP's are not affected by the reanalysis process. Therefore, to move any element from them will be moving it over a bounding node; the PP, which is rightly predicted by our condition to be ungrammatical. This is the case in (22) where the PP *of wh* has been extraposed and is no longer under the domination of the VP; and in (23) and (24) in which the PP's are not generated within the VP; and in (4) where the PP is dominated by the subject-NP.

4.4. The bounding condition will also account for the ungrammaticalness of moving NP's from nominalization structures in Arabic. Sentence (26.b) is ungrammatical although the movement involves crossing one cyclic category — the NP, and subjacency would predict the possibility of such movement. Yet, according to the bounding condition this is inadmissible since the NP that comes directly after the verb in (26.b) has moved there from within the subject-NP, crossing a bounding node; the NP. This prediction is born out.

4.5. Movement outside the boundaries of $\bar{S}$ presents the first case of violation to the bounding condition. This is a case of a major category — the maximal projection of V — that allows elements to cross its boundaries. Both Arabic and English allow the movement of *wh*-elements from within embedded clauses to the beginning of the matrix clause as was exemplified in (9) and (10). However, it should be remembered that this unbounded movement is different from the more general clause-bound movement of *wh*-elements. It is highly marked, in that it is not a process found universally. In addition, it exhibits a

different mode of movement, since the movement of *wh*-element is not achieved in one step, but rather, in a succession of movement steps, as was proposed by Chomsky (1977). The first step is the movement of the *wh*-element to the Comp of $\bar{S}$ in which this element originates. Then we have a Comp-to-Comp movement, in which we move the element to the next Comp position in the hierarchy up to the highest Comp, as was mentioned in section (2.1). and e.

This Comp-to -Comp movement is unbounded since it crosses a major category; the $\bar{S}$, and therefore it is not allowed by the bounding condition. In its present formulation, the condition allows no movement outside the boundaries of a major category. The above facts call for a modification in the following form to be added to (36).

(40) 'unless *a* is Comp'.

In (9) and (10), the first step movement—i.e. the movement of the *wh*-element to the Comp of $\bar{S}_2$ — is clause-bound, and the provision above will allow the second step movement — i.e. the movement from Comp of $\bar{S}_2$ to Comp of $\bar{S}_1$ — since *a*, the position that the element moves from, is Comp.

4.6. The ungrammaticalness of sentences exhibiting extraction of elements from AP's in English can be readily explained by the bounding condition. These sentences posed a problem for subjacency. The cyclicness of the AP has never been established, and so there was no reason why the movement of elements out of it should be blocked. Taking AP as the maximal projection of the lexical category *Adjective* will give it the status of a major category that bounds movement. The ungrammaticalness of such sentences will be predicted by the bounding condition since movement will have to cross a bounding node; the AP.

In one of these sentences a PP has moved out of an attributive AP to the end of the sentences (cf. sentence (28.b)). As was mentioned in section (3.4), subjacency will wrongly predict the grammaticalness of this sentence since the moved PP will not have moved over more than one cyclic node; the NP. At the same time, this sentence cannot constitute good evidence for the bounding nature of AP. The bounding condition will block the movement of the PP even if the AP were not a bounding category, since the AP in this sentence branches from a NP. The movement of the PP, not only crosses, the AP, but also the NP. One can claim, and not be wrong, that what blocked it is the crossing of the NP, which is a bounding node.

However, we find sentences in English that show impossible extraction from AP's. These are cases of AP's that are not under the domination of VP as in sentences (32.b) and (32.c). Here, neither preposition stranding nor movement of the whole PP is possible. Subjacency is unable to explain this since there is no cyclic node involved at all. On the other hand, the bounding

condition rightly predicts the impossibility of this movement since an AP is a major category that bounds movement.

Sentences like (30.a) of structure (30.b) are still problematic. The extraction from the AP is possible in it, and does not result in ungrammaticalness as predicted by the bounding condition. What is interesting about this sentence is the fact that the extraction is from a predicative AP that branches from VP. The reanalysis process may be at work in such structures and, as a result, these structures will meet the requirement of the bounding condition that there may not be a bounding node in the movement path. (37) will reanalyse the structure of the VP in (30.a) so that the verb will encompass all the contiguous elements to its right except for the PP. The structure of (30.a) will be like (30.c) after reanalysis applied.

(30.c) s[s[John VP[V[is dependent] PP[on wh]]]]

This will make it possible for the PP to be extracted and moved to the beginning of the sentence. The derived structure of (30.a) will be (30.d) rather than (30.b) after *wh*-movement has applied.

(30.d) s[Comp[on what] s[is John VP[V[dependent[*t*]]]]

In the deep structure of (31.a), which poses a similar problem to the bounding condition as that of (30.a), reanalysis applies to form a complex verb with new boundaries including everything to the right of the verb except for the *wh*-element. After reanalysis, the structure of (31.a) will become like (31.c).

(31.c) s[s[John VP[V[was sure of] wh]]]

Now the movement of the *wh*-element to the beginning of the sentence will not cross any bounding node and the bounding condition will rightly predict the grammaticalness of the resulting sentence. As such, the derived structure after *wh*-movement has applied will be (31.d) in stead of (31.b).

(31.d) s[Comp[what] s[was John VP[V[sure of] *t*]]]

The facts of extraction from AP's in English seem to follow from the same principle if the general process of reanalysis is adopted. Thus the violations of the bounding condition are only superficial and can be explained readily.

The syntactic behaviour of AP's in Arabic is more complicated than that in English. It seems to cast doubt on the bounding nature of the category AP. Some instances of blocked movement from AP were mentioned above — see sentence (27.b) — but it is noticed that these were cases of movement from AP's dominated by NP. These would not constitute any real evidence for the bounding nature of the AP in Arabic since the movement of elements to the beginning of the sentence or to the left of the dominating NP will have to be

over the NP node whose bounding nature is not in dispute. What is blocking the movement is not the AP; rather, it is the NP node. This can be seen from the fact that movement outside predicative AP's, which branch from a VP, is possible and results in grammatical sentences as in (29.b). This movement should have resulted in an ungrammatical string of the AP were a bounding node.

Two possible accounts offer themselves in answer to this problem. Either we motivate a process of reanalysis for Arabic similar to the one motivated for English, or we restrict the 'bounding property' to only three of the major categories; S̄, NP, and PP. These possible alternatives will be discussed below.

The first alternative seems untenable for accounting for the facts of Arabic. In English, the contexts where extraction from AP is possible, are limited to those where the AP is dominated by VP in the deep structure. The reanalysis process, in effect, erases categories and constituents by conflating structures. When the constituent AP is thus 'decomposed' the bounding condition will be met and its prediction is right. However, the decomposition of constituents takes place only where the old boundary of another constituent is extended so as to include the new material whose categorial status has been demolished. This new material has to be comtiguous to the old boundary of the extending constituent and be c-commanded by it, as was stated in Hornstein and Weinberg (1981). The cases where the extraction from AP is possible in English conform to this requirement. In brief, reanalysis can be seen as a process of readjustment of the internal structure of a major constituent; the VP in our case.

In Arabic, however, the extraction is not limited to this context.[7] Even if we could motivate some similar process of reanalysis for sentences like (29) where it can be maintained that the AP is contiguous to the V, this won't do for sentences like (41) of structure (41.a).

(41) bi-ma jaa?a-nii muhammad-un ?ams-i farih-an?
in-what came-me Muhammad-nom yesterda-gen happy-acc
(what did Muhammed came to me yesterday happy about)

(41.a) s[$_{Comp}$[bi-ma] s[$_{V}$[jaa?a-nii] $_{NP}$[muhammad-un]$_{Advp}$[?ams-i] $_{AP}$[farih-an *t*]]]

The AP in this sentence is not contiguous to the verb and is separated from it by material of various categorial nature in the structural hierarchy of the sentece. Moreover, the AP cannot be convincingly argued to be a sister of V, i.e.

[7] Reanalysis cannot be motivated for Arabic even in those cases of extraction from AP's that branch from VP since no preposition stranding is possible. If there were such a process, then one of the possible outputs is a structure in which the V includes the adjective and the preposition, and will thus allow preposition stranding.

branching from the same node that the V branches from. In Bakir (1979) it was argued that this AP is related to the NP *muhammad-un* in this sentence, and that it has been extraposed to the end of the sentence as can be seen from the occurrence of the AdvP *ʔams-i* between them. The occurrence of the AdvP is also indicative of the place the extraposed AP is attached to — under direct domination of S. If the movement of the *wh*-phrase here is to be explained in the same fashion, then we would be facing not reanalysis, but some structure-building process since what is involved is not the internal structure of a constituent. Rather, it is the assignment of a category label and a constituent status to some unrelated and discontinuous constituents, which is inadmissible in our theoretical framework, even if we relax the requirement that the head of the extending category should *c*-command the material included within the new boundaries.

The other alternative available to us is not to consider the AP a major category — i.e. the maximal projection of Adjective. The 'boundingness' of the AP is crucially related to the decision that we may arrive at as to what constitutes the maximal projection of Adjective. This does not only concern the categorial status of the AP, but also raises the question of the constituency of the AP.

Without going into the details, which are beyond the scope of this paper, it can be simply mentioned that there is no obvious compelling reason to suspect the constituency of the AP in Arabic, nor are we aware of any attempt in the literature to assign another category as a candidate for the maximal projection of the Adjective, on par with the other major categories discussed above. We should look elsewhere for the explanation of the problematic cases at hand.

Looked at from a more general point of view, one can see the resemblance of this 'unbounded' movement to a similarly unbounded movement of *wh*-elements in complex sentences, mentioned in sections (2.1) and (4.5). We may suggest here, that in analogy to $\bar{S}$, the AP contains an 'escape hatch', a landing site for those elements of an AP that are to be preposed to the beginning of it. This is a position identical to the Comp position in $\bar{S}$. And like Comp, it can be used as a temporary landing site for those elements that are to move upwards outside its boundaries.

Within this analysis, a sentence like (41) will have the following history of derivation.

(41) (a) $\bar{s}$[s[jaaʔa-nii NP[muhammad-un AP[farih-an PP[bi-ma]]] AdvP[ʔams-i]]]

(b) $\bar{s}$[s[jaaʔa-nii NP[muhammad-un] AdvP[ʔams-i] AP[farih-an PP[bi-ma]]]] (extraposition)

(c) $\bar{s}$[s[jaaʔa-nii NP[muhammad-un] AdvP[ʔams-i] AP[[b-ma] farih-an [*t*]]]] (first movement)

(d) $\bar{S}$[Comp[bi-ma] s[jaa?a-nii NP[muhammad-un]AdvP[?ams-i] AP[[t] farih -an [t]]]] (second movement)

After extraposition applies, moving the AP to the rightmost position in the sentence, the *wh*-phrase moves to the beginning of the AP, to a position which may be called 'AP-Specifier', in analogy to Comp which is a 'specifier' of $\bar{S}$. In the next step, the *wh*-phrase moves from this position to the Comp of $\bar{S}$ at the beginning of the sentence.

This two-step movement that is allowed in AP's necessitates a further modification of the bounding condition. In its present shape, it does not allow any unbounded movement, except, of course, from $\bar{S}$, which both language show. In addition to this, Arabic allows it in AP's and hence the need for another provision.

The symmetry noticed in the behaviour of $\bar{S}$ and AP in Arabic can be neatly captured within $\bar{X}$-theory which distinguishes between $\bar{S}$ and AP on the one hand, and NP and PP on the other, in that while the former are specified as [+V], the latter ar specified as [−V] (cf. Jackendoff 1977). The bounding condition can now be further modified with the following provision, replacing (40).

(43) 'unless a is Comp in English, and[n] [+V] in Arabic'.

Admittedly this is an open-ended provision in the sense that the specification of the exceptions will be language-dependent. That is, we seem to devise a provision of a certain specification for each individual language. But this should not cause any worry since it is just these exceptions that are language-specific. The bounding condition, on the other hand, is a language universal belonging to the language faculty of the human being, and different anguages part from it in certain marked cases which constitute part of the learning lead when learning this or that language.

4.7. The only major exception to the bounding condition comes from cases of extraposition. This right-ward movement may involve crossing the boundaries of bounding categories. As such, this movement of elements will violate the bounding condition. We may recall, for instance, the extraposition of relative clauses and *that*-clauses from NP's in English, the extraposition of PP's from NP's in both Arabic and English, and the extraposition of AP's and participial phrases from NP's in Arabic — i.e. phrases that function as *haal* in NP's.

Beside the fact that extraposition is a right-ward movement, while *wh*-movement and NP-movement are left-ward movement, extraposition exhibits other idiosyncracies that set it apart from common-core movement processes. Extraposition seems to be constrained by some semantico-syntactic features, while no such constraint may restrict the movement of NP's or *wh*-elements.

It also seems not to obey the requirement on movement rules that the moved element — i.e. the antecedent — must asymmetrically *c*-command its trace (cf. Chomsky 1980), since in so many cases extraposition destroys this relationship (cf. Koster 1978:55).

In addition to the above, there is evidence from Arabic that extraposition has to precede *wh*-movement since it feeds it. This was discussed in the case of movement of *wh*-phrases that originate within a PP dominated by NP (cf. sentence (12)), where it was shown that the possibility of *wh*-movement is dependent on the extraposability of the PP from the NP. This is strong evidence against the arguments that extraposition is a stylistic rule that follows the core rules such as 'move NP' 'or move wh' (cf. Chomsky 1980).

Therefore, if extraposition is to be considered a core grammar transformation, then it needs to be distinguished from the class of other movement rules that obey the formal requirements mentioned above. It also follows that the notion of order among transformations be re-introduced into the mechanism with all its theoretical implications. Yet a third proposal for the analysis of extraposition is suggested in Koster (1978:33) in that extraposed structures are base-generated. The suggestion was not made in sufficient detail, so we do not think we are in a position to comment on it. Naturally, within this proposal the extraposition phenomenon will not be relevant to the discussion of the validity of the bounding condition.

All this suggests that until a more definite proposal is made concerning the analysis of extraposition, one cannot take evidence from it to present good argument for or against the bounding condition. This might have the effect of somewhat weakening the generality of the adherence to this condition by the various classes of movement rules. Nevertheless, it does not affect its government of the class of well-established movement rules that constitute the core of the transformational component of the grammar of human language.

5. The above discussion has shown that the adoption of the alternative condition on movement rules, the bounding condition, is more observationally adequate than the retention of subjacency. The argument for the adoption of this condition is made stronger by the fact that cross-linguistically, this condition has been found to be more accurate than subjacency in a number of cases that constituted problems for the latter principle, but were readily explained by the former. We may also make the conjecture as to the preference of the bounding condition on grounds of descriptive adequacy. While subjacency appeals to a special feature that certain categories are specified with, i.e. cyclicness, concerning the application of transformations, the bounding condition stems from the essential fact that certain categories bound movement by virtue of the identity of their categorial status, a fact that follows naturally from the general statement of phrase structure rules within $\bar{X}$-theory.

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THE INTONATION OF QUESTIONS IN ENGLISH AND ARABIC

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1. *Introduction*

Intonation is a phonological feature of spoken languages. It is manifested as variations in pitch, i.e. it is the systematic rise and fall in the pitch of the voice throughout the utterance produced by continuous adjustment of the vocal bands in the larynx. But each language uses pitch variations in its own way. As O'Connor and Arnold (1972:1) put it: "The pitch patterns or tunes of English are not necessarily the same in form as those of other languages, though there may be resemblances here and there. This being so, the pitch patterns of any other language may, and very often do, sound wrong if they are applied to English, and give rise to difficulties in communication". Patterns of pitch variation are used to produce recognizable grammatical and semantic distinctions; utterances different only with regard to intonation are usually different in meaning. Thus in English and in Arabic a distinction is marked between (1) *Statement - of - fact* and (2) *surprise*, depending on the intonation pattern used in, say,

'The prisoner escaped
'ʔassajiinu hārāb'., viz:

1. The 'prisoner es`caped	(Fall on the last
ʔassa'jiinu `hārāb	stressed syllable).
2. The 'prisoner eścaped!	(Rise on the last
ʔassa'jiinu ́hārāb!	stressed syllable).

The first example is understood as a statement of the fact in both English and Arabic, whereas the second example is an expression of surprise at learning the fact. Note that the words as well their sequential order are the same in 1 and 2: the differences in meaning are due to differences in intonation.

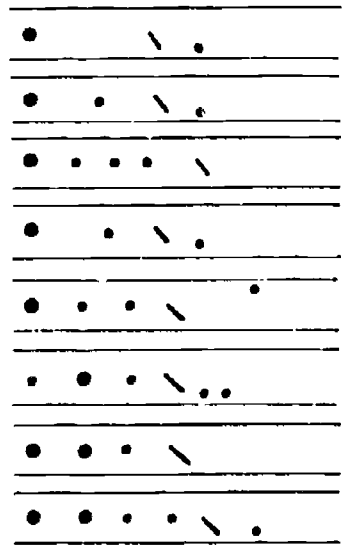
2. *The intonation of questions in English and Arabic*:

2.1. *Wh-questions* (Information questions)

2.1.1. *The Fall.*

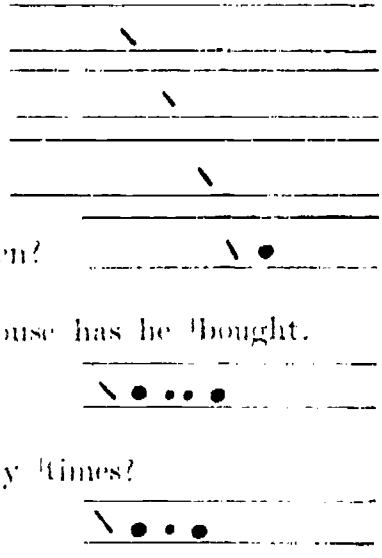
In English and Arabic, *wh*-questions (in the context of first mention) are usually said on a falling intonation tune. Compare the following English examples with the Arabic equivalents.

1. ˈWhere's ˋLinda?
   ˈʔayna ˋlinda?
2. ˈWhen did he arˋrive?
   ˈmataa ˋwāṢāl?
3. ˈWhy did she ˋgo?
   liˈmaaḍaa ˋdahabat?
4. ˈWho ˈate the ˋSweets?
   ˈman ˈʔakala ˋlḥalwāā?



These examples show that information questions in English and Arabic exhibit similar intonation patterns. However, each of the two languages uses patterns of falling intonation to express shades of meaning which are not quite the same in the other language. In English, a low fall on a *wh*-question expresses, a 'detached, flat, unsympathetic, even hostile attitude' (O'Connor and Arnold (1972 : 106)). For Example:

5. You mustn't see her again. ˩Why?
6. Do it at once. ˩How?
7. They're coming. ˩When?
8. Give me the pen. ˩Which ˈpen?
9. He's bought their house. ˩Whose ˈhouse has he ˈbought.
10. I've seen her several times? ˩How ˈmany ˈtimes?



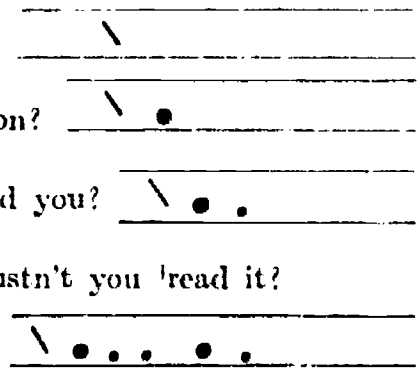
But on a high fall, English *wh*-questions are 'brisk, businesslike, considerate, not unfriendly, lively, interested'. (O'Connor and Arnold (1972 : 125)). For instance,

11. They're coming. \When?

12. He'll be back soon. \How ˈsoon?

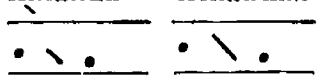
13. They told me she left. \Who ˈtold you?

14. I mustn't read this letter. \Why ˈmustn't you ˈread it?



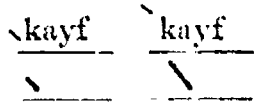
Now, to determine the meaning of Arabic *wh*-questions said a low/high falling tune, twenty-one professors of Arabic teaching in two Jordanian universities were interviewed individually (and in small groups) and presented with five 'contextualized' *wh*-questions said on a low fall first and then on a high fall viz:

i. A. Yajibu ʔan laa tārāāhāā
θaaniyatan



B. limaadaa?
A. 'You mustn't see her again'.
B. 'Why?'

ii. A. sanuθaaliju haadihi lmuškilah.

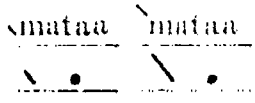


B. kayf?

A. ˈWe shall deal with this problem?

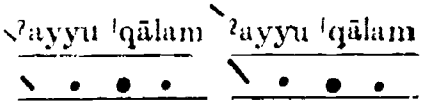
B. ˈHow?

iii. A. ʔāDDuyuufu qāādimuun
B. mataa?
A. 'The guests are coming'.



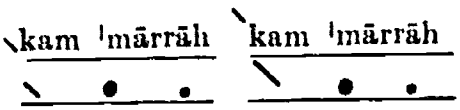
B. 'When?'

iv. A. naawilni lqālam.
B. ʔayyu qālam?'



A. 'Hand me the pen'.
B. 'Which pen?'

v. A. zāārānaa 9iddata mārrāāt.
B. kam mārrāh?



A. 'He visited us several times'.
B. 'How many times?'

The 21 professors of Arabic (without exception) interpreted the *wh*-questions said on a low-fall simply as ordinary questions, not at all impolite or hostile, but perhaps expressing a measure of lack of interest or involvement.

On the other hand, the high-falling *wh*-questions were interpreted as expressing a high degree of interest or involvement approaching the level of objection, denial, disbelief, suspicion, and resentment.

These results are interesting because they suggest that although both Arabic and English use falling intonation with *wh*-questions, yet they seem to associate opposite attitudinal meanings with the low-fall/high fall in this context. Thus the low-fall in English is flat, unsympathetic even hostile as mentioned above, but rather ordinary, not at all impolite or hostile in Arabic. The high fall in English is businesslike, brisk, considerate, not unfriendly whereas in Arabic it expresses a high degree of involovement plus a measure of objection, denial, suspicion and resentment.

This contrast apart, the speakers of both languages employ similar falling patterns of intonation with *wh*-questions to much the same effect.

2.1.2. *The Low Rise*

When the nucleus is the interrogative word, this tune is used in English and Arabic to express puzzlement (Cf. O'Connor and Arnold ibid:64), and/or to make the interlocutor repeat some information given in a previous utterance. Consider:

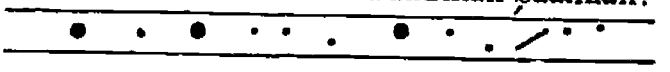
i. A. ʔalmuˈdiiru fii ˎ9umāān
ˈThe diˈrector is in ˎOman.ˈ

B. ʔayn ? Where

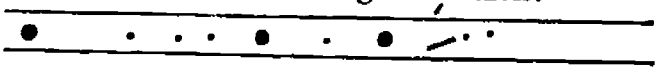
In echoed questions, the low rise signals disapproval of the question being asked (Cf. O'Connor and Arnold: ibid). Example:

ii. A. ˈmataa tuSbiħu muwāāTinan Sāāliħan?
ˈWhen will you become a good citizen?.

B. ˈmataa ˈʔuSbiħu muˈwāāTinan Sāāliħan?



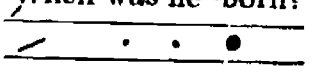
ˈWhen will I beˈcome a ˈgood citizen?



This tune is also used in English and Arabic when one repeats a question asked by another person (Cf. O'Connor 1974 : 154). Example:

iii. A. mataa wulid?
ˈWhen was he born?
B. mataa ˈwulid? (ʔam ʔayn ?)

When was he ˈborn? (Or where?)



In this example B repeats A's question with a low rise in order to ascertain that the content of the question is as B understands it. It is as though B is saying to A: 'Is that what you want to know? is that the question? Or is it something else?'. Note that the rise begins on the question-word. (Cf. O'Connor ibid.: 155).

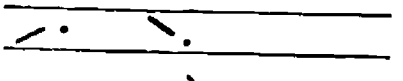
2.1.3. *The Rise-Fall/Rise plus Fall*

Consider the following examples.

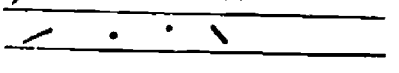
i. A. Tallaqtu zāwjatii
'I divorced my wife'.
B. limaadaa faˈ9alta `daalik?

Why did you do`that?

ii. A. ʔif9al šayʔan
'Do something.'
B. maadaa `ʔaf9al?



What can I `do?



iii. A. yumkinu taxfiiDu ttāDāxxum.
'It is possible to reduce inflation'.
B. ^kayf
^
^How'
^

As these examples show, the rise-fall in English and Arabic information questions indicates that the speaker is grumbling, protesting, skeptical, surprised at the instructions, assertions and suggestions of his interlocutor. With this tune the question betrays a challenging and antagonistic attitude.

2.1.4 *The Fall-Rise*
Consider:

i. A. man dafa9a 0amana ttadaakir?
'Who paid for the tickets?'
B. ˇman ˈdafa9
ˇ • ·
ˇWho ˈpaid?'
ˇ •

In this example A asks a question, and B repeats (part of) the question (i.e. echoes the question) to express his astonishment at such a question. By using this tune to echo A's question, B intends to tell A that the answer should have been obvious.

ii. A. satahbiTu TTāā?irātu fii māTāāri 19āqābāh.
'The plane will land at Aqaba Airport.'
B. ˇ?ayn ˇWhere?
ˇ ˇ

Again, B is astonished to hear A say that the plane will land at Aqaba Airport. The question /ˇ?ayn ?/('ˇWhere?') is meant to express a correction of the statement viz,

?ala ta9nii māTāāra 1malikah 9alyaa? ?
'Don't you mean Queen Alia Airport ?'

The two languages exhibit a remarkable congruence in this use of the fall-rise.

2.2. *Yes — No Questions*

In general, both English and Arabic use a rising tune with a Yes — No question. (Cf. Halliday (1970 : 27); O'Connor and Arnold (1972 : 50).

i. ˈhal najaht? — Have you passed?

ii. ˈhal ˈta9rifu ljawāāb? — Do you ˈknow the answer?

iii. ?afahimt — ˈHave you understood?

iv. ?ārāāgibun ˈ?ant ? — ˈAre you willing?

However, English Yes — No questions can be said on a variety of other tunes to express certain shades of meaning and attitudes which Arabic Yes — No questions do not seem to be capable of matching.

Examples are given below illustrating the fall and rise-fall on Yes — No questions.

2.2.1. *The Fall*

a. *Low Fall.* (Cf. O'Connor and Arnold (ibid.: 112-124)
Examples:

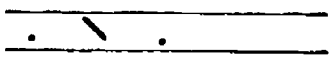
i. A. I can't come on Sunday.
B. Can you ˈcome on Thursday?

ii. A. He is intelligent.
B. Is he reliable? (That's what I would like to know).

iii. A. I can do it
B. ˈAre you sure? (Serious, urgent).

b. *High Fall.* (Cf. O'Connor and Arnold (ibid.: 125-142)).

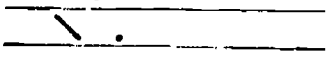
iv. A. Mary has bought the Volvo.
B. Oh `has she? ('mildly surprised acceptance of listener's premises').



v. A. Bob is hopeless.
B. Is `John ˡany ˡbetter? (Sceptical, but perhaps willing to discuss the matter).

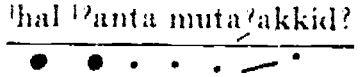
vi. A. ˡWhat shall we do with him?
B. ˡShall we ˡlet him `go? (Serious suggestion, or subject for urgent discussion).

vii. A. I am on ˡleave without pay.
B. `Are you? (uninterested)



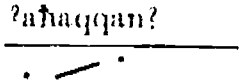
The Arabic Yes-No questions which correspond to these *rejoinders* are invariably said on a rising tune. Compare (iii) and (vii) above with (viii) and (ix) respectively.

viii. A. ʔana ʔastaTiiʕa ʔan ʔaf9alah.
'I can do it.'
B. ˡhal ˡʔanta mutaʔakkid?



'Are you sure?'

ix. A. ʔana fii ʔijaazatin bidunni raatib.
'I am on leave without pay'.
B. ʔaħaqqan?

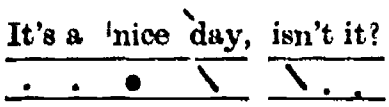


'Are you?'

2.2.2. *Tag Questions*

Tag questions are very common in English, and they serve a host of different social and interpersonal functions. For example, a falling tune on English tag-questions serves the purpose of forcing the listener to agree with

the speaker's statement. The tag in this case does not constitute a genuine question; rather, it serves the social function of, for instance, getting the other person interested and involved in a conversation. Consider:



In Arabic, question tags are extremely rare and the written language has not developed devices to signal such a structure. The most common phrase that can be used in a manner resembling English tag questions is

'ʔalaysa kaḍaalik?' '(lit) Isn't it like that?'

For example:

ʔalkiˈtaabu fi ddurj, ʔaˈlaysa kaḍaalik?
'The ˈbook is in the cupboard, isn't it?'

The Arabic tag is invariably said on a rising tune — never on a falling tune. Such a rising tag in Arabic is often, but by no means always, intended to demand agreement. But if the listener disagreed with the assertion in the speaker's main sentence, the speaker would not at all be surprised, because this Arabic device with a rising tune may indeed be construed as a genuine question. In this case (i.e. when a tag is said on a rising tune) English and Arabic are quite similar — not withstanding the fact that Arabic, but apparently not English, tends to demand of agreement. However, the English tag with a falling tune and the concomitant interpersonal and social implications remain alien to Arabic.

Consequently, most Arab students of English fail to recognize, even at the auditory level, this pattern of falling question tags, let alone pronounce them correctly. The question mark at the end of a tag usually prompts the Arab to say the tag on a rising tune; such are the conventions of Arabic. It takes a great deal of auditory training and oral drilling to make the Arab student sensitive and responsive to this type of question tags.

2.2.3. *The Rise — Fall*

Consider:

1) A. You ˈcan't ˈsit here.
   B. ^Can't we? (We' ll ^see about ˈthat). (Challenging, antagonistic).

2. A. They've ˈdone ˈvery well.
   B. ^Haven't they? (Impressed).
3. A. They should ˈcross the river.
   B. Yes but ^can they? (Challenging, sceptical).

As these examples show, English Yes — No questions said on a rise-fall are challenging and antagonistic, but can also show that the speaker is impressed. (Cf. O'Connor and Arnold (ibid.: 214). Arabic Yes — No questions are not attested on a rising-falling tune. Perhaps it is the falling end of this tune which is alien to Arabic questions. (Cf. the absence of falling tags in Arabic).

2.2.4. *Alternatives*

Both languages have similar pitch devices for eliciting a response to a question entailing alternative options. Examples:

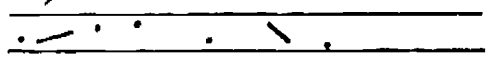
1. ʔaˈtašrābu lqahwāta ʔam iššaay?

Would you drink ˌcoffee or ˋtea?

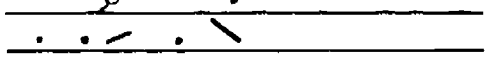
2. ˈhal ilmuˈdiiru ˌhunaa ʔam ˋlaa?

Is the diˈrector ˌhere or ˋnot?

3. ʔaˌʔadhabu ʔam ˋʔamkuθ?



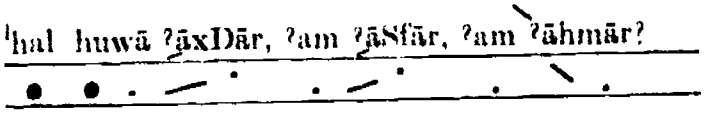
Shall I ˌgo or ˋstay?



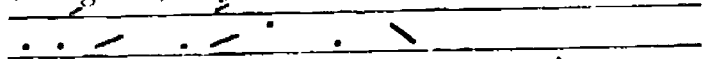
As these examples illustrate, the two languages are remarkably similar in the way intonation is used to elicit a response to a question entailing two alternatives. The first alternative is associated with a rise, the other with a fall. If there are more than two explicit alternatives, the pitch rises on each alternative except the last one where it falls in both languages. (Cf. Leech, G. and Svartvik, J. (1975 : 111)).

Consider:

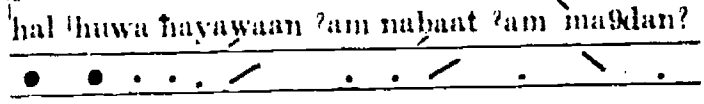
4. ˈhal huwā ʔāxDār, ʔam ʔāSfār, ʔam ˋʔāhmār?



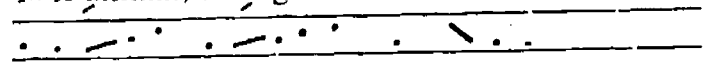
ˈIs it green, or yellow, or ˋred?



5. ˈhal ˈhuwa ḥayawaan ʔam nabaat ʔam ˋmaʕdan?



ˈIs it animal, or vegetable or ˋmineral?



Conclusion

The intonation of questions is far from being congruent in English and standard Arabic. Each language has its own patterns, which are used to signal particular meanings and attitudes. As presented above, English can do things with intonation which Arabic cannot; for instance, tags and rejoinders on a fall, or on a rise-fall.

Nevertheless, questions in the two languages do share certain patterns of intonation with much the same illocutionary force. Thus, in both languages, *wh*-questions are usually pronounced on a falling intonation, yes-no questions, on a rising intonation, and alternatives are pronounced on a rising intonation except the last one, which is pronounced on a falling intonation.

Brief reading conventions pertaining to some Arabic sounds.

1) *Consonants*:

ʔ glottal stop
θ voiceless, dental, non-sulcal fricative.
d voiced, dental non-sulcal fricative.
š voiceless, dento-alveolar, sulcal fricative.
S voiceless, dento-alveolar, sulcal, emphatic fricative.
D voiced, dento-alveolar, emphatic plosive.
T voiceless, dento-alveolar, emphatic plosive.
Ð voiced, dental, non-sulcal, emphatic fricative.
j voiced, palato-alveolar affricate.
ḥ voiceless, pharyngal fricative.
ʕ voiced, pharyngal fricative.
x voiceless, uvular fricative.
ɣ voiced, uvular fricative.
q voiceless, uvular plosive.

2) Vowels:

Each vowel symbol stands for a range of vocalic sounds of the type indicated. Long vowels are shown by doubled letters. e.g. /aa-/ stands for a long front open vowel.

i front, close, spread.
e mid, front, spread.
a front, open, neutral.
ā back, open, neutral.
o mid, back, rounded.
u back, close, rounded.

3) *Stress and intonation*:

Stressed syllable	(ˈ)
Falling tune	(\)
Rising tune	(/)
Falling-rising tune	(\/)
Rising-falling tune	(/\)

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SOME CASES OF LEXICALIZATION

BÉLA KORPONAY

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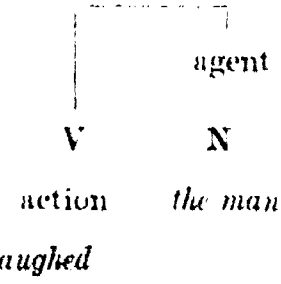
In Chafe's analysis (1970:100) sentences like *Michael ran*, *The man laughed*, *Harriet sang*, and *The tiger pounced*, contain an agent and an action word. The structural type is diagrammed like this:



Fillmore's case frame for *run* is: [— — — A]. In both analyses the patient or the objective is missing. On the other hand, some of the case-grammarians maintain that the objective (in Chafe's terminology: the patient) is the case universally present in every clause. A possible exception is represented by *It's hot in the room*, though, even in this instance, the notional subject can easily be recovered: *The temperature is hot in this room*.

In my opinion, sentences such as *The man laughed* and *Harriet sang* also contain "the semantically most neutral case" the *absolutive* (as John Anderson relabelled it in his *On case grammar*) incorporated in the verb. I note only *in passim* that in Hungarian (and in English) there is a group of denominal verbs that are analysed by grammarians as expressing the result of the action. Such are: *szól* 'speak. talk', *árkol* 'dig a ditch', *falaz* 'build a wall', *fényképez* 'take a photo', etc. The above Hungarian verbs have one of the verbalizing suffixes: *-l* or *-z*.

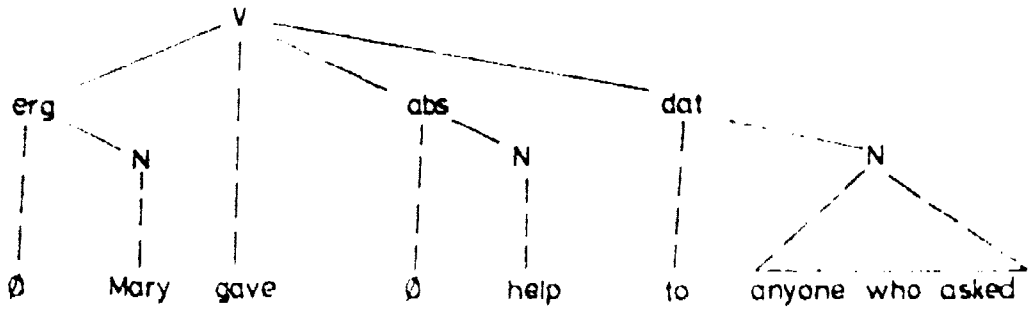
The verbalization of case categories is not uncommon in English. In John

Anderson's analysis (1971:142-146), for example, clauses with *help* and *thank* "appear to be in general similar to those containing *give* and the like, except that in their case the underlying nominative phrase is deleted, and its lexical content is 'carried' by the verb (1971:142)". Thus the clauses

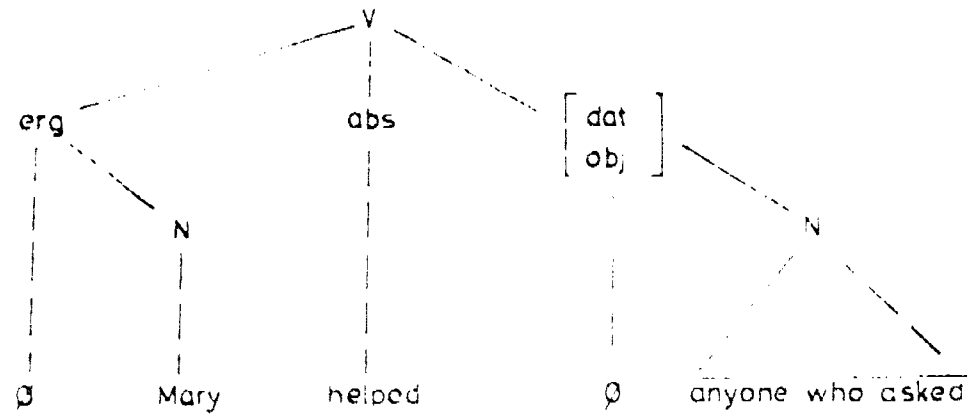
a. Mary gave help to anyone who asked, and:
b. Mary helped anyone who asked

can be diagrammed like this:

a



b



The verbalization of the absolutive (=patient, objective, nominative) is not an isolated phenomenon is English. For example, there are some signs of patterned relationships between denominal verbs and their prototypes. Verbs based on nouns denoting some part of the human body (*to finger, to paw*) and on tools and weapons (*to hammer, to knife*) will show a regularity of instrumental meaning; with nouns denoting places, buildings, containers and the like (*to bag, to garage*) the meaning of the converted verb will be locative. Verbs based on the names of substances forming the outer covering of the body of a person or an animal (*to skin*) or that of the stem or trunk of a

plant or a tree (*to peel, to bark*) or the innermost part of a living being (*to bone /a chicken/*), will express the idea "cause part to come from/out of object". The group of agentive verbs based on the names of animals (*to ape, to wolf down*) may be called metaphorical, as their meaning implies comparison (Arnold 1973:103-106).

In Clark and Clark's analysis (1979:792 ff.), there are a number of constraints imposed on the formation of such verbs: (a) The speaker must always assess his and the listener's mutual knowledge; *shelves*, for example, have at least two predominant features: "they are places that things are put on, and placeables that are put on wall. This has allowed *shelf* to establish two meanings, those in *shelve the books* and *shelve the closet*". (792) (b) The kind of situation that a denominal verb denotes must be as specific as the circumstances warrant. In *She wanted to Richard Nixon her friend* is not acceptable. "Yet change the sentence to *She wanted to Richard Nixon a tape of the damaging conversation she had had with her friend*, and it suddenly becomes more acceptable" (Clark and Clark 1979:796-797). With many denominal verbs the more specific the cirsumstance, the more interpretable the verb becomes. (c) If a potential denominal verb would be precisely synonymous with a well-established verb, is normally pre-empted by the well-established verb. Thus *to hospital* in the meaning 'put into a hospital' is unacceptable since in English we have *hospitalize* having the same meaning. Clark and Clark distinguish three sources of preemption by synonymy: suppletion, entrenchment, and ancestry. *Car* and *airplane*, for example, cannot surface as verbs since they appear to be ruled out because of the presence of the suppletive form *drive* and *fly*. *Prison the thief*, is pre-empted by the well-entrenched *imprison the thief*. Some denominal verbs are pre-empted because the parent nouns are themselves formed from verbs. Thus, while *butcher the meat* is acceptable, *baker the bread* is not. *To baker* is pre-empted by its obvious ancestor *bake*.

In one of his papers Nickel uses the term "complex verbal structure". In Nickel's wording (1968:3) we speak of a complex verbal structure "when a noun and a function verb ... combine to form a new complex verbal unit which in a given structure can be substituted for a simple verb". He gives the following example: *He looked at the castle* and *He had a look at the castle*. The constructional type can be generalized like this: function verb+determiner+deverbal noun. In most cases the determiner is *a/an*, but other types of determiner also occur: *He gave one of his loud artificial laughs* (Braine). *In the club he had more drinks than were good for him*. The definite article, as a rule, occurs in topic position: *The grin she gave with his remark nearly put Dixon right off his stroke* (Amis).

The function verbs most commonly used in this type are: *give, have, make*, and *take* (in order of decreasing frequency), but other function verbs can also occur (*The person who put a stop to it was the girl with the other man*).

The majority of the deverbal nouns in question are formally identical with the simple verb stems (*He had laughed a great deal*: *He gave a little laugh*); but other derivational processes are also possible: *He made an entry* ↔ *He entered*, and *He gave the rooms a close inspection* ↔ *He inspected the rooms closely*. In Nickel's observation (1968:6) constructions with the gerund (*I gave Gulliver's travels a re-reading*) occur with higher frequency in American English.

In Nickel's analysis (1968:8) deverbal nouns of the following semantic classes appear frequently in complex verbal structures:

i. Nouns denoting movement or rest: *to give a kick, to have a run, to make a dash, to take a step*;

ii. Nouns denoting vision (looking): *to give a look, to have a peep, to take a glance*;

iii. Nouns denoting sounds or action of speaking: *to give a lecture/a moan, to have a chat, to make a remark*;

iv. Nouns denoting the actions of cleaning: *to give a clean, to give a polish*;

v. Nouns denoting the action of drinking: *to have a sip, to take a gulp*.

The valency of the function verbs in question is different. According to Nickel's data (1968:9) *give* can combine with members of all classes except nouns denoting the action of drinking; *take*, on the other hand, can combine only with nouns denoting movement, vision and the action of drinking. All the four verbs in question can occur with nouns denoting movement or (intended) rest.

The following examples are taken from *The collector* by J. Fowels and from *Angel pavemen* by J. Priestley. For convenience's sake I keep Nickel's semantic classes. Examples for:

i. nouns denoting movement or rest:

1. a. She struggled like the dickens.
   b. We did have a bit of a struggle at the door of her room.
2. a. Mr. Smith stopped at the corner.
   b. The person who put a stop to it was the girl with the other man.

ii. nouns denoting vision (looking):

3. a. She looked at Mr. Smith.
   b. Mr. Smith gave her a look.
   c. He gave a last look, and turned away.
4. a. Various faces had peeped in at them.
   b. I'll just have a peep at them and then I want to see you Goath.

iii. nouns denoting sounds and the action of speaking:

5. a. A car sounded and drew close and went on down the lane beyond the house.
   b. She didn't make a sound.
6. a. From time to time she talked.
   b. Let's have a talk.
7. a. Another day, it was downstairs, she just screamed.
   b. I just felt a good scream.
8. a. She just laughed.
   b. Another paper gave me a good laugh.
9. a. Mr. Smith looked grave, then coughed.
   b. He cleared his throat, giving a faintly pompous little cough.

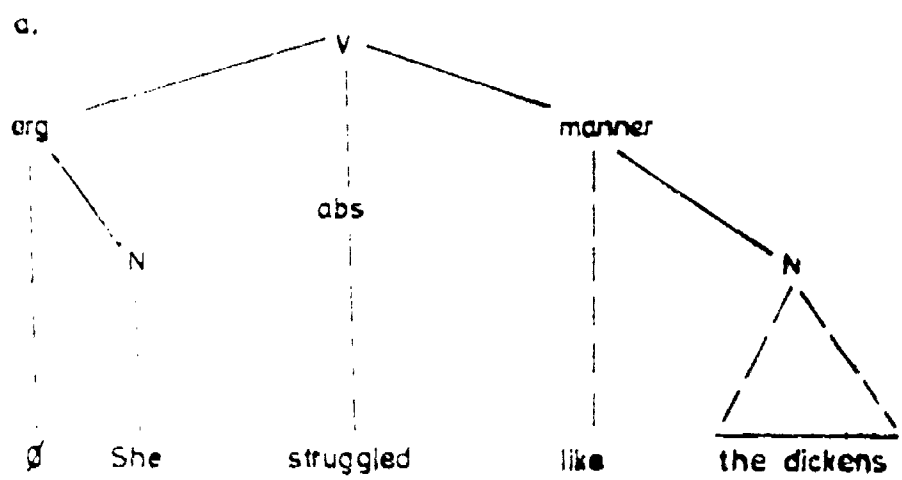
iv. nouns denoting the action of cleaning:
No example.

v. nouns denoting the action of drinking:

10. a. "I drink to you", he shouted.
    b. We had a few drinks on it, and walked out.
    c. If she had been a woman who never took a drink at all, there would have been nothing in the remark.

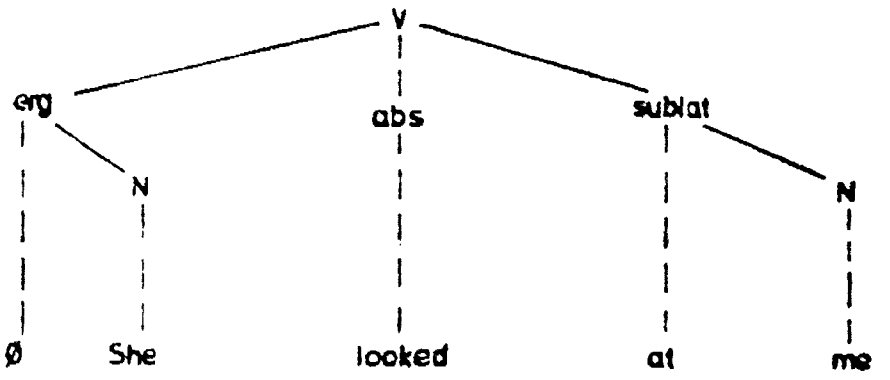
The diagrams for the above constructional types are:

a.



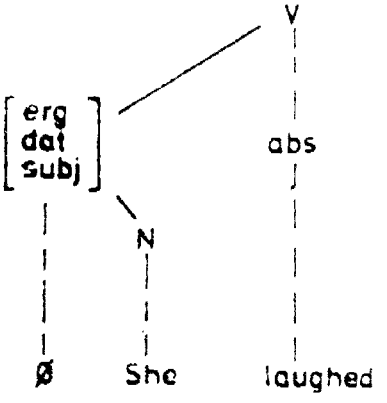
Cf. We did have a bit of a struggle.

b.



Cf. She gave me a nasty look.

c.



Cf. Another paper gave me a good laugh.

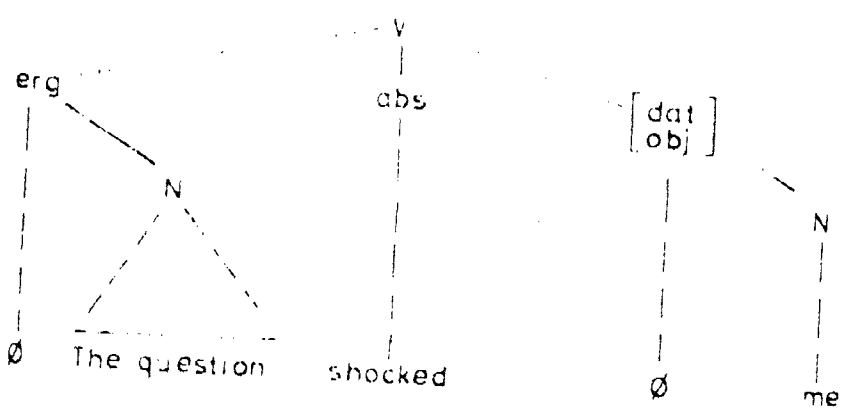
The following examples cannot be inserted into Nickel's semantic groups:

11. a. It was funny, she almost smiled.
    b. She had a smile on, the first I ever saw.
12. a. It was a question. It shocked me.
    b. I got a shock when she came out.
13. a. I promise, I swear that if you let me go I will not tell anyone.
    b. I will make a promise.
    c. I will give you my word, I said.
    d. I take your word for it, I said.

14. a. That was the first time I ever dreamed of killing anybody.
    b. I had nice dreams, dreams where I went down and comforted her.
15. a. May I trouble you, Mr. Golspie?
    b. All they do is to make trouble for honest men-fellows like me.
16. a. So they had argued, quarrelled.
    b. If he really had done that, then they would have a quarrel.
17. a. You have guessed it right.
    b. I might be able to give a guess.
18. a. Mr. Smith looked up from his book and eyed Edna severely.
    b. We had an eye on him for sometime.
19. a. Miss Mathfield coloured slightly.
    b. He never had much colour, but now he was very pale.
20. a. She didn't notice him.
    b. He took no notice.
21. a. She was tired, her head ached.
    b. He had a headache.

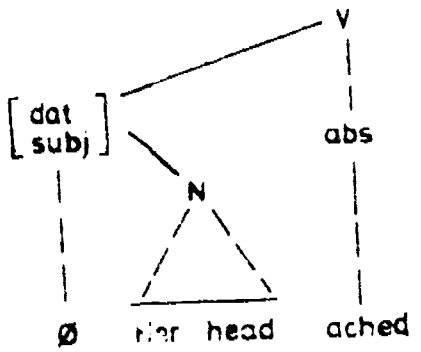
The diagrams for constructions having *shock*, *ache* or *promise* respectively, are

d.



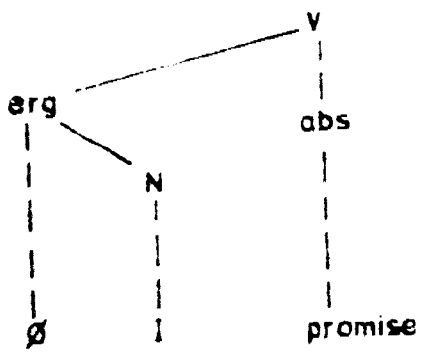
Cf. I got a shock when she came out.

e.



Cf. She had a headache.

f.



Cf. I (will) make a promise.

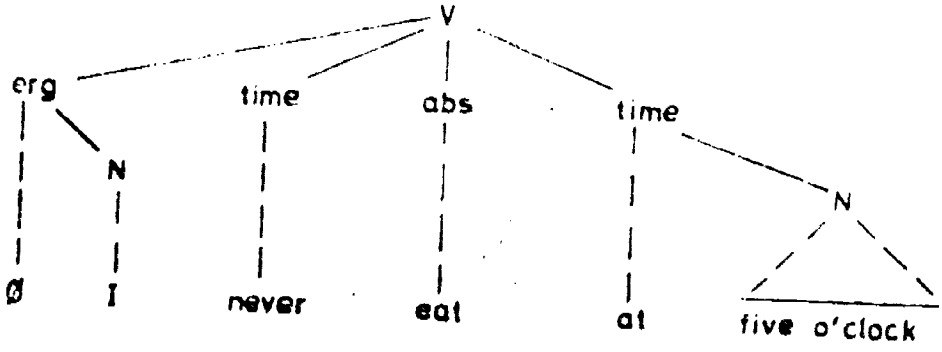
The material presented seems to support the claim that verbs such as (a) *run, struggle* (verbs of motion), (b) *look, peep* (verbs of vision or looking), (c) *sound, scream* (verbs denoting sound), (f) *promise, smile, laugh* (phatic verbs) and some others, when used in "simple" structures, incorporate an absolutive.

This phenomenon was not unnoticed by traditional grammarians; almost every textbook contains a chapter on "cognate object". These verbs are regarded a subclass of the verbs taking an object of result. They differ in taking an object identical in meaning. In this analysis there is a transformational relationship between: *He laughed a hearty laugh* ↔ *He laughed heartily*, and *He lived a happy life* ↔ *He lived happily*, the construction with a cognate object being the more emphatic.

The relatedness of verbs taking cognate objects to those occurring in complex verbal structures is shown by the fact that verbs taking a cognate object can also be used in complex structures. The following examples are taken from *On the syntax of the English verb* (1961:98-103) by Y. Olsson:

1. a. That is to say, old Billy dreamed dreams while Mrs Blake emptied the pot.
   b. She asked Julian if he thought she might have had a bad dream.
2. a. She grinned a friendly grin at him.
   b. He gave an uncertain grin.
3. a. He smiled the most exquisite smile, veiled by memory, tinged by dreams.
   b. He smiled at him with his shining teeth, and Philip, looking down, gave an embarrassed smile.

In his paper on complex verbal structures (1968 : 8) Nickel has a semantic class of verbs that he terms "verbs denoting the action of drinking": *to have a sip, to take a gulp. Eat* seems to belong to the same group. Many grammarians would say that *eat* is a transitive verb which may be employed either with an object or "absolutely", viz. without an overt object (*We never eat at five o'clock*). When *eat* is used transitively, it is taken as object denoting something edible: *We never eat caviar at five o'clock* (cf. *They fought a good battle*). The definition of *eat* in ALDCE is: "take solid food (also soup) into the mouth and swallow it". On the basis of the definition and the syntactic behaviour of *eat*, the constructional type can be diagrammed like this:



In its absolute use the verb *eat* seems to incorporate the absolutive. This is supported by the fact that expressions connected with eating (and drinking) often take the form of complex verbal structures: *They were at breakfast* (*having their breakfast*, US: *breakfasting*) *when I arrived*. In similar Hungarian constructions complex verb forms are used: *reggelizik* "he is having breakfast", *ebédel* "he is having lunch", *vacsorázik* "he is having dinner, supper". It may

be of some interest to note that the Hungarian verbs have a nominal base and are or were verbalized by means of verbalizing suffixes.

According to Quirk et al. (1972:968) one-word predicates are shunned in English, and "there is a preference for expressing simple present or past actions or states by some other, circumstantial means. For example, the verb *sang* is very rarely used as a predicate in itself, although semantically complete. We may easily say ***He sang well*** or ***He was singing***, but would rarely say simply ***He sang.***" Some of the verbs in question, however, tend to occur as one-word predicates. The following examples are taken from *The Scorpion God* by W. Golding.

a. Verbs denoting (bodily) movement or rest:
   She went and sat before her mirror as at an altar.
   The feet worked and turned.
   Nobody moved.
   Her eyes did not blink.
   The crowd walked, drifted, waded away.
   He paused, and resumed his pacing.
   The dancing stopped.
b. Verbs denoting sound:
   He snivelled and smeared.
   The shawns brayed.
   The God belched.
   The Liar whispered.
   The guests wept and laughed.
   He went, he muttered.
c. Phatic verbs:
   The Head Man smiled and nodded.
   The guests wept and laughed.
   The Prince smiled.

The term *phatic* is taken from Bronislaw Malinowski, the anthropologist of Polish origin, and is used in a broader sense; it includes verbs such as *thank* (performative) and *smile* and *nod* (communicative). Consider the following:

a. I promise (I will make a promise), I swear (I take an oath) that if you let me go I will not tell anyone.
b. I blame (I put the blame on) John for the accident.
c. He thanked (he expressed his gratitude to) me for entertaining him.

In complex verbal structures the nucleus, as a rule, is to be found in the nominal expression or — to use Nickel's formulation — the content value is expressed by the nominal phrase and the sentence value (tense, voice, aspect) by the function verb (*give, have, make, take*). There are, however, collocations such as *bribe one's way to* in which both the content value (or part of the content value) and the sentence value seem to be expressed by the (denominal) verb in the predicate position. Consider the following:

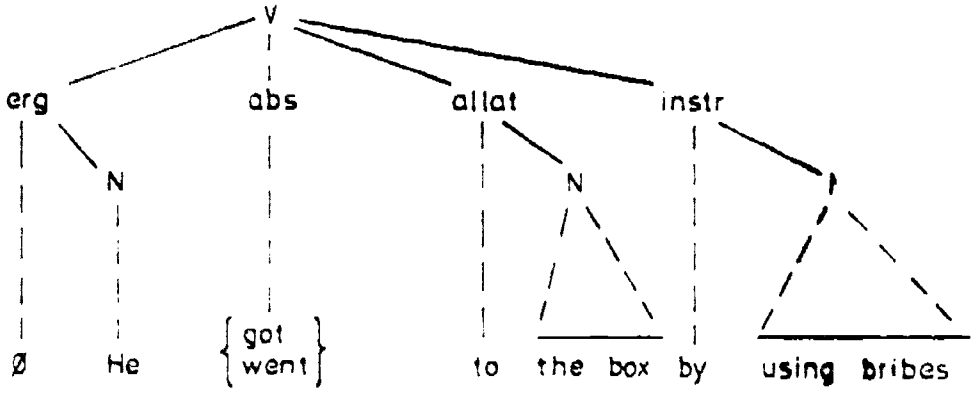
'I *am on my way* to Luc,' Querry said.
The nearest house was Owl's and to Owl's
House in the Hundred Acre Wood he *made his*
way.
The Bath coach was on the point of starting,
he *bribed his way* on to the box.
So he had gone as cook to a collection of
botanists ... He had *cooked his way* steadily
to the New Mexico border.
He *dripped his way* towards the door.
She *picked her way* gingerly round the room.
But when I got there I found it (the road)
turned to the left, and *switch-backed its way*
between spare hedgerows to a farmyard and a
cottage.
Two Salvation Army lasses, in fur bonnets,
threaded their way through the tables.
He *won his way* through the storm and followed
the right road to town.
(A) little farther on we met a big empty motor-car
snorting its way up.
The venerable science of *bathing one's way* to
fitness made unprecedented advances.

(Olsson 1961:96)

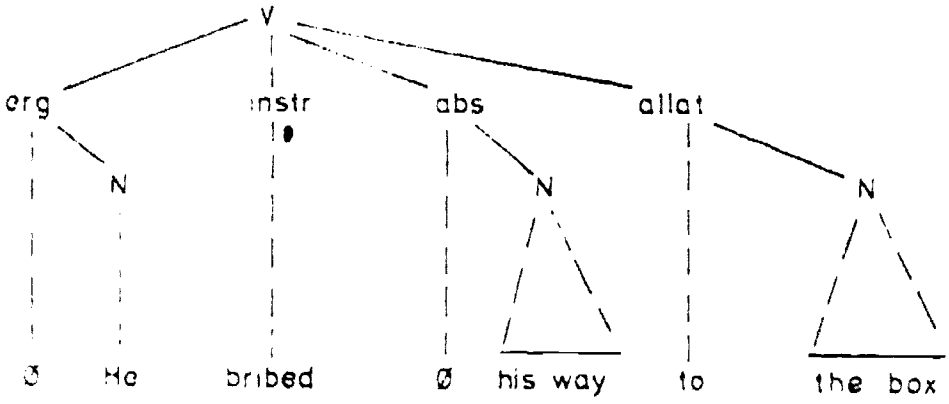
In all the above sentences the meaning GO is expressed by the cognate object *way*. The denominal verbs *bribe, cook*, etc. express instrumental, or, in a more general sense, modal meaning. *I am on my way* is a stylistic variant of the continuous form (*I am going*), thus it is the member of an aspectual opposition. *Make one's way* means "to go by applying force" where the idea "force" is expressed by verbal means. The denominal verb to be found in *bribe one's way to a place*, on the other hand, incorporates an instrumental.

The derivation of the constructional type may be:

a.



b.

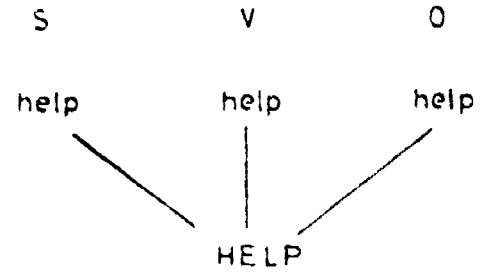


The verbs *drip*, *pick*, *switch-back*, *thread*, *win*, *snort*, *bath* express manner-adverbial meaning.

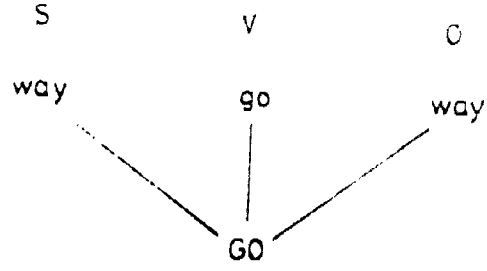
The scope of this paper could be broadened and stative clauses like *Mary fears dogs* and oppositions such as *apologize* : *make an apology*, *decide* : *make a decision* could be included. But I think that on the basis of the material presented it can be concluded that the absolutive (Fillmore's objective case) is present in the "simple" variants of the so-called "complex verbal structures" — it is incorporated in the predicate.

There is, I think, another important generalization that can be made: if there is a deep structure, it must be of a semantic nature. For example, in the deep the word *help* is neither a noun nor a verb: it is a deep-structure semantic element, which — coming to the surface through various trans-

formations — can take any position in surface structure:



The same applies to other predicate types. The semantic element GO, for example, appears in a lexicalized form in subject and object positions:



In Bolinger's analysis (1968:212) "the depths are where things are stored and the surface is where things happen. A better image than "surface" and "deep" is perhaps "firing line" and "rear". The activity is up front, on the firing line. There is where the speaker is a free agent. Until he learns better, the child treats the depths as if they were surface. They become depths when he is no longer free. The surface is the area of choice and change... where a speaker is not only free to bend the rigid categories of formal grammar but forced to do so by the very nature of communication. The surface is where *life* is in language."

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CONTRASTIVE ANALYSIS AT DISCOURSE LEVEL AND THE COMMUNICATIVE TEACHING OF LANGUAGES*

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Until recently, Contrastive Analysis as a branch of Applied Linguistics was mainly concerned with the description of linguistic structures of two languages and the cross-linguistic comparison of such structures with a view to predicting second language learners' potential errors in the target language and thus leading the teacher and the text-book writer to develop materials, devise techniques, etc., that would eradicate such errors. The underlying teaching practice was to expose the learner to the system of a language and assist him in successfully manipulating the target language structures. Hence the contribution of CA to language teaching was to impose a hierarchy of difficulty on the language structures, provide an answer to selection and grading problems, and contribute to the development of student evaluation techniques.

This approach to CA was soon outdated by the shift of emphasis from language as a self-contained system to language as a means of communication. In the writings of Sajavaara (1977), Riley (1979), Janicki (1984), House and Kasper (1981), and Faerch and Kasper (1984), we now evidence a new approach to CA. In particular, attempts have been made to account for interlanguage differences and similarities in terms of illocutionary, interactive and realization structures that organize discourse. Moreover, the investigation of the problems involved in speech production and reception has led to the development of dynamic models for the description of second language ac-

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quisition processes, which also lend themselves to a possible account of learners' errors.

Within this framework, it is the aim of this paper to discuss some aspects of a dynamic interpretational model for CA that will account for cross-linguistic differences and similarities viewed against the participant-oriented process of developing functions in the flow of discourse. This paper further aims to discuss some of the implications of such an approach to CA for the design of materials aiming at the communicative teaching of languages. The considerations presented in this paper are based on experimental work carried out at the English Dept. of the University of Athens as part of the Contrastive Studies course.

The experiment that was carried out rests on two basic principles that are now widely accepted by conversation analysts.

Firstly, that the building of conversational discourse is a participant-oriented process. Secondly, if the development of discourse is participant-oriented, then there must be some linguistic evidence that co-participants in a communicative event cooperatively develop functions in discourse. According to these principles, the participants in a communicative event build discourse through understanding each other's intentions and implementing their own within socio-culturally defined frames. This means that the organization of conversation as a type of discourse cannot be studied independently of the interactional processes that communication entails. Such processes, in turn, reveal themselves in the changes that participants bring about in each other's knowledge-sets, beliefs, intentions and experiences during communication. In this sense, for example, discourse topics are negotiated between co-conversants by mutual contributions resulting in the building of discourse, as Levinson (1983) asserts. On the other hand, the appropriateness of certain topics as well as the functions of various discourse types is often socio-culturally constrained. Thus, although discourse functions may be universally determined, their linguistic and/or organizational manifestations may vary across languages and cultures.

These considerations suggest that a language function cannot be specified only in terms of the speaker's appropriate encoding of his/her intentions, but also in terms of the hearer's response to the speaker's utterance that acknowledges it as performing the particular intended function. For example, it does not seem possible to specify whether the utterance 'Why don't you go out?' functions as request for information or suggestion, unless the response to it is also given. If the response is 'Because I have a headache', it could be correctly assumed that the previous utterance functioned as request for information If, on the other hand, the response is 'That's a good idea', then we would be pretty sure that the first utterance functioned as a suggestion in the particular communicative event. In terms of form, of course, this

type of interrogative can be appropriately used to perform both functions. Which one it actually performs in a particular situation depends on a number of parameters the most crucial of which is probably how the utterance is treated by the co-participant. In fact, the examination of the experimental data that were collected confirm the view that the language function performed in a communicative event emerges from the interaction of the speaker's utterance and the hearer's response to it and does not result solely from the speaker's utterance.

Let us now consider the implications of these principles for the development of a model of CA. It is immediately obvious that this model should be process rather than product oriented, i.e. a dynamic model. In other words, if we accept that language functions are not unambiguously and uniquely expressed through specific linguistic forms, but rather that they develop while the discourse is being built, then a model for CA should reflect this position. Viewed in this light, to compare the linguistic exponent of language functions seems to be inadequate if functions are represented through specific linguistic forms only. Unquestionably, there *is* a high correlation between certain language functions and specific linguistic forms, and a model for CA should take that into account. But on the other hand, whatever linguistic differences and similarities are revealed in comparing linguistic exponents of language functions, they should be viewed against the participant-oriented process of developing them in discourse.

It could be argued at this point that the proposed model is not substantially different from already existing models for CA. In fact, the participant-oriented process of developing functions in discourse could be viewed as the tertium comparationis, the universal base, upon which the linguistic differences and similarities in exprsesing the various language functions could be specified and analysed. Comparing linguistic elements against a background of sameness has been the general practice of CA for almost twenty years now.

It is our contention that the proposed model differs from other models in one important respect. By comparing linguistic elements against a background of sameness, the focus was on the linguistic elements. As a consequence, the development of teaching materials concentrated on presenting and practising extensively the linguistic elements that differed in the two languages. The proposed model, however, focuses on the process of deriving linguistic elements, i.e. on the development of discourse as the universal backbone of human communication. The linguistic exponents are viewed as only one of the components in building discourse, they are dependent on the overall development of discourse, and interpreted in terms of the structure of the particular discourse type. Viewed in this light, the TC in such a model of CA consists of a number of parameters that are conducive to the development of discourse. Such parameters could be, for example, organizational principles

in building discourse, logical and semantic categories, discourse functions, etc. The linguistic realization of the integration of these parameters, then, cannot be studied independently of each one of them. Under this construal, rather than remaining a formal constant to be used as a background tool in CA, the TC appears to integrate in the process of contrasting languages.

Set against this framework, then, CA at discourse level may contribute to the communicative teaching of languages in two ways. Firstly, it can provide a mapping of the strategies employed by interlocutors in building discourse in different linguistic and sociocultural settings. Secondly it can indicate how different linguistic structures in different languages are used and exploited in order to develop specific functions in building discourse. The materials designed on the basis of such CA's then, will aim at enabling the learner to extend his/her strategies in building discourse in the foreign language domain, and to become aware of, as well as employ, the appropriate linguistic structures for this purpose — which may not be similar to those of his/her mother tongue.

The experiment to be now described was set up in order to test whether the proposed model of CA can in fact lead to any significant generalizations concerning (i) the communication strategies involved in the development of functions in discourse, and (ii) the linguistic exponents revealing such strategies.

The experiment was carried out in the following way: Five pairs of female native speakers of English and five pairs of female native speakers of Greek were asked to role-play the following situation: Each pair were supposed to be twin sisters who were facing a particular problem. On of them wanted to go on a group excursion, whereas the other twin did not want to go on that excursion because of personal reasons. The problem was that the parents of the twins insisted that either both twins should go together or no one should go, i.e. they would not let just one of them go. The twins now had to talk in order to solve this problem and make a decision as to what they should do.

In order to negotiate a solution, the members of each pair had to consider a number of possibilities, to make suggestions, etc. The conversations were all recorded and then transcribed. The problem immediately facing us in handling the data was what criteria should be employed in order to identify the suggestions made in the text, since the linguistic realization of suggestions could not form such an a priori criterion. The decision was made to tentatively delimit this function noticnally, i. e. by answering the question 'What is a suggestion?' The answer to this question then specifies that a suggestion is a language function whereby one of the interlocutors may express his/her belief that a course of action is possible and desirable for him/herself and/or the addressee, and that this course of action could be profitably taken up by either or both of them, as the case may be. Inherent in expressing such a

belief is the speaker's expectation that the expression of his/her belief for a particular course of action will meet with the hearer's approval or disapproval, either of which may be immediately expressed through language — explicitly or implicity, or other extra-linguistic means, such as facial expression, getsure, action, etc., or be delayed for some good reason until some further point in the discourse. The hearer, then, will acknowledge the speaker's belief by expressing approval or disapproval for it and thus adopt or reject the course of action under consideration.

With this notional constural of 'suggestion', we proceeded to the selection of a number of utterances from the corpus that appeared to perform the function of suggestions. They usually consisted of one or more pairs of utterances which, for ease of reference will be termed *suggestion turn* and *response turn* from now on.

The examination of the data in both languages revealed some interesting facts concerning both the communication strategies in developing suggestions in discourse and the linguistic forms used in order to build conversational structure.

Suggestion turns usually assume the form of negative questions often preceded by the interrogative word *why* or containing the auxiliary *can* both in English and in Greek. This form of suggestion turn seems to be so marked for this function, that very often the interrogative word in itself or the negation of *can* constitute ellipted forms of suggestion turns and are interpreted and treated as such by the second speaker.

Suggestion turns are also expressed through statements which in English usually include can/could, should, 'going to' forms, 'it's best to', 'we don't have to', etc. The corresponding forms are also used in Greek for this purpose. The imperative form of verbs and conditional interrogatives are also used in both languages for initiating suggestions. Finally, explicit performatives, although infrequent in the corpus, also occur in the two languages

A form that appears only in the Greek data initiating suggestions is the simple question form both in the present and future tense of the verb, in first person plural or second person singular.

As far as the form of first suggestion turns is concerned, there appears to be great similarity in the two languages, except for simple question forms, perhaps, which if the data were expanded, might also occur in the English corpus.

In a traditional approach to CA, this is where the contrastivist would stop. In a functionalist framework, the particular language function would be identified with the first speaker turn and it would be assigned one or more corresponding linguistic forms. The contrastivist would compare these linguistic forms in the two languages, and to the extent that these were similar,

as the case is with English and Greek, s/he would predict that no learning problem need arise and that the particular function should be taught in the ordinary way.

However, if a process-oriented approach to CA is followed, this is exactly where the area of investigation really begins. If it is considered that a language function develops through co-operatively building discourse, the focus is not only on the first suggestion turn, but also on the response turn, i.e. what strategies are employed by second speaker to contribute to the development of the function and what linguistic evidence there is for identifying such strategies in the use of the two languages. The question then that the contrastivist asks at this point is: Are these strategies universal or are they linguistically and/or socio-culturally constrained? And even if these strategies are universal, are they reflected in the use of similar or different structures in the languages under consideration?

Let us then consider how first suggestion truns are treated by the second speaker in the speech event.

In terms of linguistic form, in both languages approval or acceptance of the first suggestion turn was expressed in various ways including explicit agreement forms, (Yes, O. K., 'I have no objection to that', etc.). So far, it may be assumed that second speakers in both languages employ the same strategy in expressing acceptance. However, divergent strategies were also employed by the speakers of the two languages. In Greek, acceptance is often expressed by extending the first speaker's utterance with the addition of more details about the proposed course of action or with intensifying adverbs. In English such acceptance is expressed through the repetition or slight modification of the form of the first speaker's suggestion turn. This difference in the strategy employed for showing acceptance or approval seems to be important for the Greek learner of English, who, hearing his suggestion turn linguistically modified by a native speaker of English, will be led to assume that s/he simply used an inappropriate form which is being corrected by his/her English interlocutor, and will interpret such a modification as a sign of disapproval. Hence the communication between the two participants will be affected in a negative way. The reason behind such misunderstanding is that tha formal modification of another speaker's turn for a Greek learner of English does not constitute an approval strategy, but rather a correction strategy, since in Greek this strategy is used for correcting somebody's utterance rather than accepting its content. This observation then indicates that it is on the level of communication strategies that transfer occurs rather than on the linguistic form realizing a particular function. Moreover, it can also be asserted, on the basis of such data, that teaching materials should expose the Greek learner of English, for example, to such communication strategies

employed by native speakers of English while building discourse. The teacher should point out the linguistic exponents of such strategies, make the learners aware of them and lead them to employ such strategies themselves through the appropriate forms in similar situations.

Disapproval or rejection, too, may be explicitly expressed through a number of negation markers (i. e., no, negative constructions, etc.,) but very often, rejection is expressed implicitly in both languages. Implicit negations usually take the form of rhetorical questions — the negative answer to which is obvious — or a statement which, interpreted against the first speaker's turn can only be a rejection. A strategy often employed by both native speakers of English and Greek is that of providing what I would call 'ironic imperative'. The meaning of this form is the implication that if the hearer obeys the command s/he will see the impossibility of the task at hand. In both English and Greek, such imperatives are marked by the use of a particular kind of intonation contour (e.g. 'You can try'). The problem that might arise for a Greek learner of English in employing this strategy (which as we said, can be used in both languages for the same purpose), would be to associate a structural form, usually used for first suggestion turns both in his mother tongue and the target language, with a particular intonation pattern, in order to express rejection of first suggestion turn. That is, s/he must be able to vary the function of a language structure according to intonation. If, however the learner is taught to associate the particular form, i.e. 'You can try', with making suggestions, which is also the practice in his/her mother tongue, then, to vary this form through an intonation pattern which is also used for different purposes in his/her mother tongue, is an extremely difficult task. The reason is that there will be two kinds of transfer here. Both transfer from mother tongue and transfer resulting from the type of training. Teaching materials for Greeks, then, should take such facts into account, so that, for example, structures such as 'You can try' are not mostly taught as suggestion realizations but also as rejection response-turns in building conversational discourse.

The discussion of our data has led to the realization that even when language forms are similar in developing functions in discourse, the communication strategies employed in developing it may differ in different languages and sociocultural settings. This situation allows for transfer problems to appear in learning a foreign language. Apart from transfer of communication strategies, transfer from the type of training may be added to transfer from the mother tongue and create learning problems. From a contrastivist's point of view, such problems can only be revealed and handled if contrastive analysis is dynamic in nature, i.e. oriented towards the process of communication rather than the product, i.e. the language forms in isolation. Moreover, CA should be interpretational, in the sense that it should also be concerned with the

result of interpreting, i.e. the interpretation of the first speaker's utterance by the second speaker and the strategies s/he employs in order to contribute towards developing a particular function in the flow of discourse.

Furthermore, such an approach to CA may also lead to other significant realizations concerning some linguistic forms that are usually correlated with certain functions. As an example we shall refer here to some forms of first speaker suggestion turns expressed through explicit performatives as they occurred in our data. It was observed that such forms are rarely used and when they are used, they are not always taken up at all by next speaker. That is, the second speaker's response provides neither acceptance nor rejection of the content of the first speaker's utterance. In both languages, it was observed that such explicit performative suggestion turns as in 'Well, let's think of something else.', seem to lead to a different type of language function, i.e. that of maintaining coherence in discourse and re-focusing on the topic in conversation by specifying the particular type of discourse. An utterance such as 'Let's think of something else', then, is used to indicate to interlocutors that they should be making suggestions in order to solve a problem, i.e. it asserts that both interlocutors are engaged in a decision-making task. Thus, because this utterance is ascertaining the type of discourse rather than initiating a suggestion sequence, it is not treated as the first part of a suggestion sequence by the second speaker, who thus acknowledges its function as a marker of coherence in the discourse. These observations then seem to indicate that language forms, such as explicit performatives that are often used for expressing a particular language function, a suggestion in this case, do not necessarily correlate with such a function all the time. Rather, such expressions may be used in different ways in conversational discourse. The possibility that suggests itself at this point is that a conversational strategy employed in maintaining discourse coherence involves the use of a linguistic from which is appropriate for initiating a particular function that is typical for the specific type of discourse. Since this strategy was revealed in the examination of both English and Greek data, it might be reasonable to hypothesize that it is also a universal strategy. However, such a claim might be too strong to maintain here. Nevertheless, if the CA of English and Greek data points to a similarity in employing this strategy, this fact should also be reflected in the design of materials for Greek learners of English, at least. In other words, the materials designer or the teacher should not assume that because this strategy is employed by speakers of both languages it will be automatically transferred from the use of one language into the use of the other.

There are a number of reasons why this is not so. Firstly, it is often the case that a native speaker of any language is not aware of employing this strategy. Consequently, it is unlikely that s/he will be able to consciously — or even unconsciously — employ it in using the foreign language. Secondly,

if the learner has been taught to correlate a particular function with a specific linguistic form, it is more likely that s/he will only use this form to perform the corresponding function, i.e. the suggestion, rather than use the same form for some other function, i.e. that of maintaining discourse coherence, ev though, as a strategy this is equally employed in the use of his/her mother tongue. This is a rather complicated situation and apparently it cannot be let to take care of itself. Teaching materials for Greek learners of English, for example, used by an informed teacher, should enable the learner to become conscious of such strategies employed in using both his/her mother tongue and the foreign language.

So far an attempt has been made to illustrate why CA at the level of discourse requires a dynamic interpretational model of application and how the development of such a model of CA can contribute to the communicative teaching of languages, and English in particular. More specifically, it has been indicated that the findings of CA at discourse level in terms of the proposed model should reflect on the teaching materials designed for a linguistically homogeneous group of foreign language learners, such as Greek learners of English. for example. We shall now try to make some more concrete suggestions concerning materials design, which follow from what has been supported so far.

It is believed that authentic materials brought into the classroom should be carefully selected so as to expose the learner (i) to the most important strategies in building discourse, and (ii) to the linguistic realizations of such strategies in the foreign languages. At the points where CA has shown that such strategies and/or linguistic forms diverge in the use of the two languages, the materials used — either authentic or authenticated — should provide the opportunity to the teacher and the learners to discuss these aspects of difference so that the learners become aware of what is involved in such cases. This can be achieved through the 'discourse tree' type of exercises, for example. Whether 'discourse trees' from both languages should be presented to the learners in order for them to assess for themselves differences and similarities in building discourse in the two languages, is still a controversial issue, but as a technique used with adult learners it might not be out of place altogether .Even when CA points to similarities in the strategies, and linguistic forms used in the development of functions in discourse, learners should be given the opportunity through the use of appropriate materials to become aware of such discourse and linguistic structures and thus to develop their overall communicative competence, social skill and cultural insights.

This paper has tried to argue for the significance of developing a dynamic, interpretational model of CA that would be useful for the communicative teaching of languages and materials design in particular. However, developing such a model of CA is not without its problems. It has probably become ob-

vious that it rests on a data-oriented approach to the research involved and it cannot rely solely on intuition. Therefore, the development of such a model is faced with all these problems and difficulties that have become apparent — and acute — in the field in collecting the appropriate data in terms of pre-set criteria, categorizing and analysing the data in terms of specific theoretical constructs, and computing the results of the analysis before making any valid generalizations. However, the difficulty of the task need not stop us from developing and using such a model of CA since we already have some indications for the contribution it can make to the communicative teaching of languages to more or less linguistically homogenious groups of learners.

To the extent, then, that this paper has raised some relevant issues in that direction, it has also achieved its aim.

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CONNECTING L1 AND FL IN DISCOURSE-LEVEL PERFORMANCE ANALYSIS

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Abstract

Discourse-level performance analysis is a field of research which has recently been attracting considerable interest in Applied Linguistics. Evensen (in press) has shown that for Norwegian secondary school students who are writing EFL compositions, connectors is one area where a correspondence between the (non-) use of a number of linguistic items and student development measured both as differences in grade and skill is evident. Non-use of connectors is also found to be an important fact to consider. The analysis has not, however, taken L1-FL differences into account. The present paper is an exploratory study attempting to answer the following question: Is non-use of explicit marking of underlying logical relationships a relevant feature also in L1 writing at this educational level?

The material consists of student compositions written in both Norwegian as L1 and EFL by a sample of upper secondary school students. The exploratory, analysis is largely semiautomatic, using a NORD computer's GET STRING-facility, and is carried out both on intra-individual (cross-linguistic) and cross-sectional levels. The results document a major difference between L1 and FL as to text productivity (Lindell **et al.** 1974) in that L1 texts are usually much longer than EFL texts. L1 texts are also characterized by larger quantity and diversity of connectors. When controlling for text productivity, however, the difference disappears; connectors are in fact used slightly more often in EFL discourse in the present material. This finding is interpreted under a Late Mastery (LM) hypothesis, which states that even L1 competence is a **variable,** reflecting life-long language learning processes, at least on the pragmatic and discourse levels of language. Theoretical and methodological implications of the LM hypotheses are considered.

1. Introduction

Survey data have shown that in an LL/LT context discourse-level features are among the most difficult features of language use, as perceived by a statistically representative sample of students and teachers of both Norwegian as a first language (NL) and EFL in Norwegian secondary schools (Evensen 1983). Partly for this reason we have chosen to concentrate on the discourse level in performance analyses (PA) of The Trondheim Corpus of Applied Linguistics, a large corpus consisting of nearly 3000 compositions written by students who participated in a national survey of problems in LL/LT (Evensen 1982).

Earlier exploratory analyses have been carried out on a computerized subset of 47 EFL compositions. The subset is defined so as to yield a representative sample of the corpus. The sampling methodology has been extensively discussed in Evensen (in press). The most important aim of the exploratory analyses is to isolate discourse-level features which have discriminatory power when related to differences in grade and skill.

Connectors have turned out to be an area with considerable discriminatory power (Evensen, in press). Apart from a few common items, such features are very infrequent in the material (a common causal connector like **therefore** does not occur at all in the 47 texts). It is possible to question the validity of such an observation on statistical grounds (relatively small sample combined with relatively infrequent linguistic items). Still, the degree of non-use in the material evaluated in relation to the text type's demands for explicit marking[1] has led Evensen to tentatively put forward the general hypothesis that certain problems observed in FLL may be due to more fundamental mechanisms than FLL processes. It may be the case that certain language mechanisms are mastered very late, if ever, also in an L1 context. Such a late mastery (LM) hypothesis has both empirical and theoretical implications that make it worthwhile pursueing. At the theoretical level both the concept of **competence** and the derived concept of **interlanguage** are affected by the hypothesis. At the empirical level the hypothesis implies a contrastive approach to PA and IL studies in general.

The Chomskian notion of competence is based on a view of **langue** where both pragmatics and discourse are disregarded. Given this narrow view of language it has been common to regard L1 acquisition as a semi-automatic

[1] It is important to stress that language use has to be evaluated for efficiency in relation to considerations of both extra-linguistic situation, sender intention, genre-dependent conventions and communicative function. The present material is not to be associated with quasi-scientific claims about general language deficit.

(LAD-driven) process which is ended at a relatively early age. If this perspective is a more or less accidental consequence of leaving pragmatics and discourse out of the linguistic model, the LM hypothesis may lead our attention in a more fruitful direction. Competence should perhaps no longer be viewed as a constant, but as a variable. In this view, language acquisition beyond basic phonology, morphology, syntax and lexicon is a life-long process (perhaps subject to fossilization) also in our native language.

The concept of interlanguage (Selinker 1972) is based on a traditional view of competence. L1 competence (be it linguistic or communicative) is regarded as a fixed starting-point, a constant in the model. Given the LM hypothesis, the starting-point in FL/L2 acquisition is in itself a variable. Thus, what is observed as an interlanguage problem may in some cases be an indication of a deeper LL process which is in principle independent of the L1 **versus** L2/FL distinction. A methodological corollary of such a view would be to put more emphasis on contrastive analysis in IL studies.

The introductory discussion brings out one of the weaknesses in the earlier study; it was based on EFL data alone. The approach also had certain other weaknesses. In Evensen (in press) each student's general mark in the subject was used as an indirect measure of skill. The individual texts themselves were not evaluated.

A third methodological weakness has to do with the linguistic analysis. Some connectors (eg **and**) are multi-functional. This fact was explicitly not taken into account in the analyses.

Lack of control for individual variation was a fourth weakness. Through Rosansky's (1976) review of L2 studies carried out to yield an index of development, it has become clear that individual data may in certain cases lead to results differing from those yielded by cross-sectional designs. As a corollary, cross-sectional studies (like Evensen in press) should to some extent be supplemented by individual analyses.

The present paper is an exploratory contrastive study of connectors designed to shed further light on the LM hypothesis and to control for these methodological weaknesses.

2. Material and method

On the background outlined above a second subset of The Trondheim Corpus of Applied Linguistics was defined. This subset was taken from one class of secondary school students where each student has written one composition in EFL and another in NL1. This design implies that the data are in no way representative in a statistical sense. For this reason certain sampling criteria were used to avoid more obvious statistical bias in the material:

- most common written standard (**bokmål**) used as written L1 variety[2]
- teacher comments indicate that the class is not struggling with particular problems in any way
- average school size
- medium characteristics as to urbanization of local community
- medium grade level[3]

A second set of sampling criteria was used in order to ensure data of high quality:

- cross-linguistic data available from each student in the subsample
- completed questionnaires available from each student for follow-up analyses of a large number of extra-linguistic variables (via an anonymous coding system described in Evensen (1982)

The selected school is situated in the Northern part of Norway, in a smallish town. The students were in the tenth grade when the material for the corpus was collected (spring term of 1981). The school has three parallel classes in each of the three grades in the Norwegian upper secondary school system. According to teacher comments there are no idiosyncratic problems particular to this class of students. The survey was welcomed at the school by students and teachers alike. The student compositions were written as part of ordinary course-work, not for the sake of the corpus.

In Evensen (in press) the question of control for genre and topic has been discussed with reference to the methodological criterion of external validity in a situation where acquisition or learning of a text typology is still largely uninvestigated. In drawing the sample for the present study we have chosen a methodologically **transparent** design with no control for genre or topic. On a **post hoc** basis, however, we have tried to take possible effects of this design into account.

It turns out that none of the writing tasks given to these students were narrative. This fact may reflect a qualitative difference between the written assignments generally given in upper comprehensive school and those given at the upper secondary school level. For the EFL essays 150 words were indicated as optimal length. The tasks were the following:

1) Discuss how you think driving education for young people should be arranged.

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[2] In Norway there are two national written standards; *bokmål* and *nynorsk*. *Bokmål* is the dominant variety and is used by more than eighty per cent of the students as their main variety.

[3] The national survey comprised four grades; 8 and 9 in lower secondary (comprehensive) school and grades 1 and 2 (10 and 11) in upper secondary school.

2) Describe the place where you live and explain what you think should be done to improve safety on the roads there.
3) Give reason why so many people are eager to drive or own a car or a motor bike.

For the NL1 essays no optimal length was indicated. The tasks were the following (our translation):

1) What do you think are the most important reasons for today's arms race? Do you think that disarmament is possible?
2) (based on a literary extract) Above, the author Terje Stigen has said something about what he thinks it means to grow up. What do you think it means to grow up?
3) (based on a list of the ten commandments) Select and reflect on one of these commandments. Explain the meaning of this commandment and give examples of what it means to live your day-to-day life in accordance with it.
4) (based on a literary extract) What can you find out about people and their attitudes in the extract from Sigurd Christiansen's "Life and your Dream? " What do you think the author's message is? What are your own views on the question that is raised?

These tasks may broadly speaking be said to favour expository/argumentative essays. Even if there is no one-to-one relationship between assignment given and text type chosen, this characteristic should be kept in mind when looking at the results below. Also, there are minor differences between the assignments given in EFL and those given in NL1.

The material has been computerized. In the analysis the texts were searched for connectors, both manually and semiautomatically using a NORD computer's GET STRING facility. Frequencies were based only on items that were correctly used (not necessarily orthographically correct) in the context , as viewed by the analysts (cf. Enkvist 1973). The inventory and classification of items were largely based on Enkvist (1974), Halliday and Hasan (1976) and Källgren (1979). The selection of Norwegian (near) equivalents was based on the analysts' intuitions pending more extensive contrastive linguistic analyses of Norwegian connectors in discourse.

Semi-automatic analysis is a considerable step forward with regard to both speed and correctness. The procedure is, however, still very time-consuming, thus allowing for smaller samples than we would ideally use. We would l ke to emphasize the future need for automatic procedures that might allow for analyses of larger text bases. Here, an important programming job remains to be done.

Sajavaara, Lehtonen and Korpimies (1980) have argued forcefully and convincingly against the product-based, or structure-based bias which dominates both theoretical and applied CA (for this distinction, see Fisiak 1973, 1983). When confronted with actual language use, this bias will prevent researchers from discovering the role of several central parameters, some of which are extra-linguistic.

When extending CA to new areas of study, both to include a discourse perspective and an IL perspective, we feel that product-based analyses may still have lot to offer, notwithstanding our basic agreement with Sajavaara et al's line of thought.

3. Results

After an introductory overview (Tables 0a and 0b) data in this section are presented first on an individual, crosslinguistic basis for each connective type. The data are presented in Tables 1—5 h and Figures 1—5 h below. Then, cross-sectional, aggregate data are displayed for the whole material in Table 6.

Tables 1—5 are each arranged as two matrices (one for EFL and another for NL1) where each row represents cases (individual texts) and each column variables (items searched for in each text). Also, the mean number of occurrences of an item per text and the percentage of texts in each skill group containing the item are presented for each item.

There is no one to one correspondence between student performance in EFL and NL1. Text A written by student NN in EFL may be of higher or lower quality than text B written by the same student. To display this difference in the tables we have chosen to rank the texts in each language according to marks from **lo** to **hi** so that the essay evaluated by the teacher to have the lowest quality in each language appears as the uppermost case. The first group of variables gives information about text identity, skill level (**lo**, **mid** or **hi**), mark (1 is the lowest mark possible and 6 the highest) and text productivity (here measured simply as number of words).

The distribution of marks in Table 1 below shows that the text sample has certain statistical biases. Even if the sample approaches a normal distribution, the extremes are not well covered in the material. A second characteristic adding to this bias is the scarcity of texts in the hi skill group. There is thus some negative skewness in the data. These characteristics combine to reduce the possibility of demonstrating a real underlying discriminatory power of the features being analysed.

The table shows that there is a steady increase in text productivity as one moves from texts in the **lo** skill group to texts in the **hi** skill group. This tendency holds for both languages. There is a difference between them, how-

over, in that NL1 texts are generally much longer than EFL texts; on the average nearly three times as long (213 words in EFL **versus** 627 in NL1). This fact will be taken into account when evaluating connector use.

Table 0 a)

Length (= number of words) of essays written by Norwegian students in EFL and NL1

language	→EFL			NL1		
skill level	identity	mark	number of words	identity	mark	number of words
↓	11903	1	185	11904	2/1	300
	11934	2+	181	11909	2	486
	11909	2+	227	11935	2/3	358
lo	11904	2/3	151	11938	2/3	579
				11910	3/2	777
				11933	3/2	296
	mean		186			466
	11933	3--	173	11903	3—	453
	11906	3	170	11907	3	535
	11907	3	180	11911	3/4	376
	11938	3	307	11900	3+/4	681
	11935	3+	165	11913	4/3	686
	11939	3+	183	11930	4/3	690
	11910	3/4	171	11906	4—	767
	11901	4/3	262	11937	4 -	376
mid	11911	4/3	178	11902	4	716
	11900	4 —	266	11934	4	721
	11930	4—	166	11936	4	975
	11932	4—	278	11940	4	769
	11940	4--	278	11901	4+	532
	11905	4	208	11931	4+	744
	11931	4	189			
	11941	4	196			
	mean		211			644
	11902	4/5	355	11932	4/5	1065
	11913	4/5	239	11939	5/4	735
hi	11936	4/5	205	11941	5—	640
	11937	5—	208	11905	5	779
	mean		252			805
	overall mean		213			627

Connective types are presented in ranked order so that the connective type most frequent in EFL is presented first (cf. Table 0 b below for presentation of totals). For each skill group subtotals are presented for each item.

Table 0 b)

Distribution of connective type by language (EFL, NL 1) and skill level (lo. mid. hi). Number of occurrences.

language	skill level	connective types												
		Additive	Causal	Temporal	Adversative	Conditional	Final	Concessive	Alternative	Specifying	Comparative	Illustrative	Direct speech	Ttotal
EFL	lo	7	11	8	4	4	3	—	—	—	—	—	—	37
	mid	39	30	37	38	12	9	1	1	—	—	—	—	167
	hi	18	13	7	1	7	3	1	—	—	—	—	—	50
	total	64	54	52	43	23	15	2	1	—	—	—	—	254
NL 1	lo	32	14	26	17	22	15	1	—	1	1	1	—	130
	mid	71	47	61	65	44	20	5	7	8	9	3	4	344
	hi	37	18	48	38	11	4	5	2	3	—	2	2	170
	total	140	79	135	120	77	39	11	9	12	10	6	6	644

Additive connectors (Table 1) form the most frequent connective type in both languages. In both languages the item *and* and its Norwegian counterpart *oq*** is the most frequent item. In his table *and/oq* are used in their additive or neutral sense. Other functions of these items will be discussed below.

Other additive connectors appear much more infrequently both in EFL and in NL1. In EFL, the items *also* and *too* occur several times, but *also* is the only additional item to be found at all skill levels. Items like *in addition, besides, furthermore, moreover, even, neither* and *nor* are not found at all in the material.

In NL1, the item *ogsâ* covers the uses of both *also* and *too*. This general item is used at all skill levels, but much more infrequently than *oq*. Items like *heller ikke/heller aldri* (*nor***) and *dessuten*, (*besides**) appear infrequently. Items like *i tilleqq* (*in addition**), *til oq med* (*even**) and *verken* (*neither**) do not appear at all. The frequencies for each item in the additive group are presented graphically in Figure 1.

[4] Pending elaborate Norwegian-English CA of connectors in discourse we have chosen to indicate very roughly the degree of correspondence between the use of an English connector and its Norwegian counterpart. One star (*) after the item indicates near equivalence, whereas two stars (**) indicate greater difference in use.

Table 1.

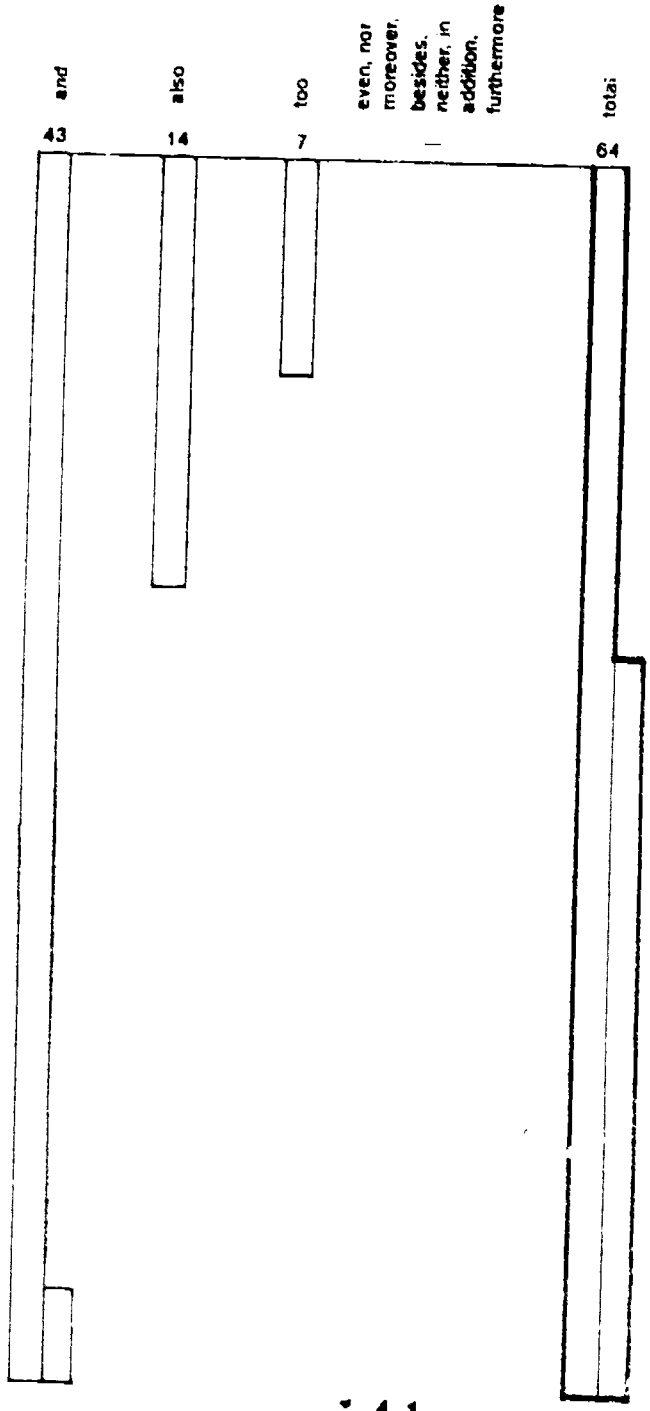
Distribution of additive connectors in Norwegian students' EFL and NL 1 performance

connective type:	*Additive*															
language skill level	EFL identity	connectors						NL1 identity	connectors							
		and	also	too	In addition, besides, furthermore, moreover, even, neither, nor	total		og	også	heller ikke	dessuten	både og	heller aldri	I tillegg, verken, til og med	total
lo	11903	2	–	–	–	2	11904	1	–	–	1	–	–	–	2
	11934	2	–	–	–	2	11909	2	6	2	–	–	–	–	10
	11909	1	–	–	–	1	11935	1	–	–	–	–	–	–	1
	11904	–	2	–	–	2	11938	–	2	2	–	–	–	–	4
							11910	12	2	–	–	–	–	–	14
							11933	1	–	–	–	–	–	–	1
	total	5	2	–	–	7		17	10	4	1	–	–	–	32
	mean	1,25	0,5	–	–	1,75		2,83	1,67	0,67	0,17	–	–	–	5,33
	%	75	25	–	–	100		83	50	33	17	–	–	–	100
mid	11933	–	1	–	–	1	11903	7	–	–	–	–	–	–	7
	11906	1	–	–	–	1	11907	2	–	–	–	–	–	–	2
	11907	1	2	–	–	3	11911	1	–	–	–	–	–	–	1
	11938	1	–	1	–	2	11900	1	1	1	–	–	–	–	3
	11935	5	2	–	–	7	11913	8	–	–	–	–	–	–	8
	11939	2	–	2	–	4	11930	2	1	–	–	–	–	–	3
	11910	2	–	–	–	2	11906	2	–	1	–	–	–	–	3
	11901	3	–	1	–	4	11937	2	–	–	–	–	–	–	2
	11911	–	–	1	–	1	11902	3	–	–	1	–	–	–	4
	11900	1	–	1	–	2	11934	5	–	–	–	1	–	–	6
	11930	2	1	–	–	3	11936	6	1	–	–	–	–	–	7
	11932	3	–	–	–	3	11940	10	–	–	–	–	–	–	10
	11940	1	–	–	–	1	11901	6	1	–	–	–	–	–	7
	11905	–	–	–	–	–	11931	5	1	1	–	–	1	–	8
	11931	2	–	–	–	2									
	11941	3	–	–	–	3									
	total	27	6	6	–	39		60	5	3	1	1	1	–	71
	mean	1,69	0,38	0,38	–	2,44		4,29	0,36	0,21	0,07	0,07	0,07	–	5,07
	%	81	25	31	–	94		100	36	21	7	7	7	–	100
hi	11902	1	5	1	–	7	11932	13	2	–	–	–	–	–	15
	11913	4	–	–	–	4	11939	5	1	–	–	–	–	–	6
	11936	1	–	–	–	1	11941	4	–	–	–	–	–	–	4
	11937	5	1	–	–	6	11905	10	1	1	–	–	–	–	12
	total	11	6	1	–	18		32	4	1	–	–	–	–	37
	mean	2,75	1,5	0,25	–	4,5		8	1	0,25	–	–	–	–	9,25
	%	100	50	25	–	100		100	75	25	–	–	–	–	100
total	total	43	14	7	–	64		109	10	8	2	1	1	–	140
	mean	1,79	0,58	0,29	–	2,67		4,54	0,79	0,33	0,08	0,04	0,04	–	5,83
	%	83	20	25	–	94		96	46	25	8	4	4	–	100

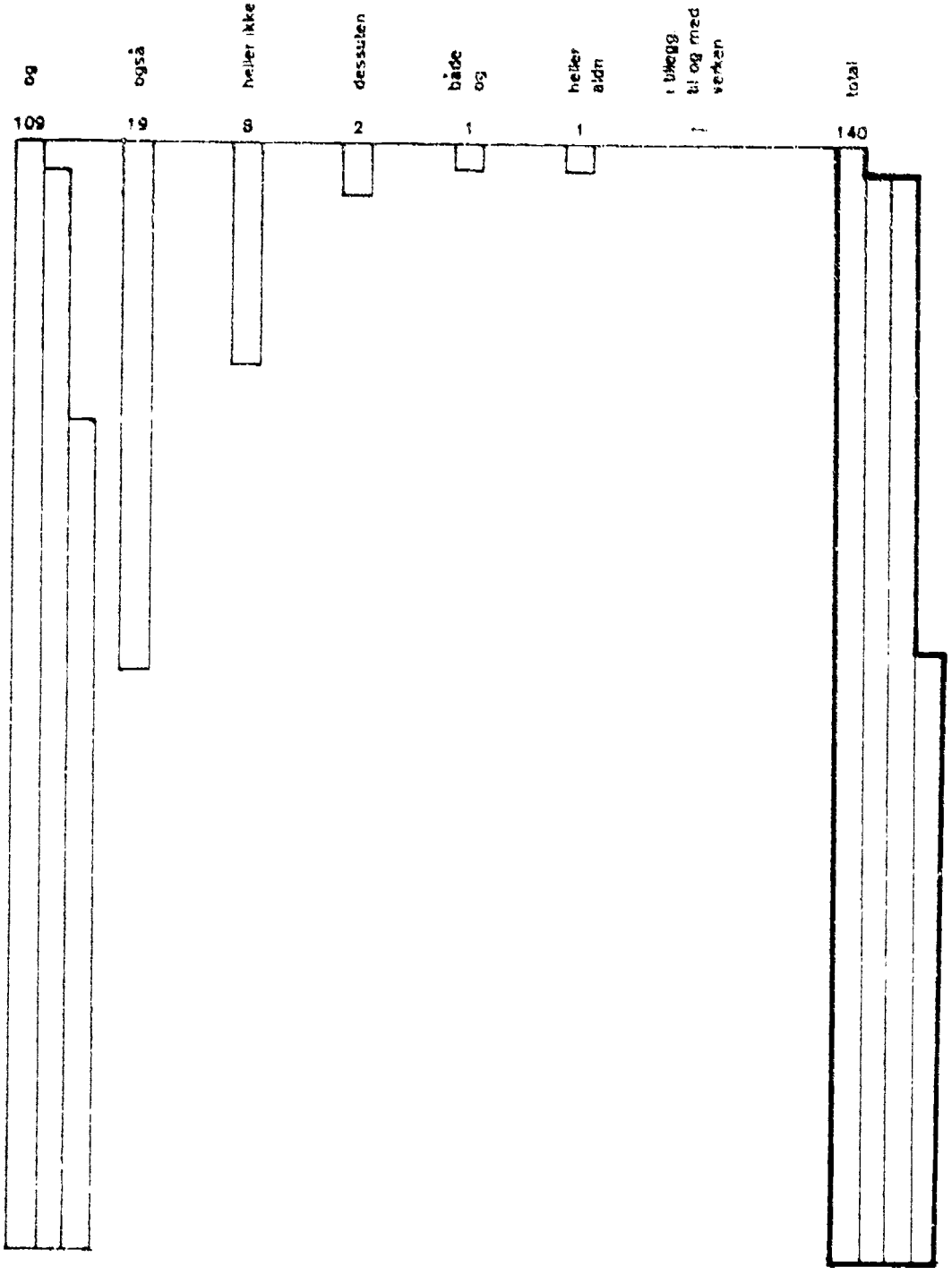
Fig. 1. Frequencies of additive connectors in Norwegian students' EFL and NL 1 performance.

Connective type: *Additive*

EFL



NL 1


og
også
heller ikke
dessuten
både og
heller aldri
i tillegg til og med verken
total
109
19
8
2
1
1
140

It appears that **causal** connectors are used with a relatively higher frequency in EFL than in NL1 (cf. Table 0 b). This rather unexpected pattern may perhaps be partly explained as an artefact of differences in the assignments. Two out of three EFL tasks contain expressions like "explain" and "give reasons for", thus favouring causal relationships in the texts. In NL1, on the other hand, there is just one task out of four where such an expression is used.

In EFL *because* is the most frequent causal connector. In addition causal *and* and *so* occur in all skill groups. It may be noted that the highest relative frequency of causal *and* (1,25 items per text) occurs in the **lo** skill group.

In NL1 *because* has two equivalents, *for* and *fordi*. These are the most frequent items in the causal group. *For* does not, however, occur at the **lo** level. The distribution of causal *og* follows the pattern observed in EFL; the item is not found in the hi skill group.

Derfor (*therefore**) appears at all skill levels and is both more frequent and widespread than its EFL equivalent. A similar relationship holds for *så... at* (*so... that**).

A few other items appear in the NL1 material, none of them frequent. Some of these do not appear at all in EFL. *Dermed* (*as a result***) is an example of this difference.

Items like *since, consequently, accordingly, thus, hence*, and *in this way* are not used in the EFL material. In the NL1 material the equivalent to *in this way* (*på denne måten**) is used twice, but other equivalents do not appear. Thus, non-use is significant also in the group of causal connectors even if there is more diversity of use in this connective type.

Among the **temporal** connectors *when* (*når**) is the dominant item in both EFL and NL1. In EFL this item is followed in frequency by *then* (*så***), which does not appear in the hi group and *before* (*før**), which appears relatively infrequently in all skill groups. *Until* appears three times in the **mid** and **hi** groups.

In NL1 *før* is the second most frequent item, followed by *til/inntil* (*until**) and two items covering the meaning of *then* (the punctual *da* and the sequential *så*).

Items like *while, since, as, as soon as, afterwards, immediately* and *whenever* are not used in the EFL material. In NL1 *til* (*until***), *fra* (*since***) and *etter* (*after**) are found at all skill levels. *Mens* (*while**), *etter hvert som* (*as**) and *så snart* (*as soon as**) occur, but infrequently. *Siden* (*since***) and *etterpå* (*afterwards**) do not appear at all. There is, in other words, more diversity in the use of temporal connectors in NL1 also in this group, even if certain common items do not appear.

Table 2

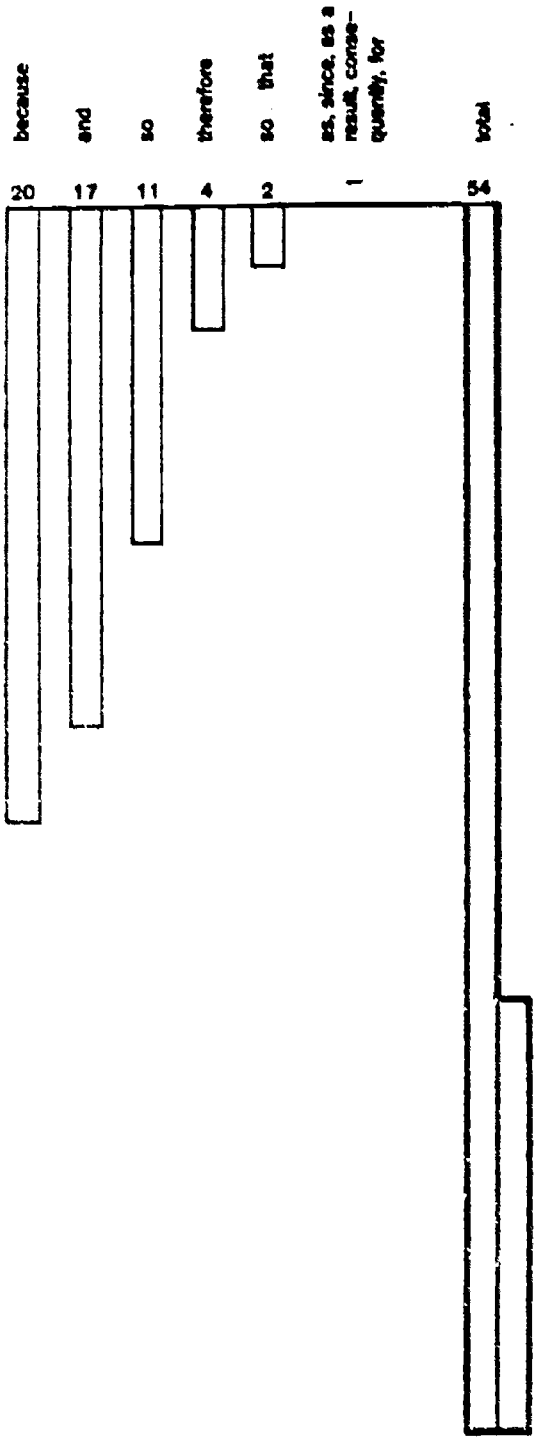
Distribution of causal connectors in Norwegian students' EFL and NL 1 performance

connective type:	*Causal*																															
language skill level	EFL									NL																						
	identity	connectors								identity	connectors																					
		because	and	so	therefore	so ... that ...	as, since, as a result, for, thus, hence, at that, in this way, consequently, accordingly		total		for	fordi	så ... at	derfor	og	dermed	så	på denne måten	slik at	på grunn av at	altså	siden, følgelig		total
do	11903	–	1	–	–	–		–	2	11904	–	1	–	1	–	–	–	–	–	–	–	–		2
	11934	–	–	3	–	–		–	3	11909	–	–	–	–	–	–	–	–	–	–	–	–		–
	11909	2	2	–	–	–		–	4	11935	–	–	1	1	–	–	–	–	–	–	–	–		2
	11904	1	–	–	–	–		–	1	11938	–	1	1	1	–	–	–	–	–	–	–	–		3
										11910	–	1	–	1	1	–	1	1	–	–	–	–		5
										11933	–	–	–	–	1	1	–	–	–	–	–	–		2
	total	3	5	3	–	–		–	11		–	2	2	4	3	1	1	1	–	–	–	–		14
	mean	0,75	1,25	0,75	–	–		–	2,75		–	0,33	0,33	0,67	0,5	0,17	0,17	0,17	–	–	–	–		2,33
	%	50	50	25	–	–		–	100		–	33	33	67	50	17	17	17	17	–	–	–		33
	11935	–	–	–	–	–		–	–	11903	1	–	–	–	1	–	–	–	–	–	–	–		2
	11906	2	1	1	1	–		–	5	11907	–	–	–	–	–	–	–	–	–	–	–	–		–
	11907	–	–	–	–	–		–	–	11911	–	2	–	1	–	1	–	–	–	–	1	–		5
	11938	3	2	–	1	–		–	6	11900	–	2	–	–	–	–	–	–	–	–	–	–		4
	11935	1	–	–	–	–		–	1	11913	–	2	–	1	–	–	–	–	–	–	–	–		3
	11939	2	–	–	–	1		–	3	11930	–	–	3	–	1	–	–	–	1	–	–	–		
	11910	–	2	–	–	–		–	2	11906	1	1	2	–	–	–	–	1	–	–	–	–		5
	11901	–	–	1	–	1		–	2	11937	–	–	–	–	–	–	–	–	1	–	–	–		1
mid	11911	–	–	2	–	–		–	2	11902	–	–	–	–	–	–	–	–	–	–	–	–		–
	11900	–	–	–	–	–		–	–	11934	3	1	1	–	–	1	–	–	–	–	–	–		6
	11930	1	–	1	–	–		–	2	11936	6	–	–	1	1	1	–	–	–	–	–	–		9
	11932	1	1	1	–	–		–	3	11940	1	–	–	1	2	–	–	–	–	1	–	–		5
	11940	–	3	–	–	–		–	3	11901	1	–	–	–	–	–	–	–	–	–	–	–		1
	11905	–	–	–	–	–		–	–	11931	–	–	–	–	–	2	–	–	–	1	–	–		3
	11931	–	–	–	–	–		–	–															
	11941	–	–	1	–	–		–	1															
	total	10	9	7	2	2		–	30		13	8	6	4	5	5	1	–	2	2	1	–		47
	mean	0,63	0,56	0,44	0,13	0,13		–	1,88		0,93	0,57	0,43	0,29	0,36	0,36	0,07	–	0,14	0,14	0,07	–		3,36
	%	33	31	33	13	13		–	69		43	36	21	29	29	29	7	–	14	14	7	–		86
	11902	–	1	–	–	–		–	1	11932	3	–	–	–	–	–	1	1	–	–	1	–		6
hi	11913	5	2	–	–	–		–	7	11939	2	4	2	–	–	–	–	–	–	–	–	–		8
	11936	2	–	1	1	–		–	4	11941	2	–	–	1	–	–	–	–	–	–	–	–		3
	11937	–	–	–	1	–		–	1	11905	1	–	–	–	–	–	–	–	–	–	–	–		1
	total	7	3	1	2	–		–	13		8	4	2	1	–	–	1	1	–	–	1	–		18
	mean	1,75	0,75	0,25	0,5	–		–	3,25		2	1	0,5	0,25	–	–	0,25	0,25	–	–	0,25	–		4,5
	%	50	50	25	50	–		–	100		100	25	25	25	–	–	25	25	–	–	25	–		100
	total	20	17	11	4	2		–	54		21	14	10	9	8	6	3	2	2	2	2	–		79
total	mean	0,83	0,71	0,46	0,17	0,08		–	2,25		0,88	0,58	0,42	0,38	0,33	0,25	0,13	0,08	0,08	0,08	0,08	–		3,29
	%	42	33	33	17	8		–	75		42	33	25	38	29	13	8	8	8	8	8	–		88

Fig. 2. Frequencies of causal connectors in Norwegian students' EFL and NL1 performance

Connective type: *Causal*

EFL



NL 1

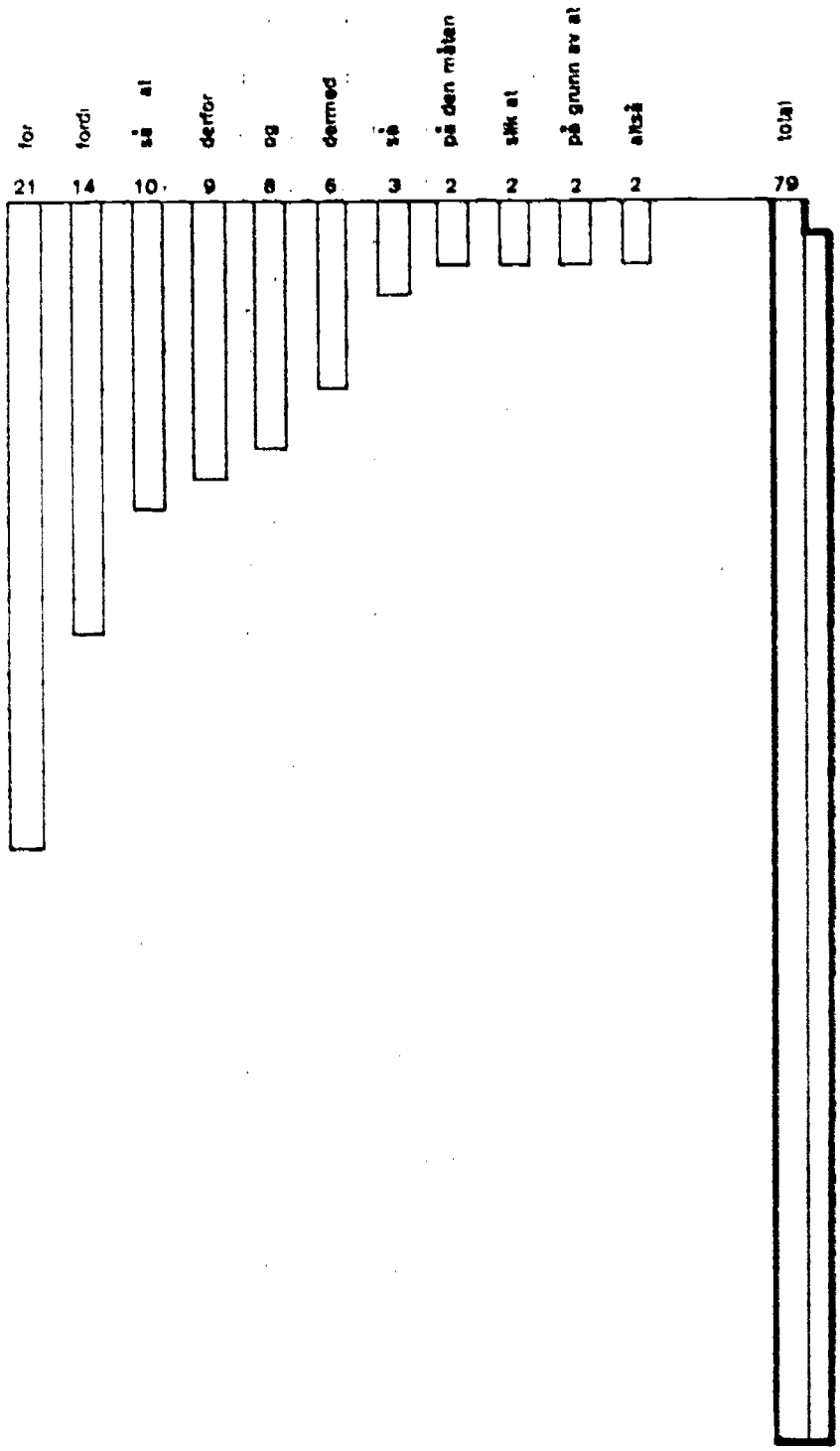

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Table 3

Distribution of temporal connectors in Norwegian students' EFL and NL 1 performance

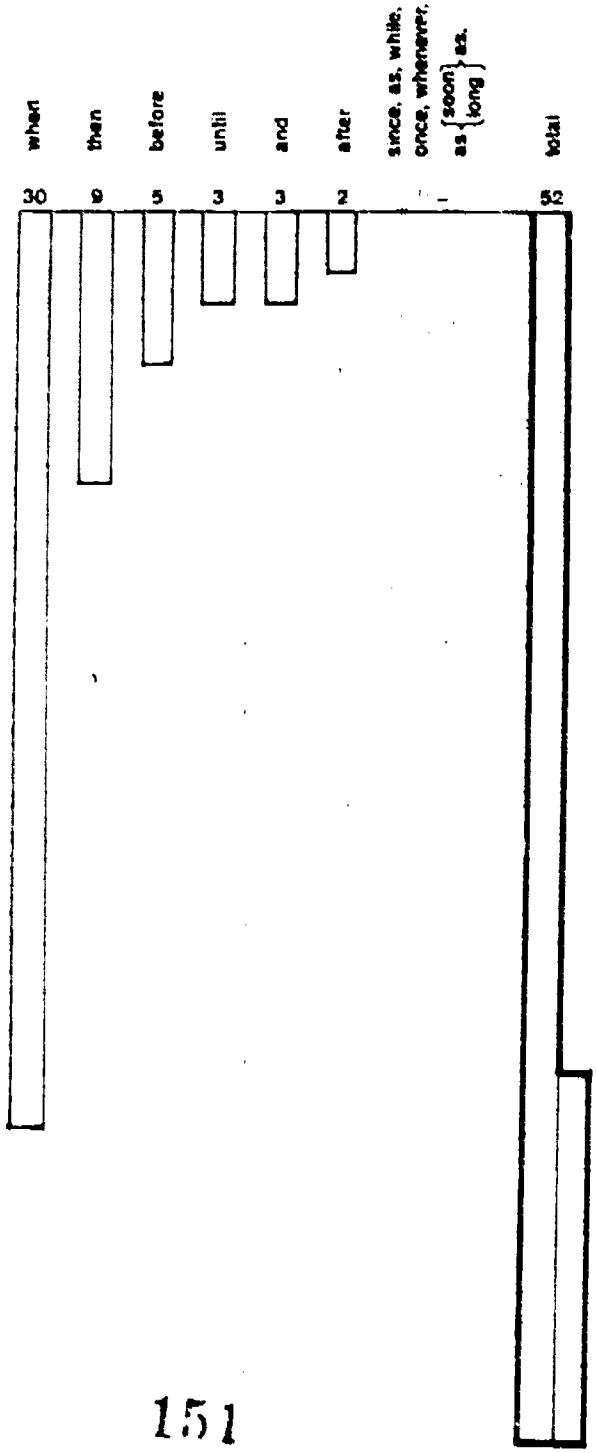
connective type:		*Temporal*																												
language skill level	EFL identity	connectors										NL1 identity	connectors																	
		when	then	before	and	until	after	since, as, while, whenever,	as {long / soon} as, immediately, afterwards		total		når, når, ... da ...	før	så	til/inntil	da	og	fra	etter	mens	etter (hvert) som	så lenge	så snart	en gang	hver gang	etterpå, siden		total
lo	11903	–	–	–	1	–	–		–		1	11904	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–		2
	11934	–	–	–	–	–	–		–		–	11909	–	2	–	1	2	–	1	–	–	1	–	–	–	–	–		7
	11909	4	–	1	–	–	–		–		5	11935	–	2	–	1	–	–	–	–	–	–	–	–	–	–	–		3
	11904	–	1	1	–	–	–		–		2	11938	–	1	–	–	–	1	–	–	–	–	–	–	–	–	–		2
												11910	–	–	–	–	1	–	–	–	1	–	–	–	–	–	–		2
												11933	2	1	3	–	–	–	–	1	1	2	–	–	–	–	–		10
	total	4	1	2	1	–	–		–		8		2	6	3	4	3	1	1	1	2	3	–	–	–	–	–		26
	mean	1	0,25	0,05	0,25	–	–		–		2		0,33	1	0,5	0,67	0,5	0,17	0,17	0,17	0,33	0,5	–	–	–	–	–		0,43
	%	25	25	50	25	–	–		–		75		17	67	17	50	33	17	17	17	33	33	–	–	–	–	–		100
	11933	1	1	–	–	–	–		–		2	11903	2	–	–	–	–	–	2	1	–	–	–	–	–	–	–		5
	11906	1	1	–	–	–	–		–		2	11907	–	–	–	–	–	–	–	1	–	–	–	1	–	–	–		1
	11907	2	–	1	–	–	–		–		3	11911	–	–	1	–	–	–	1	–	–	–	–	1	–	–	–		3
	11933	3	1	1	–	2	–		–		7	11900	–	1	–	2	–	–	–	–	–	–	–	–	–	–	–		3
	11935	1	–	–	–	–	–		–		1	11913	5	1	–	–	1	–	–	–	–	–	–	–	–	–	–		7
	11939	–	–	–	–	–	–		–		–	11930	–	1	1	–	–	–	–	1	–	–	–	–	–	–	–		3
	11910	4	–	–	2	–	–		–		6	11906	6	2	–	–	1	–	–	–	–	–	–	–	–	–	–		9
	11901	–	1	–	–	–	–		–		1	11937	–	1	–	–	1	–	–	–	1	–	–	–	–	–	–		3
mid	11911	–	–	–	–	–	–		–		–	11902	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–		1
	11900	–	–	–	–	–	–		–		–	11934	3	–	–	–	2	–	–	–	–	–	–	–	–	–	–		4
	11930	1	–	–	–	–	–		–		1	11936	1	2	2	1	–	1	–	–	–	1	–	–	–	–	–		8
	11932	4	1	–	–	–	–		–		5	11940	1	1	–	1	–	–	–	–	–	1	–	–	–	–	–		4

	11940	–	2	–	–	–	–	–	2	11901	–	–	–	–	2	–	–	–	–	–	–	–	1	1	–	4						
	11905	1	1	–	–	–	–	–	2	11931	1	–	4	1	–	–	–	–	–	–	–	–	–	–	–	6						
	11931	2	–	–	–	–	–	–	2																							
	11941	2	–	–	–	–	–	–	2																							
	total	23	8	2	2	2	–	–	37		18	10	8	5	7	1	3	3	1	1	1	1	1	1	–	61						
	mean	1,44	0,5	0,13	0,13	0,13	–	–	2,31		1,29	0,71	0,57	0,36	0,05	0,07	0,21	0,21	0,07	0,07	0,07	0,07	0,07	0,07	–	4,36						
	%	69	44	13	6	6	–	–	81		50	57	28	29	36	7	14	21	7	7	7	7	7	7	–	100						
	11902	1	–	1	–	1	2	–	5	11932	5	1	1	1	–	–	2	1	–	–	–	–	–	–	–	11						
h/	11913	1	–	–	–	–	–	–	1	11939	8	1	1	2	3	3	–	–	–	–	–	–	–	–	–	15						
	11936	1	–	–	–	–	–	–	1	11941	1	–	1	2	–	1	1	–	–	–	–	–	–	–	–	6						
	11937	–	–	–	–	–	–	–	–	11905	5	–	3	–	–	4	–	–	1	–	–	–	–	–	–	13						
	total	3	–	1	–	1	2	–	7		19	3	6	5	3	8	3	1	1	–	–	–	–	–	–	48						
	mean	0,75	–	0,25	–	0,25	0,5	–	1,75		4,75	0,5	1,5	1,25	0,75	2	0,75	0,25	0,25	–	–	–	–	–	–	12						
	%	75	–	25	–	25	50	–	75		100	50	100	75	25	75	50	25	25	–	–	–	–	–	–	100						
	total	30	9	5	3	3	2	–	52		39	18	17	14	13	10	7	5	4	4	1	1	1	1	–	135						
	mean	1,25	0,38	0,21	0,13	0,13	0,08	–	2,17		1,63	0,75	0,71	0,58	0,54	0,42	0,29	0,21	0,17	0,17	0,04	0,04	0,04	0,04	–	5,63						
total	%	63	33	21	8	8	4	–	79		50	58	88	42	33	21	21	21	17	13	4	4	4	4	–	100						

Fig. 3. Frequencies of temporal connectors in Norwegian students' EFL and NL 1 performance.

Connective type: *Temporal*

EFL



NL 1

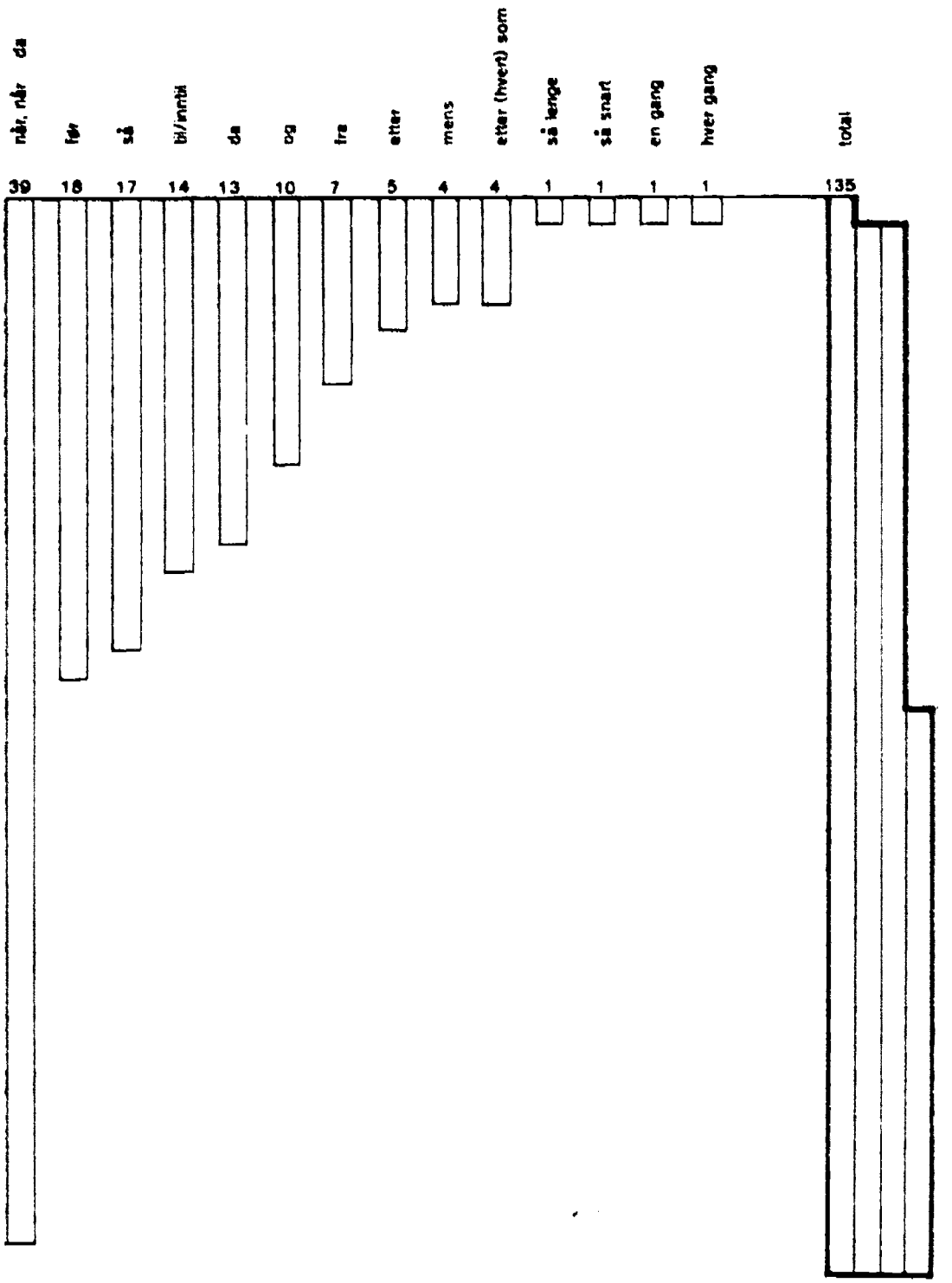

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Table 4.

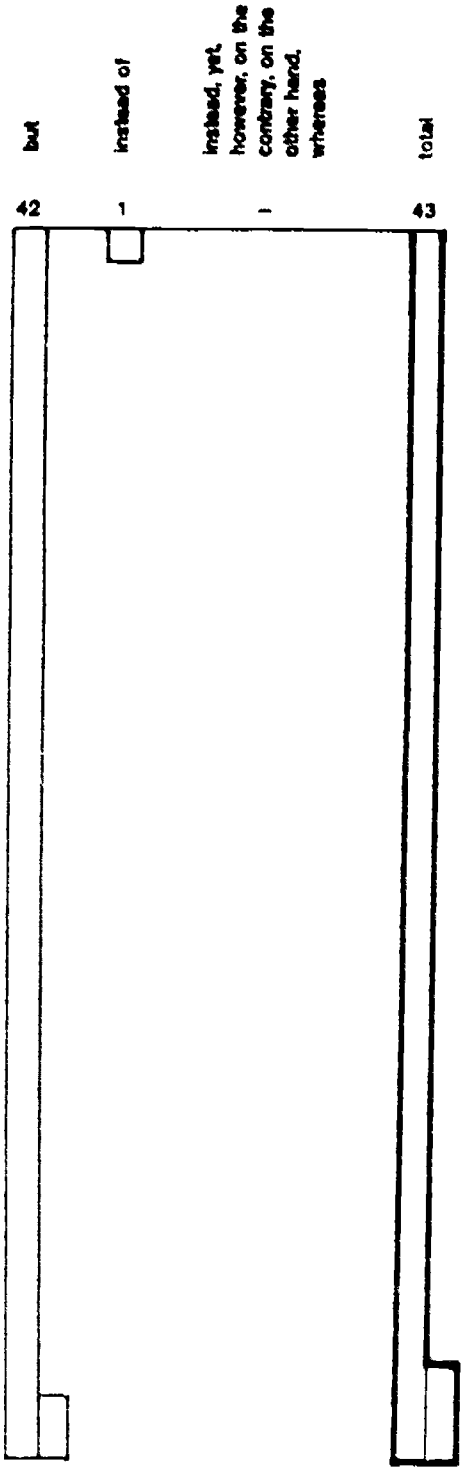
Distribution of adversative connectors in Norwegian students' EFL and NL 1 performance

connective type:	*Adversatives*													
language skill level	EFL identity	connectors				NL identity	connectors							
		but	instead of	yet, on the other hand, however, instead, on the contrary, whereas	total		men	likevel	mens	istedenfor	imidlertid	derimot	istedet	total
lo	11903	—	—	—	—	11904	1	—	—	—	—	—	—	1
	11934	1	—	—	1	11909	3	1	—	—	—	—	—	4
	11909	2	—	—	2	11935	2	—	—	—	—	—	—	2
	11904	1	—	—	1	11938	1	—	—	—	—	—	1	2
						11910	5	1	—	—	—	—	—	6
						11933	2	—	—	—	—	—	—	2
	total	4	—	—	4		14	2	—	—	—	—	1	17
	mean	1	—	—	1		2,33	0,33	—	—	—	0,17	2,83	—
	%	7 5	—	—	75		100	33	—	—	—	—	17	100
	11933	3	—	—	3	11903	3	—	—	—	—	—	—	3
	11906	2	—	—	2	11907	2	—	—	—	—	—	—	2
	11907	1	—	—	1	11911	5	1	—	—	—	—	—	6
	11938	4	—	—	4	11900	3	—	—	—	—	—	—	3
	11935	—	—	—	—	11918	5	—	—	—	—	—	—	5
	11939	6	—	—	6	11930	4	—	—	—	—	—	—	4
	11910	—	—	—	—	11906	4	—	1	—	—	1	—	6
	11901	2	—	—	2	11937	—	—	—	—	—	—	—	—
mid	11911	4	1	—	5	11902	2	2	—	—	—	—	—	4
	11900	2	—	—	2	11934	3	—	—	1	—	—	—	4
	11930	4	—	—	4	11936	2	1	—	1	2	—	—	6
	11932	1	—	—	1	11940	4	—	—	—	—	—	—	4
	11940	4	—	—	4	11901	5	—	1	—	—	—	—	6
	11905	2	—	—	2	11931	9	—	3	—	—	—	—	12
	11931	1	—	—	1									
	11941	1	—	—	1									
	total	37	1	—	38		51	4	5	2	2	1	—	65
	mean	2,31	0,06	—	2,38		3,64	0,28	0,36	0,14	0,14	0,07	—	4,64
	%	88	6	—	88		93	21	21	14	7	7	—	93
hi	11902	—	—	—	—	11932	12	2	—	1	—	—	—	15
	11913	—	—	—	—	11939	5	—	3	—	—	—	—	8
	11936	—	—	—	—	11941	2	—	—	—	—	—	—	2
	11937	1	—	—	1	11905	11	1	—	—	—	1	—	13
	total	1	—	—	1		30	3	3	1	—	1	—	38
	mean	0,25	—	—	0,25		7,5	0,75	0,75	0,25	—	0,25	—	9,5
	%	25	—	—	25		100	50	25	25	—	25	—	100
total	total	42	1	—	43		95	9	8	3	2	2	1	120
	mean	1,75	0,04	—	1,78		3,96	0,38	0,33	0,13	0,08	0,08	0,04	5
	%	75	4	—	75		96	29	17	13	4	8	4	96

Fig. 4. Frequencies of adversative connectors in Norwegian students' EFL and NL performance.

Connective type: *Adversative*

EFFL



NL 1

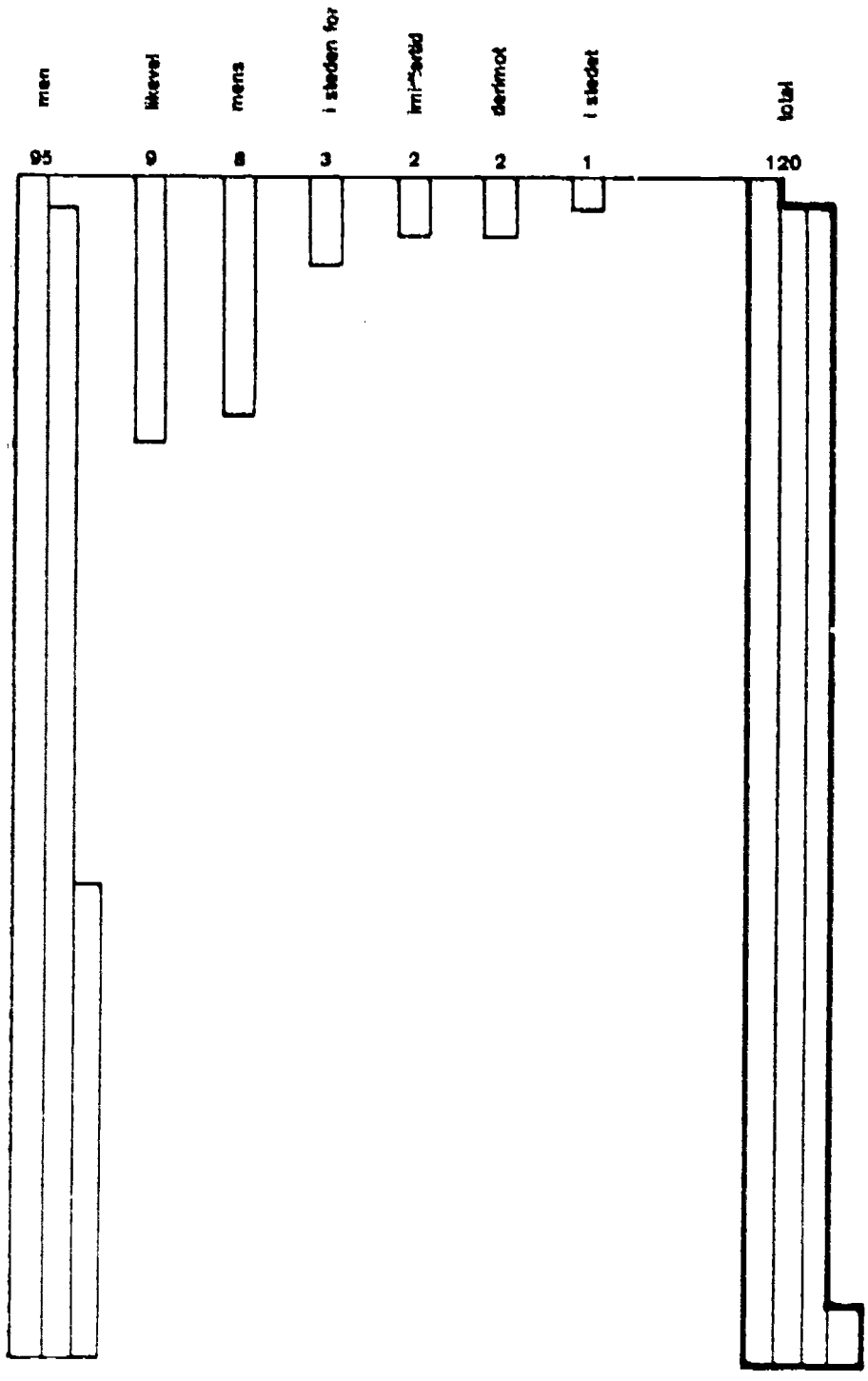

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Table 5a.

Distribution of conditional connectors in Norwegian student's EFL and NL 1 performance

connective type:	*Conditional*														
language skill level	EFL identity	connectors			NLI identity	connectors									
		if	unless, whether, provided that, no matter what, in any case	total		hvis, hvis ... så, s . så, hvis ... ... da ...	når, når ... så ...., når, ... da	uansett	dersom	om	i tilfelle	enn om	uten at	gitt at, med mindre, under forutsetning av at	total
	11903	—	—	—	11904	2	4	—	—	—	—	—	—	—	6
	11934	4	—	4	11909	—	3	—	—	—	1	—	—	—	4
lo	11909	—	—	—	11935	7	—	—	—	—	—	—	—	—	7
	11904	—	—	—	11938	1	—	—	—	—	—	—	—	—	1
					11910	1	1	—	—	—	—	—	—	—	2
					11933	1	1	—	—	—	—	—	—	—	2
	total	4	—	4		12	9	—	—	—	1	—	—	—	22
	mean	1	—	1		2	1,5	—	—	—	0,17	—	—	—	3,67
	%	25	—	25		83	67	—	—	—	17	—	—	—	100
	11933	1	—	1	11903	-	2	—	—	—	—	—	—	—	2
	11906	—	—	—	11907	—	1	—	—	-	—	—	—	—	1
	11907	1	—	1	11911	1	—	—	—	—	—	—	—	—	1
	11938	1	—	1	11900	3	3	—	—	—	—	1	—	—	7
	11935		—	—	11913	—	—	—	—	—	—	—	—	—	—
	11939	1	—	1	11930	2	—	—	—	—	—	—	—	—	2
	11910	—	—	—	11936	-	3	-	—	—	—	—	—	—	3
mid	11901	2	—	2	11937	1	1	—	—	—	—	—	—	—	2
	11911	1	-	1	11902	1	2	—	—	—	—	—	1	—	4
	11900	1	—	1	11934	1	—	1	3	2	—	—	—	—	7
	11930	—	—	—	11936	5	—	—	—	—	-	—	—	—	5
	11932	-	—	—	11940	4	—	—	—	—	—	—	—	—	4
	11940	—	—	—	11901	1	1	-	—	—	—	—	—	—	2
	11905	—	—	—	11931	4	—	—	—	-	—	—	—	—	4
	11931	2	—	2											
	11941	2	—	2											
	total	12	—	12		23	13	1	3	2	—	1	1	—	44
	mean	0,75	—	0,75		1,64	0,93	0,07	0,21	0,14	—	0,07	0,07	—	3,14
	%	56	—	56		71	50	7	7	7	—	7	7	—	93
	11902	2	-	2	11932	-	1	—	—	—	—	-	-	—	1
	11913	3	—	3	11939	2	1	1	-	—	—	—	—	—	4
	11936	2	-	2	11941	1	2	—	-	—	-	-	-	—	3
	11937	—	—	—	11905	2	-	1	—		—	—	—	—	3
	total	7	—	7		5	4	2	—	—	-	-	—	—	11
	mean	1,75	-	1,75		1,25	1	0,5	—	—	—	—	—	—	2,75
	%	75	-	75		75	75	50	—	—	—	—	—	—	100
	total	23	—	23		40	26	3	3	2	1	-	1	—	77
total	mean	0,96	—	0,96		1,67	1,08	0,13	0,13	0,08	0,04	—	0,04	—	3,21
	%	54	-	54		75	58	13	4	8	4	—	4	—	96

Fig. 5a. Frequencies of conditional connectors in Norwegian students' EFL and NL 1 performance

Connective type: *Conditional*

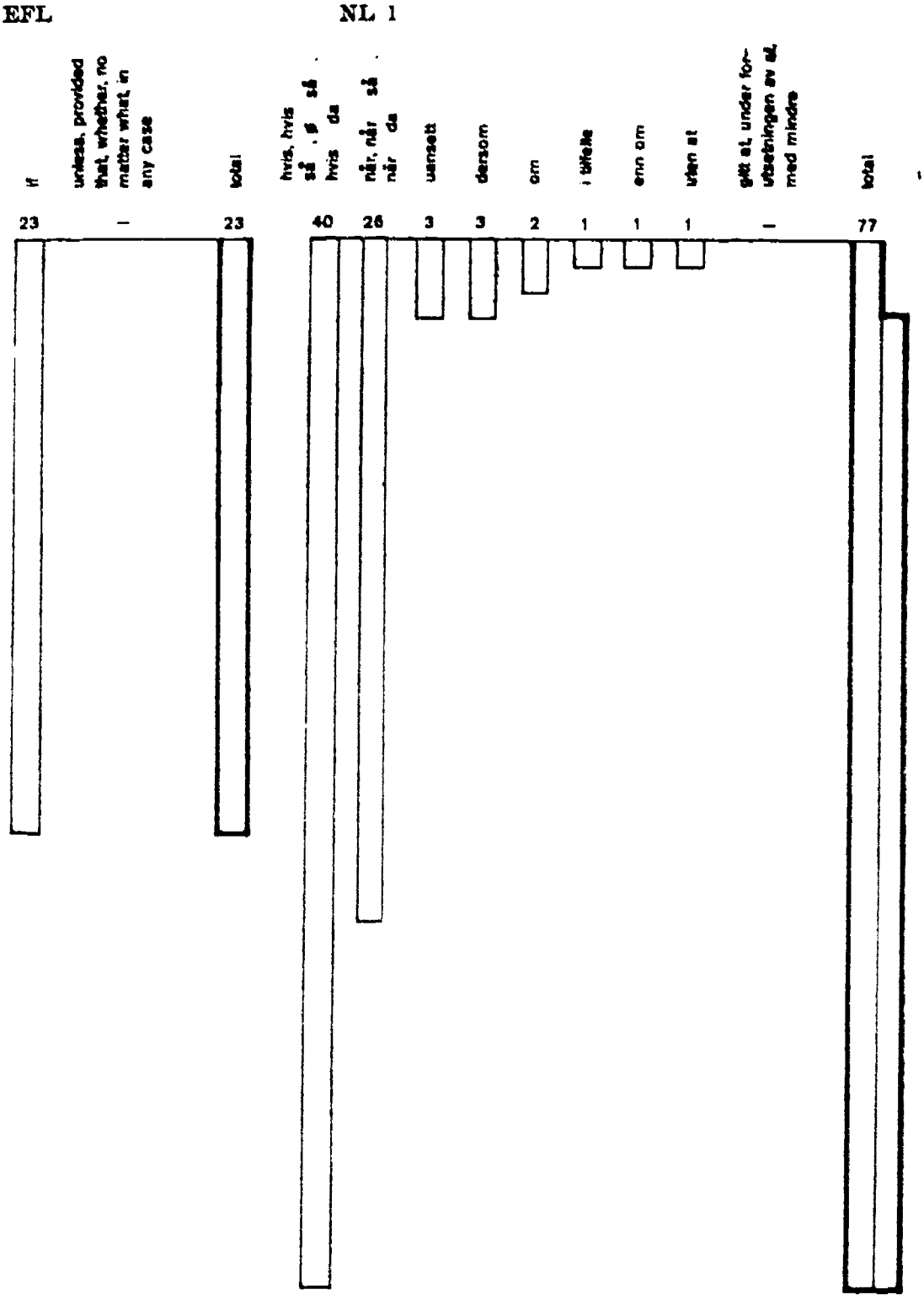


Table 5b.

Distribution of final connectors in Norwegian student's EFL and NL 1 performance

connective type:	*Final*									
language skill level	EFL identity connectors					NL 1 identity connectors				
		to	so	so that	in order to	total		for å	for at	slik at	total
	11903	—	—	—	—	—	11904	2	—	—	2
	11934	—	1	—	—	1	11909	2	—	—	2
lo	11909	—	—	—	—	—	11935	1	—	—	1
	11904	1	—	1	—	2	11938	3	—	—	3
							11910	4	—	—	4
							11933	1	1	1	3
	total	1	1	1	—	3		13	1	1	15
	mean	0,25	0,25	0,25	—	0,75		2,17	0,17	0,17	2,5
	%	25	25	25	—	50	—	100	17	17	100
	11933	1	—	—	—	1	11903	—	1	1	2
	11906	—	—	—	—	—	11907	—	—	—	—
	11907	—	—	—	—	—	11911	2	1	—	3
	11938	1	—	—	—	1	11900	—	1	—	1
	11935	2	1	—	—	3	11913	—	—	—	—
	11939	—	—	—	—	—	11930	1	—	1	2
	11910	—	—	—	—	—	11906	—	—	1	1
	11901	—	—	—	—	—	11937	1	—	—	1
mid	11911	—	—	—	—	—	11902	—	1	—	1
	11900	1	1	—	—	2	11934	1	1	—	2
	11930	—	—	—	—	—	11936	2	—	—	2
	11932	—	—	—	—	—	11940	1	—	—	1
	11940	1	—	—	—	1	11901	1	1	—	2
	11905	—	—	1	—	1	11931	—	1	1	2
	11931	—	—	—	—	—					
	11941	—	—	—	—	—					
	total	6	2	1	—	9		9	7	4	20
	mean	0,38	0,13	0,06	—	0,56		0,64	0,5	0,29	1,43
	%	31	13	6	—	38		50	50	29	86
	11902	1	1	—	—	2	11932	—	—	—	—
	11913	—	—	—	—	—	11939	1	—	—	1
hi	11936	—	—	—	—	—	11941	2	—	—	2
	11937	—	—	1	—	1	11905	1	—	—	1
	total	1	1	1	—	3		4	—	—	4
	mean	0,25	0,25	0,25	—	0,75		1	—	—	1
	%	25	25	25	—	50		75	—	—	75
	total	8	4	3	—	15		26	8	5	39
total	mean	0,33	0,17	0,13	—	0,63		1,08	0,33	0,21	1,63
	%	29	17	13	—	42		67	33	21	88

Fig. 5b. Frequencies of final connectors in Norwegian students' EFL and NL 1 performance.

Connective type: *Final*

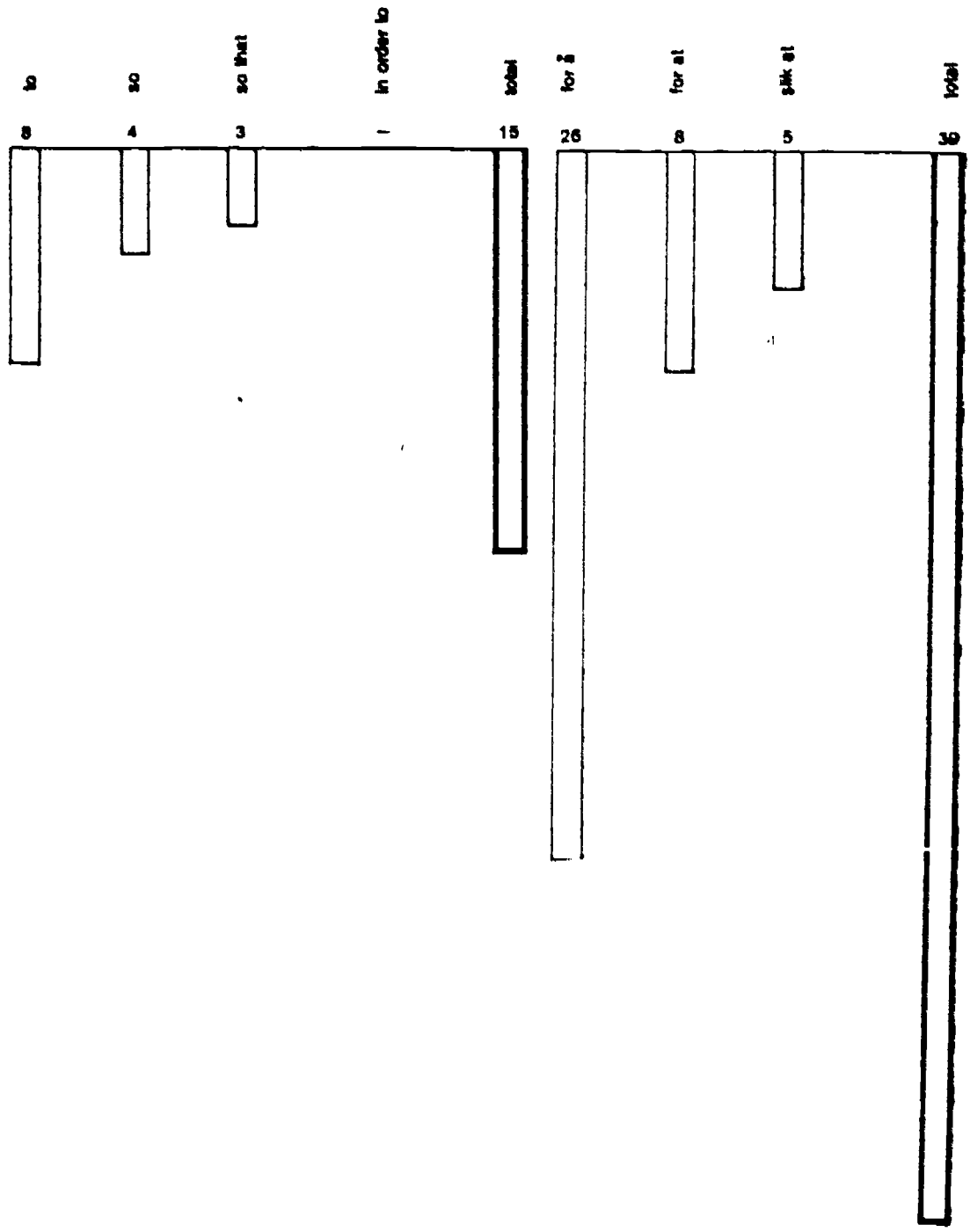


Table 5c.

Distribution of concessive connectors in Norwegian students' EFL and NL 1 performance

connective type:	*Concessive*											
language skill level	EFL identity connectors					NL 1 identity connectors						
		i-	even if	in spite of	although, though, despite, after all	total		selv om .. (så)..	på tross av at, tross i at	enda	skjønt	total
lo	11903	—	—	—	—		11904	—	—	—	—	—
	11934	—	—	—	—		11909	—	—	—	—	—
	11909	—	—	—	—		11935	—	—	—	—	—
	11904	—	—	—	—		11938	—	—	—	—	—
							11910	1	—	—	—	1
							11933	—	—	—	—	—
	total	—	—	—	—			1	—	—	—	1
	mean	—	—	—	—			0,17	—	—	—	0,17
	%	—	—	—	—			17	—	—	—	17
mid	11933	1	—	—	1		11903	—	—	—	—	—
	11906	—	—	—	—		11907	—	—	—	—	—
	11907	—	—	—	—		11911	—	—	—	—	—
	11938	—	—	—	—		11900	—	1	—	—	1
	11935	—	—	—	—		11913	—	—	—	—	—
	11939	—	—	—	—		11930	—	—	—	—	—
	11910	—	—	—	—		11906	1	—	—	—	1
	11901	—	—	—	—		11937	—	—	—	—	—
	11911	—	—	—	—		11902	—	—	—	—	—
	11900	—	—	—	—		11934	—	—	—	—	—
	11930	—	—	—	—		11936	2	1	—	—	3
	11932	—	—	—	—		11940	—	—	—	—	—
	11940	—	—	—	—		11901	—	—	—	—	—
	11905	—	—	—	—		11931	—	—	—	—	—
	11931	—	—	—	—							
	11941	—	—	—	—							
	total	1	—	—	1			3	2	—	—	5
	mean	0,06	—	—	0,06			0,21	0,14	—	—	0,36
	%	6	—	—	6			14	14	—	—	21
hi	11902	—	—	—	—		11932	2	—	1	—	3
	11913	—	—	—	—		11939	1	—	—	—	1
	11936	—	—	—	—		11941	—	—	—	—	—
	11937	—	1	—	1		11905	1	—	—	—	1
	total	—	1	—	1			4	—	1	—	5
	mean	—	0,25	—	0,25			1	—	0,25	—	1,25
	%	—	25	—	25			75	—	25	—	75
total	total	1	1	—	2			8	2	1	—	11
	mean	0,04	0,04	—	0,08			0,33	0,08	0,04	—	0,46
	%	4	4	—	8			25	8	4	—	29

Fig. 5c. Frequencies of concessive connectors in Norwegian students' EFL and NL 1 performance.

Connective type: *Concessive*

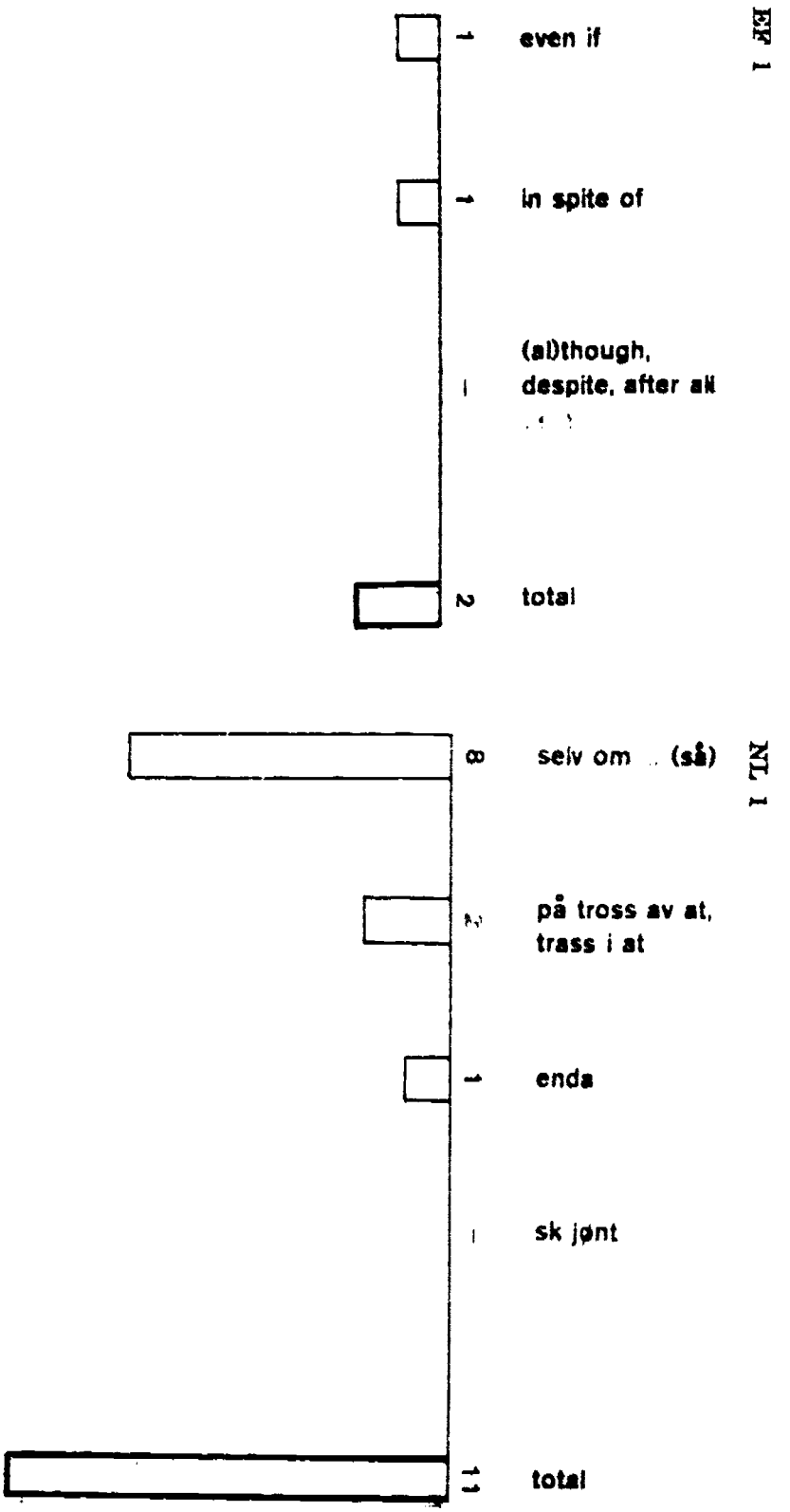


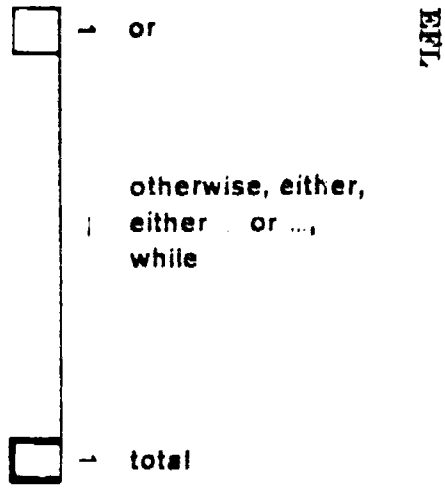
Table 5d.

Distribution of alternative connectors in Norwegian students' EFL and NL 1 performance.

connective type:	*Alternative*								
language skill level	EFL identity connectors					NL 1 identity connectors				
		or	otherwise, either ... or ..., while	total			eller	ellers	enten ... eller ...	total
lo	11903	—	—	—		11904	—	—	—	—
	11934	—	—	—		11909	—	—	—	—
	11909	—	—	—		11935	—	—	—	—
	11904	—	—	—		11938	—	—	—	—
						11910	—	—	—	—
						11933	—	—	—	—
	total	—	—	—			—	—	—	—
	mean	—	—	—			—	—	—	—
	%	—	—	—			—	—	—	—
mid	11933	—	—	—		11903	—	—	—	—
	11906	—	—	—		11907	—	—	—	—
	11907	—	—	—		11911	—	—	—	—
	11938	—	—	—		11900	2	1	3	—
	11935	—	—	—		11913	—	—	—	—
	11939	1	—	1		11930	—	—	—	—
	11910	—	—	—		11906	—	—	—	—
	11901	—	—	—		11937	—	—	—	—
	11911	—	—	—		11902	—	—	—	—
	11900	—	—	—		11934	1	1	—	2
	11930	—	—	—		11936	—	—	—	—
	11932	—	—	—		11940	2	—	—	2
	11940	—	—	—		11901	—	—	—	—
	11905	—	—	—		11931	—	—	—	—
	11931	—	—	—						
	11941	—	—	—						
	total	1	—	1			5	2	—	7
	mean	0,06	—	0,06			0,36	0,14	—	0,5
	%	6	—	6			21	14	—	21
hi	11902	—	—	—		11932	—	—	—	—
	11913	—	—	—		11939	—	—	—	—
	11936	—	—	—		11941	2	—	—	2
	11937	—	—	—		11905	—	—	—	—
	total	—	—	—			2	—	—	2
	mean	—	—	—			0,5	—	—	0,5
	%	—	—	—			25	—	—	25
total	total	1	—	1			7	2	—	9
	mean	0,04	—	0,04			0,29	0,08	—	0,38
	%	4	—	4			17	8	—	17

Fig. 5d. Frequencies of alternative connectors in Norwegian students' EFL and NL 1 performance.

Connective type: *Alternative*



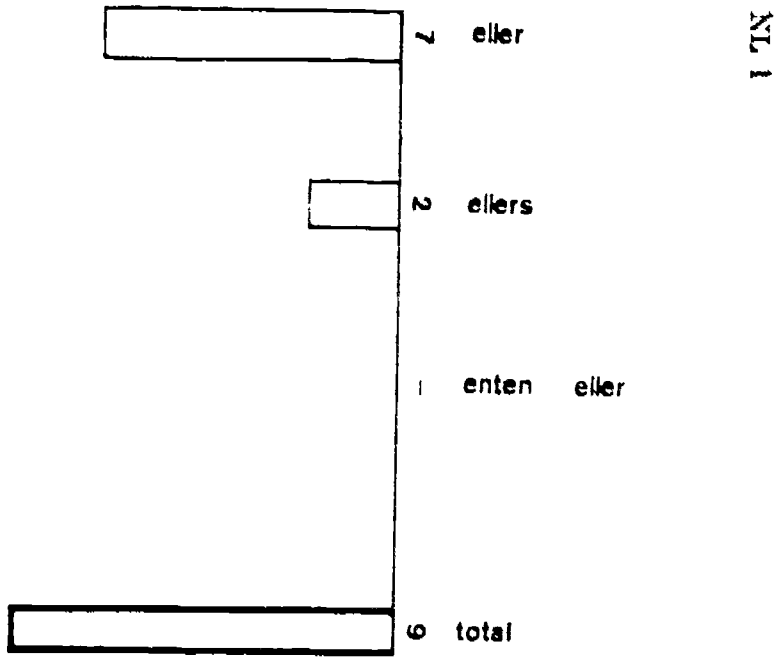


Table 5e.

Distribution of specifying connectors in Norwegian students' EFL and NL 1 performance

connective type:	*Specifying*													
language skill level	EFL identity connectors				NL 1 identity connectors									
		in other words, namely, that is, particularly, in particular, in the sense (that) especially				med andre ord	særlig	det vil si, d.v.s.	nemlig	slik at	i den forstand at	spesielt	total	
	11903		—		11904	—	—	—	—	—	—	—	—	
	11934		—		11909	—	—	—	—	—	—	—	—	
lo	11909		—		11935	—	—	—	—	—	—	—	—	
	11904		—		11938	—	—	—	—	—	—	—	—	
					11910	—	—	—	1	—	—	—	1	
					11933	—	—	—	—	—	—	—	—	
	total		—			—	—	—	1	—	—	—	1	
	mean		—			—	—	—	0,17	—	—	—	0,17	
	%		—			—	—	—	17	—	—	—	17	
	11933		—		11903	—	—	—	—	—	—	—	—	
	11906		—		11907	—	—	—	—	—	—	—	—	
	11907		—		11911	—	1	1	—	—	—	—	2	
	11938		—		11900	—	—	—	—	—	—	—	—	
	11935		—		11913	—	—	—	—	—	—	—	—	
	11939		—		11930	—	—	—	—	—	—	—	—	
	11910		—		11906	—	1	—	—	—	—	—	1	
mid	11901		—		11937	—	—	—	—	—	—	—	—	
	11911		—		11902	—	—	—	—	—	—	—	—	
	11900		—		11934	1	—		—	—	—	—	1	
	11930		—		11936	1	—	1	—	—	—	—	2	
	11932		—		11940	—	—	—	—	—	—	—	—	
	11940		—		11901	—	—	—	—	1	—	—	1	
	11905		—		11931	1	—	—	—	—	—	—	1	
	11931		—											
	11941		—											
	total		—			3	2	2	—	1		—	8	
	mean		—			0,21	0,14	0,14	—	0,07	—	—	0,57	
	%		—			21	14	14	—	7	—	—	43	
	11902		—		11932	—	—	—	—	—	1	1	2	
	11913		—		11939	—	—	—	—	—	—	—	—	
hi	11936				11941	—	—	—	—	—	—	—	—	
	11937		—		11905	—	1	—	—	—	—	—	1	
	total		—			—	1	—	—	—	1	1	3	
	mean		—			—	0,25	—	—	—	0,25	0,25	0,75	
	%		—			—	25	—	—	—	25	25	50	
	total		—			3	3	2	1	1	1	1	12	
total	mean		—			0,13	0,13	0,08	0,04	0,04	0,04	0,04	0,5	
	%		—			13	13	8	4	4	4	4	38	

Fig. 5c. Frequencies of specifying connectors in Norwegian students' EFL and NL 1 performance

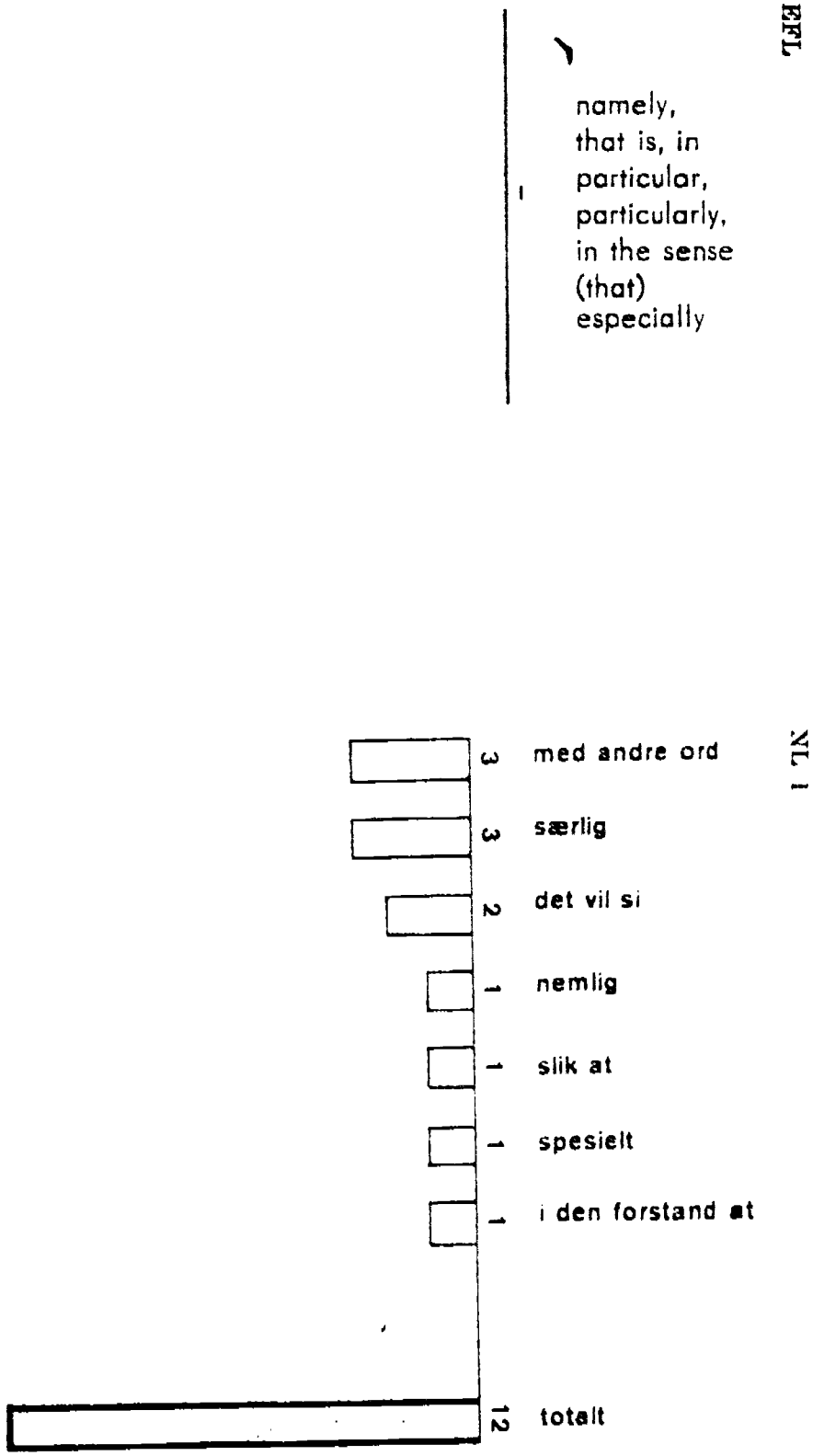


Table 5f.

Distribution of comparative connectors in Norwegian students' EFL and NL 1 performance

connective type: *Comparative*										
language skill level	EFL identity connectors		NL 1 identity connectors							
		just as, than, so ... as ..., equally, similarly		enn å, enn at, enn	som om	så ... som ...	like ... som	slik som	total
	11903	—	11904	—	—	—	—	—	—
lo	11934	—	11909	1	—	—	—	—	1
	11909	—	11935	—	—	—	—	—	—
	11904	—	11938	—	—	—	—	—	—
			11910	—	—	—	—	—	—
			11933	—	—	—	—	—	—
	total	—		1	—	—	—	—	1
	mean	—		0,17	—	—	—	—	0,17
	%	—		17	—	—	—	—	17
	11933	—	11903	—	—	—	—	—	—
	11906	—	11907	—	1	—	—	—	1
	11907	—	11911	—	—	—	—	—	—
	11938	—	11900	1	—	—	—	—	1
	11935	—	11913	—	—	—	1	—	1
	11939	—	11930	—	—	—	—	—	—
	11910	—	11906	—	—	—	—	—	—
mid	11901	—	11937	—	—	—	—	—	—
	11911	—	11902	—	—	—	—	1	1
	11900	—	11934	—	—	—	—	—	—
	11930	—	11936	—	2	—	—	—	2
	11932	—	11940	—	—	—	—	—	—
	11940	—	11901	—	—	—	—	—	—
	11905	—	11931	1	—	2	—	—	3
	11931	—							
	11941	—							
	total	—		2	3	2	1	1	9
	mean	—		0,14	0,21	0,14	0,07	0,07	0,64
	%	—		14	14	7	7	7	43
	11902	—	11932	—	—	—	—	—	—
hi	11913	—	11939	—	—	—	—	—	—
	11936	—	11941	—	—	—	—	—	—
	11937	—	11905	—	—	—	—	—	—
	total	—		—	—	—	—	—	—
	mean	—		—	—	—	—	—	—
	%	—		—	—	—	—	—	—
	total	—		3	3	2	1	1	10
total	mean	—		0,13	0,13	0,08	0,04	0,04	0,42
	%	—		13	13	4	4	4	29

Fig. 1f. Frequencies of comparative connectors in Norwegian students' EFL and NL 1 performance

Connective type: *Comparative*

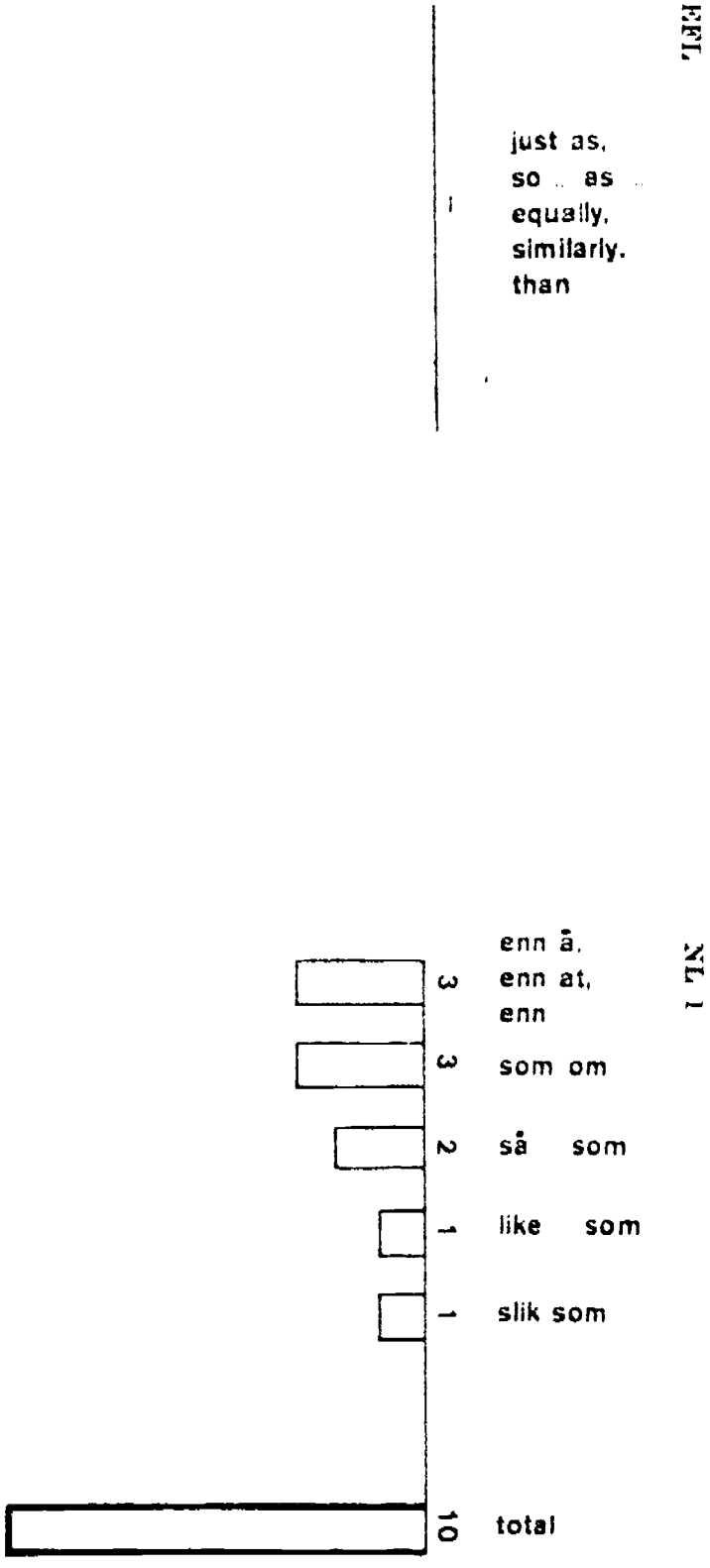


Table 5g.

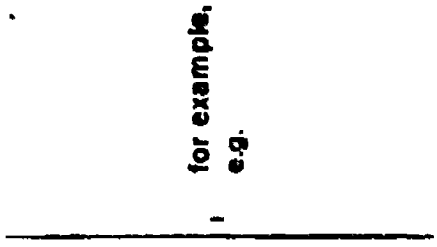
Distribution of illustrative connectors in Norwegian students' EFL and NL 1 performance

connective type: *Illustrative*				
language skill level	EFL identity	connectors for example, e.g.	NL 1 identity	connectors for eksempel, f.eks.
lo	11903	—	11904	—
	11934	—	11909	—
	11909	—	11935	1
	11904	—	11938	—
			11910	—
			11933	—
	total	—		1
	mean	—		0,17
	%	—		17
mid	11933	—	11903	—
	11906	—	11907	—
	11907	—	11911	1
	11938	—	11900	—
	11935	—	11913	—
	11939	—	11930	—
	11910	—	11906	—
	11901	—	11937	1
	11911	—	1902	—
	11900	—	11934	1
	11930	—	11936	—
	11932	—	11940	—
	11940	—	11901	—
	11905	—	11931	—
	11931	—		
	11941	—		
	total	—		3
	mean	—		0,21
	%	—		21
hi	11902	—	11932	1
	11913	—	11939	1
	11936	—	11941	—
	11937	—	11905	—
	total	—		2
	mean	—		0,5
	%	—		50
total	total	—		6
	mean	—		0,25
	%	—		25

Fig. 5g. Frequencies of illustrative connectors in Norwegian students' EFL and NL 1 performance

Connective type: *Illustrative*

EFL



NL 1

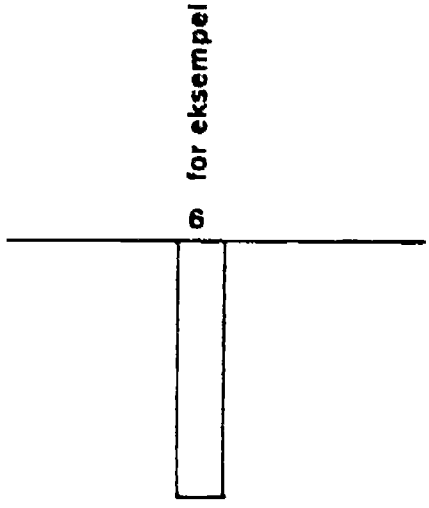
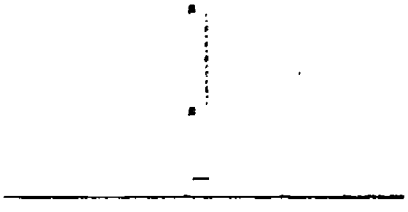


Fig. 5h. Frequencies of direct speech connectors in Norwegian students' EFL and NL 1 performance

Connective type: *Direct speech*

EFL



NL 1

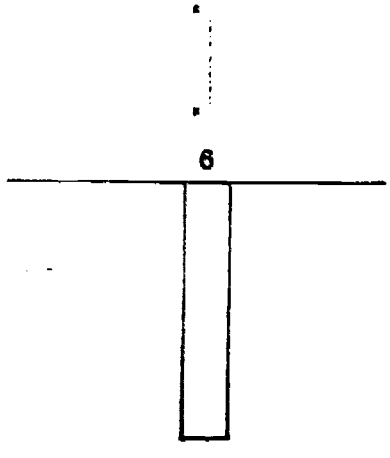


Table 5h.

Distribution of direct speech connectors in Norwegian students' EFL and NL 1 performance

connective type:	*Direct speech*			
language skill	EFL identity	connectors	NL 1 identity	connectors
	11903	—	11904	—
	11934	—	11909	—
lo	11909	—	11935	—
	11904	—	11938	—
			11910	—
			11933	—
	total	—		—
	mean	—		—
	%	—		—
	11933	—	11903	1
	11906	—	11907	—
	11907	—	11911	—
	11938	—	11900	—
	11935	—	11913	1
	11939	—	11930	—
	11910	—	11906	—
	11901	—	11937	—
mid	11911	—	11902	—
	11900	—	11934	—
	11930	—	11936	1
	11932	—	11940	—
	11940	—	11901	—
	11905	—	11931	1
	11931	—		
	11941	—		
	total	—		4
	mean	—		0,28
	%	—		28
	11902	—	11932	—
hi	11913	—	11939	—
	11936	—	11941	1
	11937	—	11905	1
	total	—		2
	mean	—		0,5
	%	—		50
	total	—		6
total	mean	—		0,25
	%	—		25

Temporal *and/og* appear infrequently in both languages. In EFL it is not used in the hi group; in NL1, on the other hand, there is a clear correlation between skill and use of this item. There are thus conflicting tendencies in the two languages in this material.

The **adversative** group does not contain so many different items in the material as the other groups we have considered so far. One item, however, *but/men* is the second most frequent item in both languages, ranking only below *and/og*. In NL1 there is only one additional item — *likevel* — (*yet**) which is observed at all skill levels. The items *mens* (*whereas**), *derimot* (*on the other hand**) and *imidlertid* (*however**) are found, but infrequently.

In EFL one instance of *instead of* is observed as the only additional adversative item. Items like *however, yet, instead* and *on the contrary* do not occur. In NL1 *tvert imot* (*on the contrary*) is the only item searched for which is not used. There is thus more diversity in the NL1 material in the use of adversative connectors. Still, the dominant pattern is one of non-diversity.

In the EFL material all remaining groups occur infrequently. Only conditional *if*, final *to* and final *so* are found at all skill levels. All remaining items are very infrequent and with one exception (*so that*) do not occur in the **lo** group.

In NL1 there is some more diversity. Both conditional *hvis* (*if**), *når...så* (*when...then**), final *for* (*å*) (*in order to**), concessive *selv om* (*even if**) and illustrative *for eksempel* (*for example**) occur at all skill levels. Several additional items are observed infrequently throughout the material, most often in the **mid** or **hi** groups.

In the second section of the presentation certain aggregate measures are presented. There is a steady increase in the total frequency of connectors as one moves from **lo** to **hi** in both languages. The difference between **mid** and **hi** is more marked in NL1 than in EFL. There is also a general tendency to use more connectors in NL1. The mean frequencies are 10.54 items per text in EFL and 26.83 for NL1.

Similarly, there is a steady increase in the mean number of **different** connectors used. The total averages are 6.17 for EFL and 13.96 for NL1. Also, there is more diversity in NL1 than in EFL.

In Table 6 connector types are aggregated further into connective groups like **additive** and **causal**. Here, the general picture is again one of increase in diversity corresponding to increase in skill. There is also more diversity in NL1.

In the last part of the table mean number of different connectors is divided by mean number of connective groups to give a higher order measure of diversity. Again similar regularities are observed, with a minor exception for the figures in the NL1 lo and mid groups.

Table 6.

Measures of frequency (mean number of connectors, percentage of connectors) and diversity (mean number of different connectors, mean number of different connector types, number of different connectors divided by number of different connective types) in Norwegian students' EFL and NL 1 performance.

language skill level	EFL lo	mid	hi	total	NL 1 lo	mid	hi	total
mean number of connectors	9.25	10.44	12.25	19.54	21.67	24.57	42.5	26.83
mean number of different connectors	5.25	6.19	7	6.17	12.17	13.64	17.75	13.96
mean number of different connective types	4.25	4.38	4.5	4.38	6.5	7.36	8.25	7.29
percentage of connectors	4.97	4.95	4.86	4.95	4.65	3.82	5.28	4.28
mean number of different connectors	1.24	1.41	1.56	1.41	1.87	1.85	2.15	1.91
mean number of different connective types								

In this table a standardized measure of connector use is presented to counteract skewing based on text sample characteristics. If we look at total number of connectors, the data are skewed by the fact that the NL1 texts are much longer than the EFL texts. When we, to counteract this fact, try to find what percentage of the words in the two languages are connectors, the emerging pattern is one where the students in our sample use connectors more frequently in EFL than in NL1! The percentages are 4.97, 4.95 and 4.86 for the **lo**, **mid** and **hi** groups in EFL, respectively. The corresponding NL1 percentages are 4.65, 3. 82 and 5. 28. The total averages are 4.95 for EFL and 4.28 for NL1. These NL 1 figures correspond well to a study of conjunctions in Swedish students' writing in Swedish as a first language (Hultman and Westman 1977).

This measure does not discriminate well between skill groups. The differences in EFL are very small; the pattern in NL1 is curvilinear. These facts are considered in the discussion section below.

4. Discussion

In this section we shall first briefly consider certain general characteristics of the material. Then differences between EFL and NL1 will be discussed as a basis for returning to the LM hypothesis and more general questions relevant to discourse-level inter-language PA.

The distribution of a large number of connectors again makes it clear that a small number of frequent items account for a large part of the total quantity in the material. Conditional connectors may be seen as the most marked example of this tendency and causal connectors as the least marked example. Thus both non-use of items and diversity of use seem to be central factors to consider in future analyses. The question of total frequency versus diversity will be discussed further below.

When comparing learner language in EFL and NL1, there are considerable differences. The mean number of connectors (tokens) used is higher in NL1 in all skill groups. The average in NL1 is 26,83 items per text in NL1 texts against 10,54 items in an average EFL text.

A similar pattern appears if we look at the diversity of connector use. The average number of different connectors (types) in EFL texts is 6,17 against 13.96 in NL1 texts. If we look at connector types at a more general level (types like **additive, temporal** etc.) to find out what degree of diversity exists at this aggregate level, the pattern still holds. The mean number of different connective types in EFL is 4,38 against 7,29 in NL1. A higher-level type-token ratio gives a result of 1,41 for EFL whereas the NL1 ratio is 1,91.

The main question when evaluating these results is to what extent one should take text length into account. NL1 texts are generally much longer than EFL texts. All the measures of connector use referred to so far are sensitive to text length.

If we standardize our measures and use e.g. the proportion of connectors measured as percentage of total number of words, a qualitatively different picture appears. Connector density is then in fact higher in all skill groups in EFL. This finding is consistent with the LM hypothesis.

It is not clear to the present writers, however, to what extent and in precisely which way the differences in text length may influence on this pattern. We have so far only controlled for text length measured as number of words. An analysis where connector density is seen in relation to number and type/ /length of clauses would give a more accurate picture.

What may well be the case is the need for both connector quantity and diversity to increase with increasing text length in such relatively short texts. If this is the case, the LM hypothesis is even more relevant to explain the observed distributions. The chief difference between NL1 and EFL texts might then be analysed as a difference in text productivity, where

text productivity naturally leads to larger total number of items and, to some extent, more diversity. However, this is a topic for further study, preferably on another set of data.

L1-FL differences as to tasks given may also influence the results observed in the present data (Ann Charlotte Lindebergh, pers. comm.). The NL1 tasks are more oriented toward literay appreciation. It may be the case that the EFL tasks favour the expository essay, which requires explicit logical marking, more than the NL1 tasks. Text typological studies would be necessary to further investigate this possibility.

The intraindividual analyses in this exploratory study have been relatively superficial; tables 0 a) and 1 have been examined to see if there are interesting cross-linguistic differences in individual performance. No such differences have been found and the analysis was not carried further.

The intra-individual distribution of marks shows some natural fluctuation. In thirteen cases there is a difference of + or — one mark, for ten students the marks in EFL and NL1 are the same and in one case (student 11939) there is a difference of two marks The cross-linguistic individual differences in additive connector use are generally small. Both frequency and diversity are somewhat larger in NL1, as demonstrated in the subtotals and totals of Table 1. Most deviations from this pattern follow differences in marks, thus illustrating the discriminatory power of connector use. One exception to this pattern is found with student 11910, who uses two *and*'s in the mid EFL group and 12 *oq*'s and two *oqså*'s in the lo NL1 group.

The data make it possible to draw certain very preliminary conclusions about the distribution of different functions of the most common connector — *and* (other multifunctional items are so scarce that a statistical analysis is not appropriate). An obvious conclusion is that the additive function of *and* is by far the most common one. In EFL, 43 out of 63 tokens fall within this category. 17 tokens are causal whereas only 3 tokens are temporal. In NL1, the pattern is even more clear; 109 out of 127 tokens are additive, 8 are causal and 10 are temporal. Nonadditive uses of *and* is thus a marked case in this sense.

If we look at the distribution of *and* across skill groups, there seems to emerge a pattern where increase in the additive use of *and* correlates with increase in skill. In EFL, 75% of the **lo** skill texts contain additive *and*, whereas 81% of the **mid** skill group have one or more occurrences. In the **hi** skill group, all texts have additive *and*. In NL1, 83% of the **lo** skill texts have occurrences of the item. All texts in both **mid** and **hi** skill groups exploit the item.

This pattern invites the inverse conclusion that non-additives use correlate with lo skill. In this view, such uses might be analysed as non-differentiated uses in lack of more powerful items; *and* as the archetypal connector as it is found in child language.

The present data do not justify any strong conclusion on this point. In EFL, the distribution of temporal *and* follows the expected pattern, frequencies falling from 25% in the **lo** group, through 6% in the **mid** group to 0% in the **hi** group. The distribution of causal *and*, however, is not clear as viewed from this angle. 50% of both **lo** and **hi** groups exploit it, against only 31% of the **mid** group. This curvilinear relationship may have a simple explanation. The total number of items is small (17) and the distribution may be an artefact of sample size.

NL1 data don't present any clear pattern either. Temporal *and* is chiefly found in the hi group (75% of the texts). Causal use of the item, on the other hand, correlates inversely with skill; it occurs in 50% of the lo skill texts, in 29% of the mid group and is totally absent in the hi group. Again the total number of tokens is very small, making a methodological explanation of the observed distributions possible.

In Evensen (in press) a case is made for larger descriptive studies in discourse-level interlanguage studies. The justification for this view is metatheoretical. The present material adds an empirical dimension to this line of argumentation. The data base for the present article is fairly large when compared to what is normal in linguistic research. 47 texts with more than 20.000 words. Still, a large number of the items investigated occur so infrequently that idiosyncracies with individual texts or individual assignments are likely to affect the total distribution of items. This fact is a strong empirical argument for descriptive analyses based on large corpora like the Trondheim Corpus of Applied Linguistics. As a corollary, a transition to computerized methods is necessary in future research. Here, as we have already pointed out, a lot of basic programming remains to be done.

Evensen (in press) has made a point of the non-use of connectors, and has used this observation as part of the empirical justification for the LM hypothesis. In the present study, the total number of connectors seems to be considerable. It is thus justified to ask whether this is in fact a threat to the hypothesis. The obvious answer would be to consider some norm of fully developed NL written material. However, such materials are not plentiful. In the Norwegian frequency list (**Norske Språkdata,** Rapport nr. 1) the item *og* (*and*) has a percentage of 2. 79. This material includes NP-NP linking, which is excluded in the present clause-level analysis. The data are thus not strictly comparable. In the present material the percentage for all connector functions of *and* is 1. 19. It seems reasonable pending more adequate material to suspect the student data to show lower frequencies than the newspaper material which is the basis for the Norwegian frequency list.

Og as a measure of quality is a two-faced phenomenon as it it is so frequent in the production of children. At the Trondheim interdisciplinary seminar "Text linguistics and language teaching" it has been shown that in a normal

NL1 narrative written by a ten years old student of medium skill *og* is by far the most frequent word of all (22 occurrences in a text of 268 words (124 word types). Thus, one has to look also at other items. The question of diversity in connector use is of primary importance when interpreting learner language.

In the Norwegian frequency list, the item *eller* (*or*) has the frequency .22. In the present NL1 material, the frequency is .04; five times less. In the EFL material, there is just one single occurrence of *or*. It thus again seems justified to point out non-use of connectors as an interesting phenomenon in discourse-level performance analysis. Apart from a few central connectors like *and*, and *but* and their Norwegian (near) equivalents, both the frequency and diversity of connectors is low even at such a relatively high level of LT/LL as upper secondary schools. Students are not yet good at signaling logical relationships in texts so explicitly that genre-related criteria of communicative efficiency are met.

In Hultman and Westman (1977), frequent use of conjunction is claimed to be a characteristic of the spoken language. We believe that the present data illustrate a shortcoming in the Hultman and Westman analysis. Their data are aggregates where a few items of high frequency are likely to skew the total picture.

If diversity is the central question, one may wonder how the correlation between additive use of *and* and marks whould be explained. In Lindell **et al.** (1974) a clear correlation has been found between marks and text productivity measured simply as average length of text. The function of *and* at lower and intermediate levels of discourse competence may simply be that it is an easily available device that helps increase text productivity, which is central to teachers' evaluation of texts.

In Evensen (in press), it is pointed out that connectors have considerable discriminatory power when related to student development and skill. It is necessary to ask whether the distribution of a few frequent items like *and* may explain this pattern, thus reducing the finding to a relatively trivial one. Such a conclusion might be supported by the lack of discriminatory power for the percentage of connectors.

The data from the present study show that this is probably not the case. There is a strong relationship between mean number of *different* connectors and marks in the data. Furthermore, there is a clear but somewhat weaker correspondence both between mean number of connective types and marks and between a higher-level type-token ratio and marks. These relationships point to more substantial interpretations of the data. The non-discriminatory nature of connector density, however, remains to be accounted for.

Evensen (in press) put forward the LM hypothesis. The present data seem to be in accordance with this hypothesis. Still, at this exploratory stage there are several methodological explanations that can not be ruled out. Further

work is thus necessary. However, even if the link between theory and data may be viewed as relatively weak, there seems to be relevant additional evidence for the hypothesis. All native speakers are not equally good story tellers. Nor are they equally good at presenting a logical line of argument. People are not always able to state their case in such a way that their interests are served. They are not always able to convince each other, to excuse themselves, to get out of a quarrel etc. Such observations should be accounted for by linguistic theory.

The present material seems relevant in this context, even if it is taken from written language data. What seems to be the case is that not only is interlanguage competence variable; the same goes for native language competence. Some native speakers seem to have access to aspects of language mastery that others have not.

Such a view of language has far-reaching implications. In general linguistics it seems to imply that native speaker intuitions may have a more modest role to play than what is considered reasonable to day. As a corollary, large-scale descriptive studies of language use should be more frequent also in linguistics, patricularly so when trying to investigate pragmatic and textual language features.

For applied linguistics, the present material seems to imply more emphasis on the native language in IL studies. In other words, a new rationale for an old habit — contrastive studies.

In applied linguistics there is a strong empirical, not to say empiricist, tradition. When dealing with language material, however, the linguist habit of using small corpora, if any, is still strong. We believe that some of the assumed idiosyncracies of the present material, which is in fact fairly large, demonstrate the need for large-scale empirical studies also here. As will be clear from Evensen (in press) argument, this is not, however, an empiricist view.

5. Conclusion

In an earlier study, the hypothesis was put forward that certain discourse level features appear very late, if at all. Furthermore, connectors were found to be one area where discourse-level items have considerable discriminatory power when related to teacher evaluation and grade. At a metatheoretical level a case was made for large-scale descriptive studies of discourse features in students' written interlanguage.

In the present study, a comparative analysis of students' written production in EFL and NL1 has been carried out. Again it has been found that nonuse of connectors is characteristic of student writing, this time in both a native

and a foreign language. A few items are relatively frequent. Apart from these, connectors are relatively scarce in student writing.

In the comparison between EFL and NL1 data, relatively detailed analyses have been carried out to shed light on the LM hypothesis. At a superficial level, the present material seems to present counterevidence to the hypothesis. The absolute frequencies are higher for some items in NL1. Also, there is more diversity. However, when controlling for text length, this difference disappears. The connector density is in fact slightly higher in EFL. The present material is in other words consistent with the hypothesis.

In the earlier study, the multi-functional nature of certain connectors was not controlled for. In the present analysis, this factor has been taken into account. The material is small for such purposes, but there is a positive correspondence between additive *and* and text quality as measured by teacher evaluations. This correlation may be caused by an indirect effect, where greater text length is achieved by frequent use of a simple device — *and* — text length is then analysed as a central teacher evaluation criterion. When looking at causal and temporal secondary functions, the picture is not clear, but a case may be made for a diversity hypothesis. Multifunctionality is here seen as a sign of weakness. Multifunctional *and* is used as a discourse-strategic crutch, substituting for more feasible devices.

The analysis of multifunctionality has pointed to the insufficiency of exploratory studies based on small samples. Even if the data base for the present study is fairly large (20.000 words), it is too small for many text-linguistic purposes. This fact supports the metatheoretical claim in the earlier study for large-scale descriptive analyses based on statistically representative materials.

The present analysis is based on written material. It is therefore difficult to draw any direct conclusions from the material to theoretical considerations about communicative competence. Still, at an explicitly speculative level certain points have been made. The present material may be seen as an indication that communicative competence should be treated as a variable parameter and not as a constant, even in native language contexts.

For IL studies it indicates that some of the problems observed in a FL/L2 context may be due to deeper causes than normally suspected. Also, the whole concept of interlaguage is changed if NL competence is seen as variable. At the methodological level, this perspective would make contrastive performance analysis central to IL studies. In such IL studies, problems common to both NL and FL/L2 would be of central importance.[5]

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HOW DO POLES PERFORM ENGLISH "TIPS OF THE SLUNG"?

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I

1. The starting point of this paper is an observation (cf. Stampe 1979:44) that natural phonological processes operating in a given language apply to the result of slips of the tongue committed by native speakers of this language. Exactly opposite behaviour is demonstrated by the phonological rules[1] which are not triggered by contexts created by slips. In exemplary slips quoted by Stampe (Stampe 1979:44-45): [tʰatʃ sk,eip] and [kʰatʃ steip] for the target *scotch tape* [skatʃ tʰeip], the processes of aspiration and palatalization apply regularly in the new contexts, which is not the case with the rule of /k/ — /s/ and /g/ — /dʒ/ alternation before reflexes of front vowels in words of Romance origin (e.g. electri/k/ — electri/s/ity, pedago/g/ue — pedago/dʒ/y), which does not produce *[dʒinikl kaiz] for *cynical guys* (the actual slip sounds [g,inikl saiz]).

2. Although the above observation refers to the phonetic behaviour of the native speaker of a given language, it leads to the drawing of certain conclusions concerning the second language learner's (SLL hereafter) performance of slips of the tongue. According to the assumptions of Natural Phonology (NP hereafter), the SLL consciously learns foreign language processes, i.e. for him the processes acquire the status of rules. If this is the case, then foreign language processes should not be expected to apply to slips of the tongue made by the SLL in foreign speech. In other words, he consciously controls his performance in order to apply foreign language processes, but as

[1] The notions: phonological *process* and phonological *rule* are understood throughout the paper in Stampe's 1979 sense.

soon as he slips his self-control lapses too. As a result, instead of foreign language processes he subconsciously selects native language ones. Obviously, only those foreign language processes which are either utterly different from or overlapping with the native ones are concerned here (processes identical to the native ones work successfully in foreign performance, ultimately also in slips).

3. If the prediction concerning the SLL's slips of the tongue proves verifiable, it will constitute another piece of evidence for the NP explanation of second language acquisition.[2] Namely, it will reaffirm the statement about the conscious acquisition of second language processes by the SLL, whose speech, when uncontrolled, as in slips, is governed by his native language processes. If, on the other hand, language reality, even partially does not confirm the above proposition, then NP's predictions referring to second language acquisition will require reanalysis aimed at a more precise and detailed formulation. What I mean is, for example, to allow a "learned rule" to regain the status of a process as a result of perfect learning leading to the complete automatization or internalization of the rule, or reactivation of the latent innate process.

II

1. Thus, our interest lies now in the production of slips by second language learners. Two situations may be investigated: A. when a context for a given process arises in a slip (that is the process does not apply to the target string); B. when contexts are rearranged in a slip so that some processes are readjusted (in native performance, of course) and some are not fed any more. Naturally, situations A and B may also cooccur.

In view of A and B, the following questions concerning the SLL's performance may be posited:

– in case A: whether the required processes are applied;

— in case B: a. whether the processes applying to the target string stop working in a slip; b. whether the features resulting from them are moved together with segments; c. whether these features are preserved with different segments but in the same positions in the string;

— whether the phonetic behaviour of the SLL manifests other characteristics, different from the expected ones.

Another problem to be solved in conjunction with slips of the tongue is the question of a possible interdependence between the type of a process — obligatory or optional[3] — and its applicability or nonapplicability to slips.

[2] The notions: *second* language and *foreign* language are used interchangeably.

[3] By *optional* is meant a phonostylistic process, triggered by "allegro" style of speech.

2. Stampe defines slips of the tongue as "scramblings of features, segments or sequences which occur occasionally in the short-term memory storage of utterances in speech production "(Stampe 1979:44). Sturtevant calls a "lapse" or "speech error" "an unintentional linguistic innovation "(Fromkin 1971:217), Boomer and Laver call it "an involuntary deviation in performance from the speaker's current phonological, grammatical or lexical intention" (Fromkin 1971 : 217). According to Freud, a slip of the tongue is "the incorrect use and the distortion of words which the healthy person can observe in himself in states of fatigue or divided attention or under the influence of disturbing affects" (Freud 1924:46). Studies on speech error data have been directed towards numerous goals such as understanding of the mechanisms and laws of speech formation and production, proving the reality of discrete units of both performance and competence and the reality of phonological rules; searching for a source of historical linguistic change or exploring the human psyche (as Freud did). Large corpuses of errors in speech, reading and writing have been collected and published, the most extensive ones being Rudolf Meringer's collections of 1895 and 1908.

3. Existing data, however, comprise errors made by speakers in their native languages. For the sake of our investigation, then, a new collection of slips would be indispensable. One might say that we have to look for another patient but unpopular Meringer and burden him with the still more difficult task of gathering non-native language slips. This is going to take some time. So far I have observed only a few relevant examples,[4] and thus decided, for the time being, to find another way of compiling data. Already Cohen assumed (Cohen 1966:90) that errors could be induced under favourable experimental conditions and elicited slips from speakers by instructing them to read texts. Both Sturtevant and Wells maintain that speech errors are non-random and predictable. Wells went as far as to state the laws predicting the form of blends. (cf. Wells 1951). This is why Fromkin observes that "one finds that «intentional» errors usually follow the same «rules» as do non-intentional errors" (Fromkin 1971:217).

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[4] Most of the slips coming from uncontrolled observation do not involve the processes discussed:

tip of the tongue	— tʰʌpəvðətʰiŋ
recapitulate	— ri:kə'tʰipjuleit
suit	— tjus
very well	— weri vel
first things	— fə:ŋθist
eight, nine	— ein nait
fish species	— fis ʃpi:ʃi:z
housewife	— haufwais
bacon and eggs	— eikŋ ŋ begz

III

1. Taking into consideration the above remarks and my own intuition of a speaker, I decided to elicit slips of the tongue from Poles having a very good command of English. The following steps were pursued:

firstly, a native speaker of English was asked to produce a possible slip immediately after hearing a target string i.e. only the first automatic association counted as the nearest to a natural error;

secondly, Polish speakers were asked to read in their most natural English several sentences; this was done in order to check their use of English processes of aspiration, lack of plosion in stop clusters, linking r and phonostylistic palatalization of apical consonants before [j];

thirdly, they were given the same task as the native speaker i.e. to produce an immediate response to the just heard target string of sounds with no time left for any conscious analysis of the string.

2. The following sentences were used for the second step of the investigation:

1. Put pen to paper.
2. Would you like a piece of cake?
3. I've met Peter at the station.
4. Ask me in case you need it.
5. The door opened s' denly.
6. Has your letter come?
7. Tell me what you want.

Below the list of the target strings presented to the informants is reproduced, together with the form(s) of a slip made by the native speaker (I) and the ones produced by the Polish speakers (II). Only the relevant processes are marked in transcription. The lack of immediate response is marked with a dash. The list includes two groups of strings divided according to the criteria specified in II. 1. A, B. More precisely, if one of the mentioned processes (i.e. aspiration, lack of plosion, linking r, or phonostylistic palatalization) applies to the target string and is also fed by the new context arising in a slip, then this string is grouped under B. If it is only the latter, the string belongs to A

A

	I	II
Target string	*Native speaker*	*Polish speakers*
bottom	tʰɔbm	—
*cold feet	fəuld kʰi : t	kʰəu fli : t
*the cold shoulder	ðə ʃould kʰəuldə	kʰəu ʃləudə
a down train	—	—

ear mended	miərendid	—
under thunder	θʌndə(r)ʌndə	—
*he stopped eating	(h)i tʰɔp˺t si : tiŋ	
	(h)i ɔpst˺tʰi : tiŋ	tᵘɔp˺t sti : tiŋ
*parched ear	—	—
ain't few	feint ju (after long deliberation)	—
trot in	—	—
plunge in	—	—
antepenultimate	ˌp(h)ʌntəˈnʌltimit	—
red fuel	--	reft˺djuəl fred juəl
wise tune	—	—
eat furiously	—	fi : tjɔriəsli
rest stew	—	—
*a corrupt passage	pəˈrʌp˺t˺kʰæsidʒ	—
*right tube	—	brait˺tjub

* a string belongs to both A and B with respect to two or more different processes

B

Target string	I	II
a dead colour	ə kʰed˺dʌlə	--
deadpen	dep˺den	—
slips of the tongue	tʰips ɔv ðə slʌŋ	tʰips ɔʌ ðə slʌŋ stips ɔv ðə lʌŋ
a pretty kettle of fish	kʰiti pretl ɔf fiʃ	priti fetl ɔf kʰiʃ
a pretty penny	pʰiti preni	—
rich and poor	pʰitˌn rɔ :	rip ˌn tʃɔ :
pins and needles	ninz ˌn pʰi : dlz	ni : ˌnz n pʰidlz
tooth and nail	nu : θ ˌn tʰeil	—
a casting note	ə va : stiŋ kʰout	ə na : stiŋ kʰɔut
the cardinal points	ðə pʰa : dinl kʰoints	—
the carrying trade	--	—
to spy a cat	tə kʰai ə spæt	—
to tip a waiter	tə wip ə tʰeitə tə weit ə tʰipə	tə weit —
fairy tale	tʰɛəri feil	tʰɛəri feil
bicycle-pump	-	—
to fetch a pail of water	tə fetʃ ə weil ɔf pʰotə	tə pˈetʃ ə feil ɔv wɔtə

once I caught a fish alive	... ai fɔ : t ə kʰiʃ ...	...ai fɔ : t ə kʰiʃ ...
a ready pen	ə pʰedi ren	ə pʰeni ren
to cook the books	tə buk ðə kʰuks	tə buk ðə kʰuks
to cut a dash	kʰʌʃ ə dæt	dʌt ə kʰæʃ
past cure	kʰa : stʲ pjɔ :	kʰa : stʲ pjɔ :
past hope	--	kʰa : st houp
to pull a fast one	tə fa : st ə pʰul wʌn	tə ful—
under lock and key	ʌndə kʰɔk n̩ li :	ʌndə kʰɔk n̩ li :
	"D"[1]	
as fat as butter	æz bæt æs fʌtə	æz bæt æs fʌtə
by all means	--	balbi—
ready money	medi rʌni	medi rʌni
a light sleeper	ə sait sli : pə	ə slait li : pə
a lame duck	ə deim lʌk	ə deim lʌk
hot water	wɔt hɔ : tə	wɔt hɔ : tə
hush money	mʌʃ hʌni	mʌʃ hʌni
so rosy and fair	fouzi n̩ rɛə	fouzi n̩ rɛə
main road	--	drein moud
besetting	sibetiŋ	
additive	--	ætidiv

IV

1. The data demonstrate the following tendencies referring to the production of slips:

a. the native speaker responded automatically to the majority of just heard strings, preserving, readjusting or newly applying the processes fed by slips. This refers to the processes of aspiration and lack of plosion. The insertion of linking r in the one of two examples was hesitant (she repeated a slip twice, and only the second production contained r). Unfortunately, I have not managed to elicit slips involving a context for the phonostylistic palatalization (the only one made was too deliberate and, thus, too slow to be valid).

b. Polish speakers responded immediately to much fewer target strings; in the performed slips, however, they seemed to systematically and correctly apply the processes of aspiration and lack of plosion. No slip involving a context for either linking r or phonostylistic palatalization was elicited.

2. Thus, speakers performance of the slips which feed phonostylistic pro-

[1] Several strings were meant to serve as distractors i.e. the speakers had not been expected to produce a slip involving any of the processes mentioned in step two. They are grouped under "D".

cesses still remains to be investigated. Nevertheless, I would attempt to posit a hypothesis which is partly tested by the data and confirmed by the Polish speakers performance of the check up sentences. Namely, in sentences 1—7 all the Poles correctly applied aspiration and lack of plosion; they applied phonostylistic palatalization in sentence 2, but not in 4 or 7; and, finally, they were hesitant in applying linking r. Moreover, later on, they admitted: to have consciously been learning all these processes, to have stopped controlling their use of aspiration or lack of plosion, to have managed to learn phonostylistic palatalization only in fixed phrases like "Would you...", and to be not sure about their use of linking r.

3. The above suggests the conclusion that, although the SLL consciously learns foreign language processes (in the same manner as he learns his native language rules), he manages to reach perfection in learning some of them. The processes susceptible to this perfection seem to be the obligatory ones i.e. those which apply no matter what style of speech is used. Phonostylistic processes cause more difficulty to the learner who reaches the level of perfection in using them only in selected, most often presented to and used by him contexts. What remains to be explained is what this partial or complete automatization means i.e. what natural basis it has. One might suggest, along the NP's lines, that some of the processes which potentially exist in the child's brain and become latent when first language acquisition is finished, may be reactivated — "woken up" — in the adult's brain by his persistent and conscious learning. Obviously, only the most frequently used processes (i.e. having the widest contexts, often reappearing in a given language) have the chance of being reactivated or reborn. Naturally, this is only a hypothesis.

However, as Einstein said, "it may equally well happen that clearly formulated principles lead to conclusions which fall entirely, or almost entirely, outside the sphere of reality at present accessible to our experience. In that case it may need many years of empirical research to ascertain whether the theoretical principles correspond with reality" (Einstein 1934. *Essays in Science*. New York: Philosophical Library, p. 9. In Fromkin 1975:404).

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CONTRASTIVE STUDIES AND THE PROBLEM OF EQUIVALENCE IN TRANSLATION

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Contrastive linguistics, in a wider interpretation of the term than is commonly accepted, covers a variety of different approaches aimed at establishing similarities and differences between languages. The subject might be compared to a vast field that so far has been rather unevenly tilled. Of course, it can be argued, and with some justification, that certain patches have been claimed and cultivated by other disciplines, e.g. comparative and areal linguistics, functional stylistics and translation studies, information and communication science. However, recent developments in linguistics in general, and contrastive linguistics in particular, seem to indicate that there is some trend towards integration.

The first point of the present paper is to underline the urgent need for an *integrated approach* taking into account the interrelationship between language, as an ordered and meaningful system of linguistic signs, and speech, as a purposeful and rule-governed social activity.

In the early years, and culminating in the Contrastive Structure Series published under the guidance of C. A. Ferguson (1962 ff.), contrastive linguists were fascinated by and preoccupied with the formal and *structural comparison* of languages or, more specifically, the comparison of isolated features of the semiotic system. The deficiencies at the early stage of synchronic comparison were above all due to the lack of uniformity in the description of the languages involved. Since it was the surface structures that were compared, it was soon realized that these structures often did not correspond to each other, that there was a considerable overlap with other structures both in L1 and L2, and also an intricate interplay between various linguistic levels, e.g. the syntactic and the lexical.

Generative grammar and semantics, in their search for language universals, have made great strides toward establishing and describing common denomi-

nators in the deep structures of languages from which, through a series of language-specific operations, possible surface structures can be derived. However, all these procedures remain highly refined and sophisticated formal exercises. Their place is within the narrow confines of the semiotic and/or semantic system which in itself is held to be autonomous. Language as a social phenomenon is outside the pale of generative contrastive studies.

But language is not only a self-contained system of signs, it is at the same time a purposeful human, i.e. social, activity. Therefore it is imperative to study the features of languages not per se, but in relation to their functional and communicative aspects.

It was in the Prague School of Linguists that the usefulness of a *functional concept* for the comparison of languages was first postulated and demonstrated. V. Mathesius (1936:95) claimed that "the only way of approach to different languages as strictly comparable systems is the functional point of view, since general needs of expression and communication, common to all mankind, are the only common denominators to which means of expression and communication, varying from language to language, can reasonably be brought".

This was the foundation of a method of synchronic comparison that was based on the onomasiological rather than the semasiological principle. As 'tertium comparationis' no longer served the formal characteristics of but the functional correspondences between L1 and L2. From this co cept arose comparative descriptions of a number of European languages as well as practical suggestions for foreign language teachers.

A similar approach to describing the functional aspects of language is offered by the more recent concept of "functional-semantic categories" (Bondarko 1971) and the related notion of "grammatico-lexical fields" (Gulyga and Šendel's 1969). These categories or fields comprise the sum total of all the linguistic features used to denote a common category or field of meaning, e.g. definiteness, numerality, temporality, aspectuality, modality, causality, etc. The various linguistic means expressing a functional-semantic category or field must have a common semantic invariant, i.e. common reference to extralingual reality. Since it is normal that elements from different levels (prosodic, syntactic and lexical features) co-operate to express a complex meaning, this integrational approach lends itself to a realistic and workable functional description and comparison of languages.

Once the linguistic elements used to express certain functional categories or fields have been investigated and classified for two or more languages, these categories or fields can themselves become the subject of contrastive analysis. Ranking them as universals would seem to be acceptable on the basis of the assumption that different languages, while differing in their means of expression, are based on analogous conceptual systems.

We believe that the typological generalization of contrastive functional-

semantic analyses is theoretically viable as well as practically relevant. Provided the material basis of the studies undertaken along these lines is representative of well-defined spheres of communication, the results of the investigations carried out on a number of functional-semantic categories or fields in German, English and Russian can be compared, and first generalizations and suggestions for foreign language teaching may become possible. The functional-semantic description of languages, which is an integral part of the communicative-functional approach (cf. *Kommunikativ-funktionale Sprachbetrachtung* (1981)), might thus contribute towards narrowing down the gap between theoretical and applied contrastive linguistics.

The approaches discussed so far constitute the main lines of research in the field of contrastive linguistics. Despite the differences which have been outlined, the structural, generative and functional approaches have one thing in common: they refer to various aspects of the system of language, or to what has been defined as the usage of a language, the exemplification of linguistic rules.

There is, however, an important distinction to be made between the *usage* of language to exemplify linguistic categories and the *use* of language in social interaction and communication, i.e. in utterances which give these linguistic elements communicative value. Even when backed up by frequency data, the above-mentioned studies fail to provide the applied linguist with information that is of vital concern in actual language use. (cf. Widdowson 1979 : 39).

We argue, therefore, that the scope of contrastive linguistics should be widened to include the *textual level*, since this is the level on which language use can be compared in either parallel or translated texts. We hold that the comparison of texts translated from L2 into L1, or vice versa, and of translation variants, can claim to be a legitimate and important branch of applied contrastive studies.

It goes without saying that the data collected along the more conventional, system oriented lines of research codified in bilingual dictionaries and grammar books of various types, is of great help to the translator. Yet, since translation is a highly complex process, he is faced with a bundle of additional problems.

First, he cannot concentrate on isolated linguistic features; he must render a text in all its complexity. Being tokens as well as reflections of communicative events, texts contain extralinguistic as well as linguistic information:

> "They are the expression of a complex network of factors which are involved in the act of communication. Texts are, therefore, never self-contained... They contrast with other texts and not with sentences or words... The forces which hold texts together are rather to be found outside the text, or rather beyond the level of sentence sequences. They are constraints imposed by the communicative situation upon the communicators" (Neubert 1980:23).

Second, the translator's concern is not with similarity or dissimilarity of features; he must aim at adequacy and appropriateness in his TL version of the source text. A translated text is an attempt at a reconstruction of the semantic and pragmatic potential of the SL text in the target language. In other words:

"It purports to be a replica of the original under the conditions of the target language and the concomitant communicative situation (Neubert 1980 : 25).

We speak of *communicative equivalence* when a text in the target language can be assigned to a corresponding text in the source language with the meaning and communicative effect of the two texts remaining invariant despite the decoding and encoding processes involved in translation. To a large extent, communicative equivalence is the result of selection of those linguistic features in the target language that are known to be equivalent to the features found in the source language. There is usually a whole network of equivalences available. Any gap in this network, either in the form of one-to-zero or one-to-many correspondence, must be compensated for by the translator's skill (cf. Neubert 1977:15 f.).

Thus the equivalence between SL text and TL text is approximate rather than absolute, since it is difficult to render the entire information contained in an SL text. There is the problem of ambiguities on the one hand, and the lack of equivalent terms on the other; in either case some choice is involved. Other factors to be considered are pragmatic rather than semantic in nature: the constraints imposed by functional varieties, registers and the conventions of certain text types. Hence the existence and justification of translation variants, which can be rated according to the degree of communicative equivalence they have with the SL text.

In the following, we are going to discuss a number of such variants taken from translations of British and American scientific texts into German. Care was taken to include various genres of scientific writing, e.g. textbook, research paper, laboratory instruction, case report. The underlying aim is to point out some general problems inherent in scientific translation.

Today the translation of scientific texts is a major field of translation activity. Some of the translators are themselves qualified scientists, others are linguists working in co-operation with specialists in the subjects concerned. All our students of science and technology have to meet certain requirements in reading comprehension and translation from English. It might seem that these skills are relatively simple to achieve, since of all the components of language, scientific and technical terminology has the highest probability of one-to-one equivalence in translation. However, any technical dictionary provides ample evidence that interlingual terminological equivalence is far from universal. Moreover, technical terms form only one layer, although an important one, in the semantic structure of a scientific or technical text. It is

worth recapitulating that it is definitely "not true... that the whole of the language of a scientific text, including its grammar and non-technical lexis, is similarly likely to yield one-to-one equivalents in translation" (Halliday et al. 1964:129). This means that both scientific expertise and linguistic competence are required in scientific and technical translation.

One problem area is formed by the occurrence of certain vague or undifferentiated constructions which may be translated in different ways, as demonstrated by the following examples:

(1) The dogfish has a streamlined body, with the head region merging insensibly into the trunk.
— (a) Da die Kopfregion unmerklich in den Rumpf übergeht, hat der Hundshai einen stromlinienförmigen Körper.
— (b) Der Hundshai hat einen stromlinienförmigen Körper, da/denn...
— (c) Der Hundshai hat einen stromlinienförmigen Körper, bei dem...
— (d) Der Hundshai hat einen stromlinienförmigen Körper; seine Kopfregion geht unmerklich in den Rumpf über.

The source of (1) is a descriptive passage in a textbook of biology. The translation variants clearly differ in quality: (a) is inferior to the other versions in that it has a functional sentence perspective different from the original. Of the rest, (d) seems preferable to either (b) or (c) since, in agreement with the English sentence, it does not specify the underlying relation type which may be causal, or circumstantial, or both.

Are there any objective criteria for finding the optimum translation of a scientific text? Here we are still on rather shaky ground. Without the opportunity of discussing a large amount of material it is hard to generalize, but some factors governing communicative competence shall at least be mentioned.

A simplified model of translation proposed by Widdowson (1979 : 108) will serve our purpose. According to this model, we can think of translation as consisting of three alternative, though mutually interlinked, processes which can be shown diagrammatically as follows:

rhetorical deep structure
(pragmatic representations)

SL surface forms<.... change of code....> TL surface forms

grammatical deep structure
(semantic representations)

From this it is evident that the main factors affecting the change of code, i.e. the translation process, are semantic and pragmatic constraints. More

precisely, we can thus define communicative equivalence as the complex product of semantic invariance (correctness) and pragmatic adequacy (appropriateness).

In the light of these criteria, the following examples present communicatively equivalent German versions of the original text passages, although they are far being literal translations:

(2) The substances are highly reactive, and great care must be taken in handling them.
— Die Substanzen sind sehr reaktionsfreudig; ihre Handhabung erfordert daher große Sorgfalt.
(3) The stickiness is eliminated by the process of vulcanization, which consists in heating rubber with sulfur.
— Die Klebrigkeit wird durch Vulkanisation beseitigt. Hierzu erhitzt man den Kautschuk mit Schwefel.
(4) So far, however, only a small beginning has been made in attacking the great problem of the relation between structure and physiological activity.
— Dagegen ist man beim Versuch, die Zusammenhänge zwischen Molekularstruktur und physiologischer Wirksamkeit zu erklären, über erste Ansätze bisher nicht hinausgekommen.

The organization and structuring of knowledge as reflected in scientific communication is clearly the domain of semantic analysis. It covers the various forms of nomination and reference as well as cohesion and relation types. Of course, the semantic representation of a complete text is a highly complex thing:

> "It is nonlinear in structure; that is, it does not exist in two-dimensional real time with units from left to right, but in some sort of multidimensional space where entities and events can be stacked in hierarchical relations." (Stockwell 1977:32).

As we have seen, the purely linguistic and semantic interpretation of a text, though absolutely indispensable, is only part of an ideal translation. It falls into perspective through the user-oriented pragmatic approach, which requires both the investigation of the situation in which a linguistic communication takes place and the study of the particular message forms and utterance types involved. Socially determined factors such as norms, conventions etc. play a prominent role, restricting the freedom of choice. In his choice of linguistic means the individual is not only dependent on his knowledge of the code and its inventory of semantic representations, he is also guided by a number of communicative-pragmatic factors, e. g. his communicative intention, his social role and his degree of familiarity with the subject as well as with his addressees (cf. Sager et al. 1980:6 f.).

Among the pragmatic devices provided by language are the following;

functional sentence perspective, i.e. the foregrounding of new information and the backgrounding of old information; modality, i.e. the expression of the writer's attitude; devices for maintaining continuity of the topic; devices for calling explicit attention to changes of topic; devices for giving prominence to whatever the writer views as most important (cf. Stockwell 1977:147).

For some illustration of how pragmatic factors come into play and narrow down the number of variants, let us have a look at the following examples.

(5) Cover the flask with a watch glass and allow it to stand for several hours, or overnight, in the hood.
—(a) Bedecken Sie den Kolben mit einem Uhrglas und lassen Sie...
—(b) Man bedecke den Kolben mit einem Uhrglas und lasse ihn...
—(c) Der Kolben wird mit einem Uhrglas bedeckt und ... im Abzug stehengelassen.
—(d) Den Kolben mit einem Uhrglas bedecken und mehrere Stunden, oder über Nacht, im Abzug stehenlassen.

(5) was taken from a manual containing instructions for laboratory experiments. In this context, (a) would be characteristic of oral rather than written instruction; (b) would be preferable for a textbook, and (c) for a descriptive passage. Of the four versions, (d) seems to correspond most closely to the style of written directive used in German scientific texts of this genre.

The extent to which the choice of a translation variant is virtually determined by text type considerations and the conventions of actual use is demonstrated even more strikingly by the German translation of a case report from an American medical journal.

(6) Involved in road accident on April 21, 1980. Sustained injury to head and fractures to both legs. Transferred to B. for treatment of injuries; readmitted to A. on May 24, 1980. Gradually went downhill.
— Bei Verkehrsunfall am... Kopfverletzung und Frakturen an beiden Beinen. Überführung in ... am... Rücküberweisung in... am... Graduelle Verschlechterung.

The German version was written in close consultation with a group of medical experts. They pointed out that the case reports they have to read and write in German are normally characterized by the use of nominal style. The condensation of the SL text in the German version is in agreement with the pragmatic purpose of a case report, viz. the briefing of colleagues about a patient's medical history. My informants were unanimous in rejecting any colloquialism as being inappropriate for this text type in German. The last sentence of the original was therefore transposed into a more formal register.

Summing up, we can state that communicative equivalence is the co-

product of text-pragmatic and semantic features. It is a measure of the quality in which a TL text is communicatively congruent with the SL text in content as well as intent. Since both the pragmatic and the semantic features are differently structured and expressed in SL and TL, there is some room for variation in translation. However, the constraints are such that the product of pragmatic and semantic features must be approximately the same, or else the result is only partial equivalence between SL and TL text. Our paper has concentrated on a number of constraints imposed by communicative-pragmatic considerations: the conventions characteristic of scientific texts in general and, more particularly, the requirements of certain text types. In a wider sense, we claim that communicative equivalence in translation is governed by the interplay of intralingual and extralingual norms. These linguistic, textual and social norms must be made compatible with each other. The nature of this interplay will have to be further elucidated if the theory of translation is to gain in descriptive and explanatory force (cf. Toury 1980 : 62).

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ACCURACY ORDER FOR ENGLISH AS A FOREIGN LANGUAGE IN POLAND

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The following is a report on a study conducted with 66 secondary school pupils learning English as a foreign language. The aim of the study was to find out if the experiments attempting to to determine the so-called "natural order of acquisition" in a second language would yield comparable results if conducted in a foreign language setting. The data were gathered with the help of a specially prepared Bilingual Syntax Measure (BSM). Although the overall results, for eleven functors studied, show significant correlations with the order of acquisition reported in some studies for English as a second language, there is a clear need to refine the methodology of morpheme studies if one wants to be certain how to interpret the results.

The present study was stimulated by various reports concerning the results of experiments in second language acquisition, particularly in the area of morphology, which seemed to indicate the existence of what had been called "a natural order of acquisition" (e.g. Dulay and Burt (1978); Bailey, Madden and Krashen (1978); Krashen (1981; 1982)). Although the methodology of such studies is beset with problems (Hatch 1983:40-57), it has been thought worthwhile to apply it to the study of acquisition taking place in a foreign language settign. It was thought that if the results appeared to be encouraging, one might then try to refine the methodology in further studies. It was also hypothesized, however, that in a foreign language setting one might expect to find a different order of acquisition reflecting differences in the input accessible to the learners.

THE STUDY

The study was conducted in three secondary schools in Łódź[1] in the autumn of 1983. The subjects were 66 pupils of both sexes who had learned English as a foreign language for at least three years. (There was a small

[1] Schools No. II, XV, XXIV.

number of subjects who had private lessons before entering the secondary school.) Each pupil was individually tested by a team of two investigators (the author's seminar students) who used a specially constructed BSM. The BSM consisted of seven sets of pictures which provided topics for conversations between the investigators and the subjects. One of the investigators pointed to the appropriate pictures and asked questions, while the other recorded the answers on paper. Unfortunately, for technical reasons, no tape recorder was used.

Before the start of the session, each subject was given a text to read (in Polish) which informed him about the purpose of the experiment (cf. Appendix II). It said that the investigators wanted to find out how successful secondary-school pupils would be in communicating in English whatever it was necessary to say in a communicative situation. Therefore, it was important that they should concentrate on trying to convey their meanings in every possible way and not (only) on speaking as grammatically and correctly as they could. It was also stressed that their teachers would not be informed about their performance and that it would not influence their school grades. All this was done in order to create a relaxed atmosphere and help in the elicitation of spontaneous responses from the pupils.

Each session lasted, approximately, for 30 minutes, since there was a total of forty questions to be asked (cf. Appendix III). The questions were framed in such a way as to elicit answers with the so-called "obligatory occasions" (Dulay and Burt 1978:353) for the following 11 functors: pronoun case, article, progressive -ing, contracted copula, plural -s, contracted auxiliary, past regular, past irregular, long plural, possessive, 's, 3rd person singular. The method of scoring was identical with the one described by Dulay and Burt (1978:353-354). An obligatory occasion was scored as two points if the subject supplied the correct functor, as zero points if the functor was not provided and as one point if the subject was aware that a functor was necessary and attempted to supply it but failed. The scores from all the pupils were used for calculating a group score for each functor. This was done by totalling all the scores obtained for every functor, dividing them by the sum of all obligatory occasions for each functor and multiplying the result by 100. The final figure represented a percentage of acquisition for every functor. The figures, for all 11 functors, arranged in a decreasing sequence, formed the order of accuracy which we had set out to determine. The study, as can be judged from the description, was a cross-sectional one.

RESULTS AND DISCUSSION

The group scores for the 11 functors obtained in the study are presented in Table 1. As can be seen from the table, the study yielded the following accuracy order (A): pronoun case (93.49), plural -s (87.43), long plural (87.19),

progressive -ing (82.85), past regular (76.38), article (67.22), past irregular (61.39), contracted copula (57.50), 3rd person singular (53.88), contracted auxiliary (44.96), possessive 's (28.23).

Table 1

	Pron. Case	Art.	Prog. -ing	Cont. Cop.	Plur. -s	Cont. Aux.	Past Reg.	Past Ir.	Long Plur.	Poss. 's	3rd Pe rs.
Number of obligatory occasions	338	1556	1038	1200	1034	834	614	474	492	496	696
Total scores	316	1046	860	690	904	375	469	291	429	140	375
Group scores	93.49	67.22	82.85	57.50	87.43	44.96	76.38	61.39	87.19	28.23	5 3.88

When this order was correlated with the order reported for children by Dulay and Burt (1978), the rank order correlation obtained was equal to $R = 0.53$, which barely missed the level of significance of $p \geqslant 0.05$. This lack of sigificance was attributed to the difference in the input available for foreign language learners, mainly to the scarcity of contracted forms of the copula and auxiliary in the teacher talk. When these two functors were scored again (that is, when all non-contracted forms of the copula and auxiliary were counted as two points instead of one), the per cent of acquisition for the copula rose to 97.58, and for the auxiliary — to 74.10. The new accuracy order (B) was correlated again with the order reported by Dulay and Burt yielding a coefficient of correlation equal to $R = 0.618$, which was significant at the level of $p \geqslant 0.05$.

The same procedure (i.e. two separate correlations) was used in comparing the two accuracy orders obtained in the present study with the sequence of 8 functors reported for adult second-language learners by Bailey, Madden and Krashen (1978) and with the average order of acquisition for English as a second language as posited by Krashen (1982:13). In both these comparisons pronoun case had to be disregarded and plural -s and long plural had to be combined into one category — plural. In addition, in the former comparison, past irregular had to be disregarded, too. These operations were necessary to reduce the number of functors from 11 to 8 and 9, respectively. The results of the four remaining correlations are shown below.

1. Bailey et al. (1978): accuracy order A—R=0.714 (significant at $p \geqslant 0.05$)
2. Bailey et al. (1978): accuracy order B—R=0.93 (significant at $p \geqslant 0.01$)
3. Krashen (1982): accuracy order A—R=0.52 (not significant)
4. Krashen (1982): accuracy order B—R=0.812 (significant at $p \geqslant 0.01$).

The coefficients of correlation obtained in the study do not present a completely clear picture. Superficially, it looks as though the lack of significance in two cases might be attributed to the influence of the difference in the input obtainable by foreign language learners. Although this factor cannot be discounted, it also seems likely that these results, as well as the other four, could have been influenced by a certain degree of arbitrariness in scoring. This question was exhaustively reviewed by Hatch (1983:48-54), and there is no need to repeat her arguments here. Let us only briefly enumerate some of the difficulties which we had to grapple with while scoring the results. (1) The subjects did not always produce the answers which they were expected to produce. For example, in answer to a question, "What does the man do for a living?", one might get an answer, "He is (a) shopkeeper". Should one then score this answer as zero points, since the subject failed to supply the expected 3rd person -s functor, or should one score it as two points for the correct use of the copula? And what should we do if another subject answered the same question with, "He is (a) film actor", which is an obviously false answer because the man is a shop assistant or a shopkeeper? This latter answer might be the result of a communication strategy prompting the subject just to say something when he was not quite clear about what was required from him.

(2) Some functors constitute bigger categories than others as, for example, the article and the copula. Setting up such big categories prevents us from observing the dynamic nature of their acquisition and makes scoring difficult. This is especially true about the copula. For example, in an answer where a copula is expected, "He ... a teacher", one might get at least five intermediate forms, each "worth" one point: "is", "am", "are", "be", "been" (if we count contracted "'s" as worth two points). Yet, one intuitively feels that some of these forms are worth less than one point (e.g. "been"), and others more than one point (e.g. "are", and, of course, "is"). The intuitions probably reflect the various positions held by these forms on a continuum of acquisition ranging between ø and "'s".

(3) In contrast to the big categories, other categories seem to have no intermediate forms at all. In such cases there are only two possibilities for responses to occur: ø or correct (e.g. the 3rd person singular -s), unless we interpret answers like, "He is go to school" as attempts to produce the present simple tense with "is" as an intermediate marker of the 3rd person singular. However, it is equally (or more) likely that the example represents an attempt at the present progressive.

(4) Some functors, for example articles, may be supplied in places where they should not appear. This shows that the function of the morpheme has not been fully acquired. How should one score such cases? In the present study there were few such instances and it was decided to ignore them.

CONCLUSION

The four preceding examples serve as an illustration of the kind of difficulties besetting the methodology of morpheme studies. The reservations that we have about the reliability of the results of our study allow us only to state that the accuracy orders found for foreign-language learners are quite similar to the orders determined, in the three studies, for second language learners. This similarity might be interpreted as suggesting that second language learning and foreign language learning are characterized by acquisition processes which are very much alike. However, to be absolutely certain that this conclusion is correct, one has to improve the methodology of morpheme studies in such a way that the dynamic nature of acquisition should become clear. One must also do something to increase the objectivity of scoring the subjects' responses.

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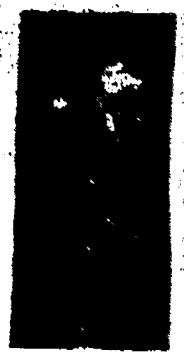
APPENDIX I

1



APPENDIX II

Pragniemy poprosić Cię o udział w eksperymencie, którego celem jest przekonać się jak uczniowie szkoły średniej w Polsce potrafią porozumiewać się w języku obcym w naturalnych sytuacjach komunikatywnych. Nie interesuje nas więc poprawność gramatyczna Twoich wypowiedzi, choć jest ona pożądana, lecz raczej Twoja zdolność rozumienia pytań do Ciebie skierowanych, a przede wszystkim umiejętność przekazania przez Ciebie tego, co chcesz powiedzieć. Tak więc, chcemy zbadać w jakim stopniu uda Ci się osiągnąć powodzenie w porozumiewaniu się w języku obcym — w tym przypadku — angielskim.

Eksperyment zostanie przeprowadzony przy użyciu serii obrazków, na temat których zadawane Ci będą pytania. Jedna z osób przeprowadzających badanie będzie zadawała pytania a druga będzie notować Twoje odpowiedzi. Odpowiadając, staraj się koncentrować na treści; nie przejmuj się zbytnio formami gramatycznymi.

Przed rozpoczęciem badania poprosimy Cię o podanie pewnych danych dotyczących Twojej osoby. Dane te, jak i Twoje wyniki uzyskane podczas badania, pozostaną oczywiście naszą tajemnicą i nie zostaną ujawnione żadnemu nauczycielowi Twojej szkoły.

Dziękujemy Ci za wzięcie udziału w eksperymencie. Być może jego wyniki przyczynią się do usprawnienia nauczania języków obcych. Będzie więc w tym także i Twoja zasługa.

APPENDIX III

QUESTIONS

Picture 1

1. Look at this man (man selling fruit). What does he do for a living?
2. Look at the man in the centre (athlete). Look at his arms, at his muscles. What can you say about him?
3. Look at this woman. This is Maria Skłodowska-Curie. What do you know about her?
4. Now look at this man (bottom left-hand corner). Why is he so fat?
5. Look at this man (extreme right — man in hat). Whose husband is he?
6. Look at the picture of this beautiful lady. This is Marilyn Monroe. What did she do when she was alive?
7. Look at this picture (horses). What are these?
8. Whose horses are they?
9. Look at this car. (Point to the wheels.) What are these things here?

Picture 2

10. Look at this man and this woman (dead man and girl with gun). What did she do to the man?
11. Why has the police arrived so quickly? (Point to the telephone).
12. Look at this beautiful girl (nude). She is without a blouse. What did she do with her blouse?
13. What is she doing?
14. Now look at this tall man (extreme left). What is he doing?

Picture 3

15. Look at these two people (extreme left). Why is the man going to kiss the woman?
16. What is the woman like?

17. What is this woman doing (two couples at the top — the woman on the left)?
18. Why is she laughing?
19. Look at this picture (man and woman at a restaurant). Why is the woman smiling at the man?

Picture 4

20. Look at this man (teacher). What is his job?
21. He has a stick in his hand. What does he do when the pupils are not good?
22. Look at Prince Charles and the other man (top right-hand corner). What is the Prince doing?

Picture 5

23. Look at the picture of Napoleon. What happened to him at Waterloo?
24. Look at this young lady (centre). Why does she dress like this?
25. Look at this picture (mother and child). Whose is this nice baby?
26. That man is Joseph Conrad. What did he do before he died?
27. Look at this picture (top left-hand corner). Why has the man stopped the two motorists?

Picture 6

28. Look at this picture (girl wearing glasses). Whose glasses are these?
29. What did she do with her hair that it is so tidy and nice?
30. And what are these (watches)?
31. Look at these two buildings (bottom-left: hotels). Can you tell me what sort of buildings they are?
32. And what have they here (point to windows)?
33. What two things can you see on the water (point to boats)?
34. Look at this trumpet (Armstrong and trumpet). Whose trumpet is this?
35. This is Louis Armstrong. What did he do before he died?
36. What are these three things in the centre (matches)?
37. Look at these two pictures. (Point to the pockets of the dresses.) What are these things here?

Picture 7

38. Look at these boys and girls (centre). What did they do ten minutes ago?
39. Look at this picture (dancers). What are these women wearing?
40. Look at this woman (nearest dancer). What is she doing?

A STUDY OF SOME FACTORS AFFECTING THE SEQUENCE AND RATE OF ACQUISITION OF ESL BY ADULT REFUGEES IN WESTERN PENNSYLVANIA

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1. *Introduction*

This study was carried out into several factors which, I hypothesised, might affect both the sequence and rate of acquisition of ESL by a specific group of adult learners. These learners were refugees from S. E. Asia (Cambodia, or Kampuchea, Laos, and Vietnam), now living in the U.S.A. Teachers of ESL to these learners have been made aware, and it has been reported in journals, that they face special problems when learning their second language. A study by d'Angeljan in Quebec reported that Asian refugees learning French as a second language appeared to know "virtually no French" after a 900 hour language programme (1983:124). Huebner (1979:23) reported that a Hmong refugee (a member of a tribal group from Laos) had not acquired any plural or past tense morphemes, even after one year living and working in an English speaking environment. I wanted to find out which of several possible factors was affecting the acquisition of these learners, and I therefore carried out a sequence of acquisition study to look at the effects of some of these factors on both sequence and rate of acquisition.

Four of the five factors which I considered were those which applied particularly to refugees from S. E. Asia. These factors were:

i) non-literacy—many of the refugees were from pre-literate cultures, whose languages have never been written down; others, though they had received a little schooling, were functionally illiterate in L1.

ii) non-Roman alphabet literacy — many of those who were literate were literate in Lao, Khmer or Chinese, which use a non-Roman alphabet.

iii) a non-IndoEuropean L1 — all refugees from S. E. Asia speak languages which are non-Ind. European.

iv) a non-technological culture — almost all refugees now reaching the west come from this kind of society. This is not a question of type of government or racial origin, but of a non-western, non-modernised society, or of groups within that society. These refugees often do not understand the social context of the new language, and so do not receive the comprehensible input necessary for language learning.

To provide a control, learners who were refugees from Eastern Europe, and a small number of immigrants, to whom these factors did not apply were also tested. I considered one other factor:

v) age — contrasting younger and older refugees, regardless of country of origin.

Since all the refugees and immigrants were in school together, their instructional factors had much in common. I did not consider the factor of stress, or culture shock, since it is difficult to quantify easily or quickly, and probably impossible to find a control group of refugees and immigrants who do not suffer from this factor to some extent. For a discussion of this factor in relation to the S. E. Asian refugees in particular, see Kleinmann 1982.

2. *Collection of Data*

2.1. *The subjects*

The research was undertaken among the adult students of English in three refugee/immigrant classes in Western Pennsylvania. The students were all questioned about their age, country of origin, number of years in the U.S., number of years of schooling in their native country, and length of time they had been in the programme. Four of the students had studied English in their native country, and all the Asian refugees had, in theory, attended a short programme on the language and culture of the U.S., while in their relocation camp in the Philippines or Thailand. In practice, this was often a three-month course, given up to three years earlier, which had not confered any lasting or significant acquisition of the language. The previous exposure of all the students to English was therefore very questionable.

Twenty-seven students were tested. Women outnumberred men 15 : 12, and the average age was 38. They had been in the U.S. for an average of 15.9 months, and came from Vietnam (seven), Cambodia (ten, including two ethnic Chinese), Poland (two), Ukraine (two), and one each from Pakistan, Greece, Taiwan, Mexico, Czechoslovakia and Russia. The majority (twenty-three) were refugees. The classes, sponsored by the Allegheny Intermediate Unit,

and held in Pittsburgh in Allegheny County, and Greensburg in Westmoreland County, were originally set up and funded by the Department of Welfare of the Commonwealth of Pennsylvania specifically for refugees from S. E. Asia because of their unique problems which were mentioned earlier, but U.S. anti-discrimination law has now dictated that classes be open to all non-English speaking county residents who meet certain financial criteria. The students had been attending the classes, which met, at the time this study was made, four times a week for two hours each time, for an average of 9.4 months.

2.2. *The Test*

Since many of the students were non-literate, an oral test had to be used, and so I devised a test similar to the B.S.M. Pictures of items and activities were used with free conversation, and also with questions to elicit the obligatory occasions for the use of ten morphemes:

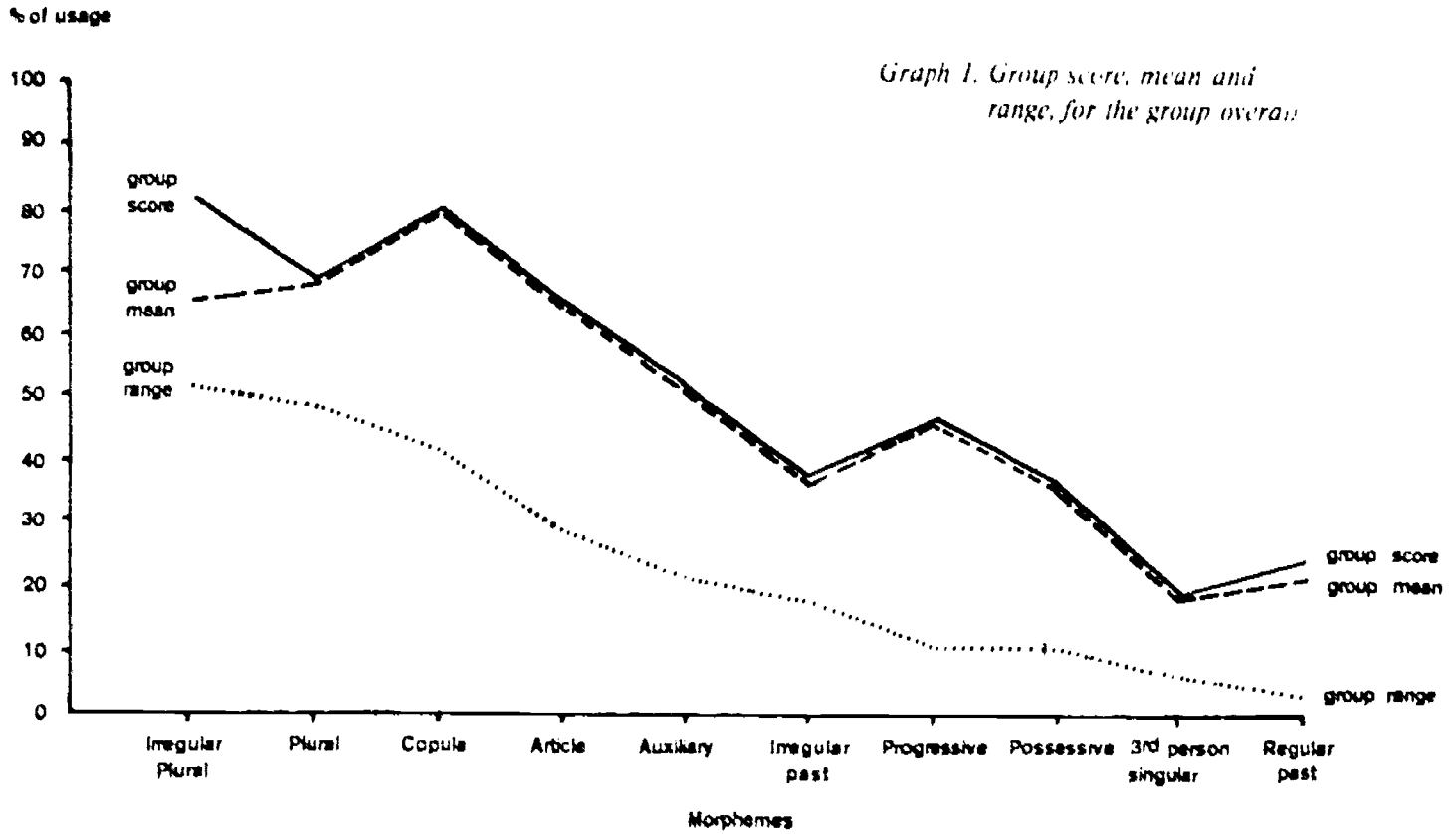
regular plural	auxiliary
irregular plural	3rd person singular
article	past regular
copula	past irregular
progressive	possessive

The number of obligatory occasions for the use of each morpheme for each student was calculated, and the student's utterance scored for correct usage, following Dulay and Burt (1973). That is, each obligatory occasion was treated as a test item and scores were calculated by giving 0 points if no morpheme was supplied, 1 point if a misformed morpheme was supplied and 2 points for a correct morpheme. This resulted in a score for each morpheme, for each student, compared with the number of obligatory occasions, this figure being shown as a percentage. Sequences of acquisition, or of difficulty were then established for each student. The whole group of learners was then treated as one subject, and the scores pooled, giving a sequence for the group as a whole.

3. *The Results*

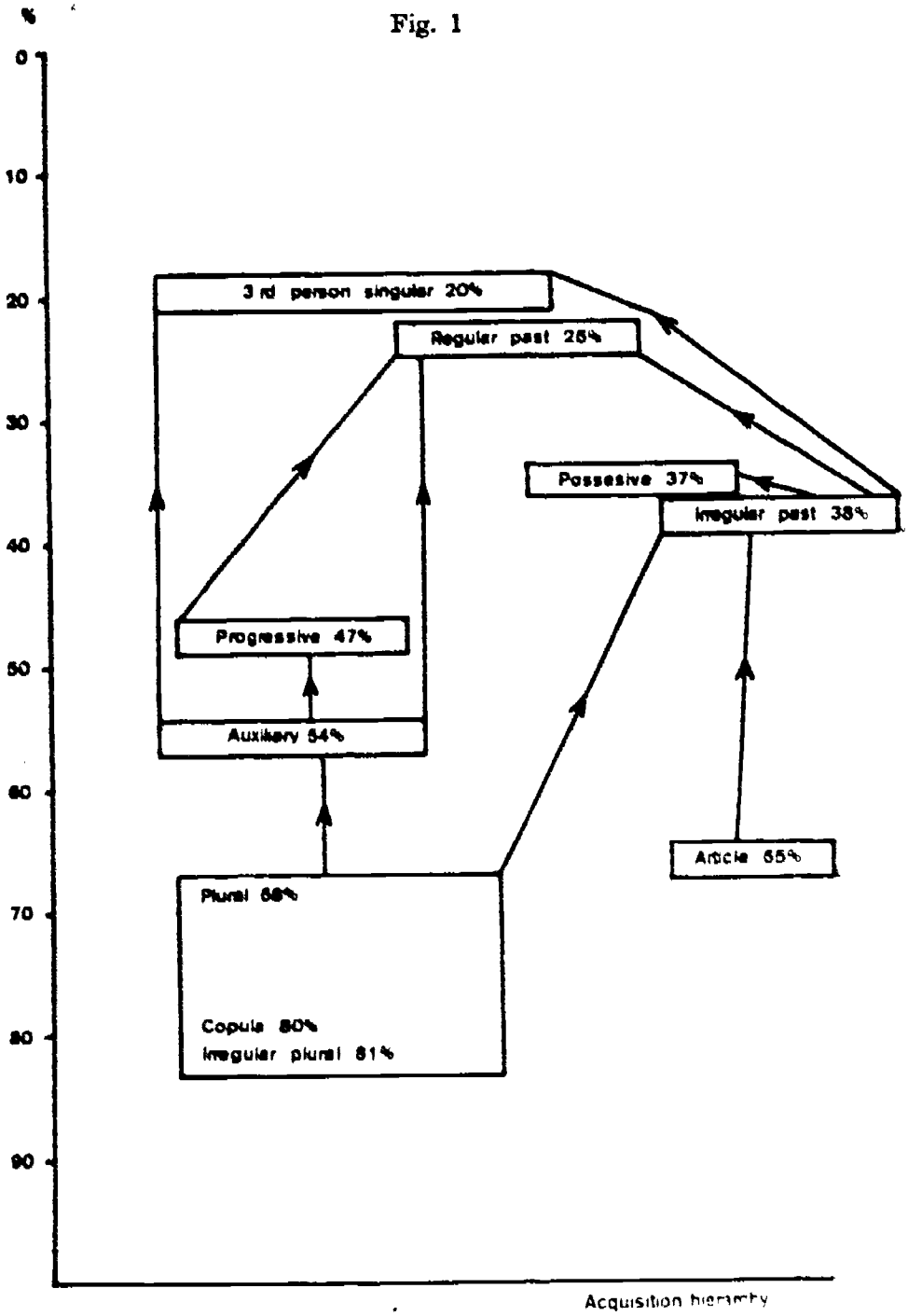
3.1. *Results for the group as a whole*

Graph 1 (see page (206)) shows the sequence for the group as a whole, calculated in three different ways. The group score uses the raw data; the group mean omits any morpheme not used in at least three obligatory occasions by any student, to reduce the effect of variability. The sequences for the group overall correlate well with the sequences established in earlier studies by



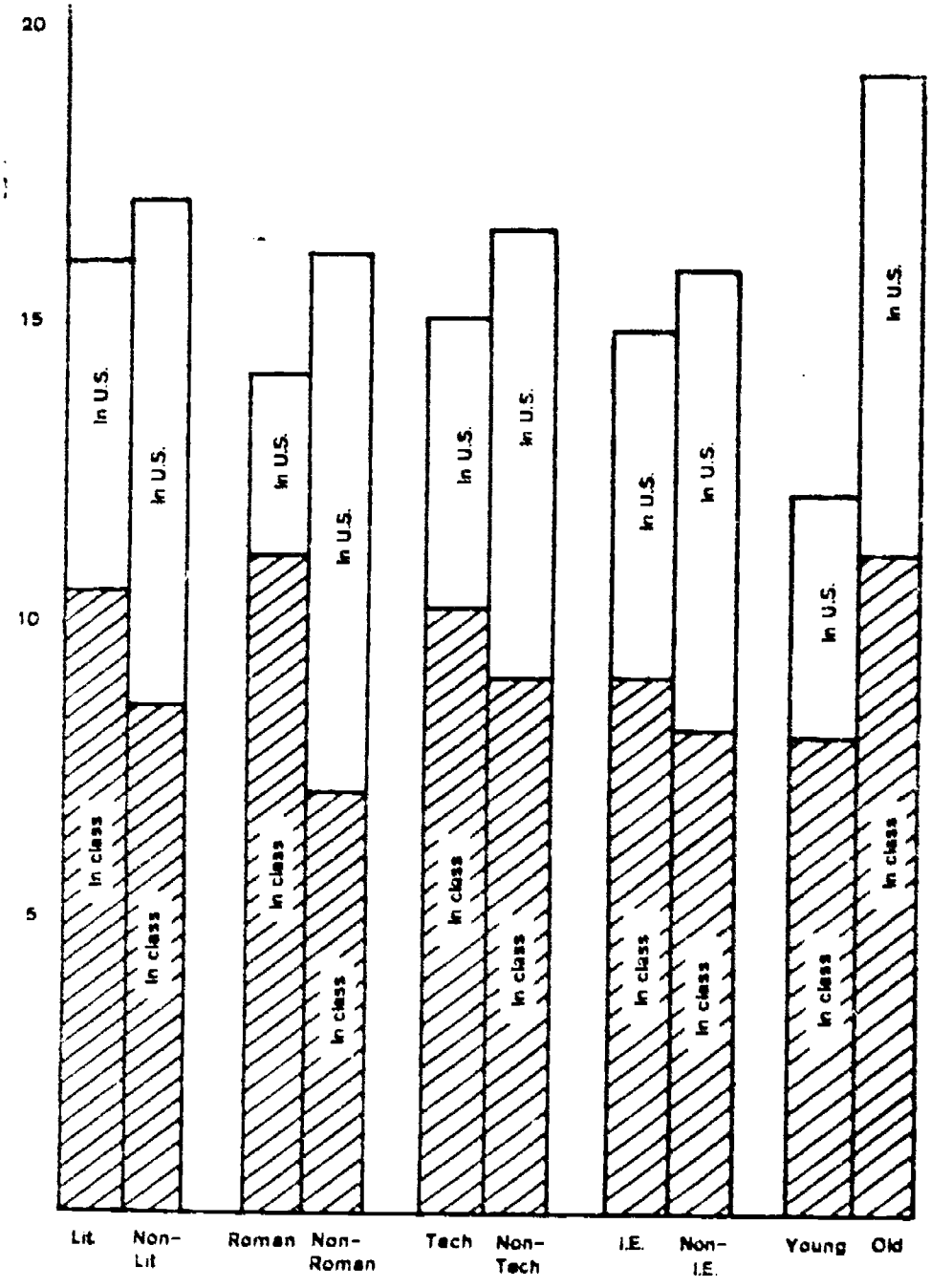
Graph 1. Group score, mean and range, for the group overall

Fig. 1



Dulay and Burt (1974: rho= .84, rho= .82, p .005), and by Krashen et al. (1977 : rho= .74, rho= . 73, p .025). The group range shows the percentage of students who achieve 80% usage on each morpheme, following Anderson (1978) in considering 80% usage, rather than 90% usage as acquisition. The correlation of the group range with Krashen's natural order

Fig. 2: months in US and in English class for 10 subgroups



is also high (rho= . 802, p .005). From implicational tables, an acquisition hierarchy for the group overall can be elicited. Thus in Figure 1 (see p. 207), the arrows show that, for these learners as a whole, the acquisition of the progressive implies the prior acquisition of plural, though not of the article, and the acquisition of 3rd person singular implies the prior acquisition of the auxiliary, though not of the possessive or regular past.

Fig. 3: average age of 10 subgroups

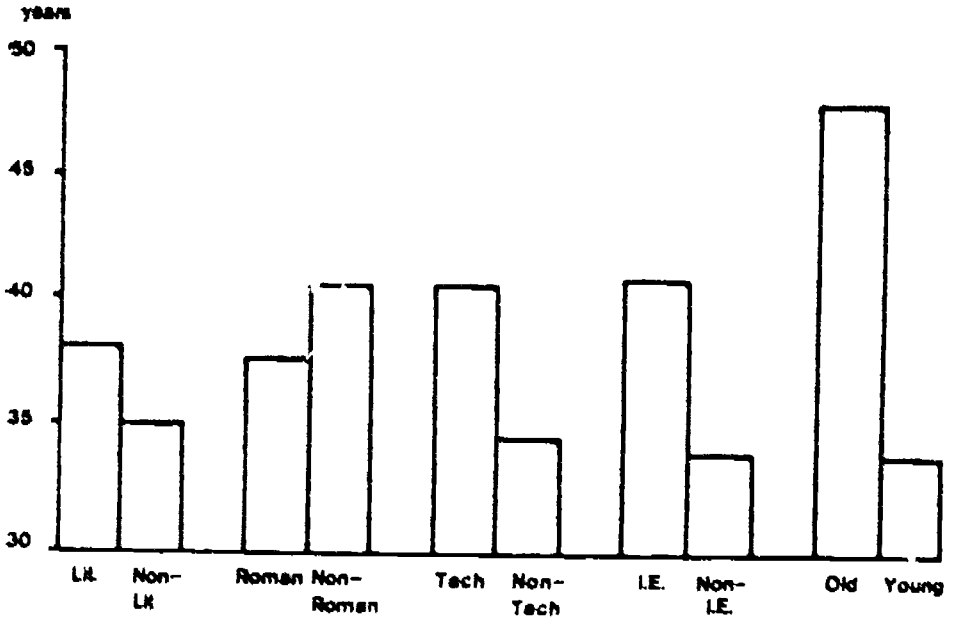
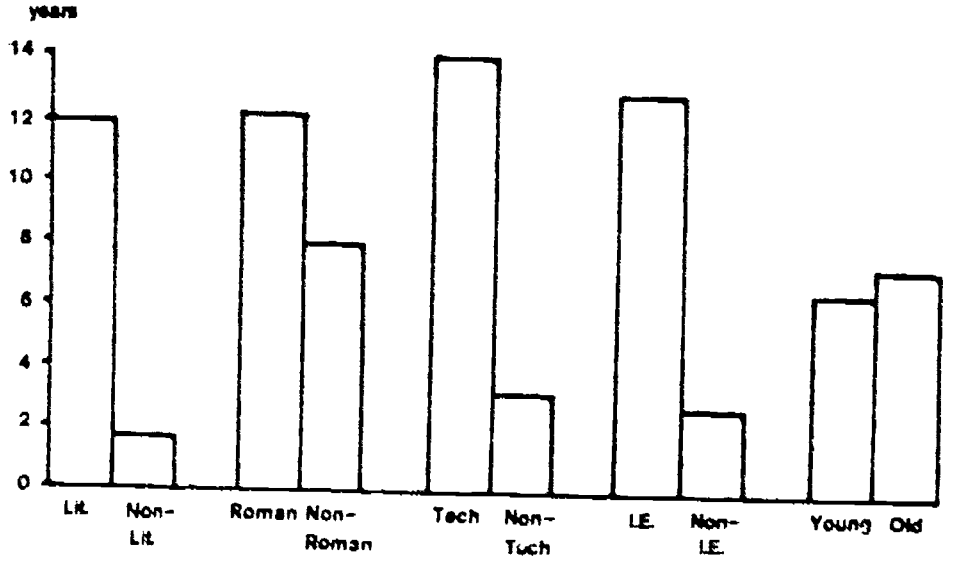


Fig. 4: average number of years of schooling in native country



3.2. *Results for the subgroups*

Having established these overall group orders, and validated them by comparison with previous studies, the results were divided in other ways, comparing the students with and without the factors discussed earlier. The ten subgroups which were considered were not distinct groups, but partially overlapping regroupings of the same twenty-seven students. Many of those with a non-IndoEuropean L1 were also non-literate for example, though

not all — that is, the groups were not identical. The differences between the subgroups for various factors which were not considered in depth can be seen in Figures 2, 3 and 4. Figure 2 compares the subgroups in terms of average length of time spent in an English speaking environment, and in English class in the U.S. The subgroups are reasonably equal as regards these two factors, except for the two subgroups contrasted by age. Figure 3 shows the ten subgroups contrasted by age. Figure 4 compares them by length of schooling in native country. The subgroups contrasted by the factors of non-literacy, non-Roman alphabet literacy, a non-IndoEuropean L1 and a non-technological culture show considerable difference in length of schooling in native country, whereas the two subgroups contrasted by age had, by chance, similar lengths of schooling.

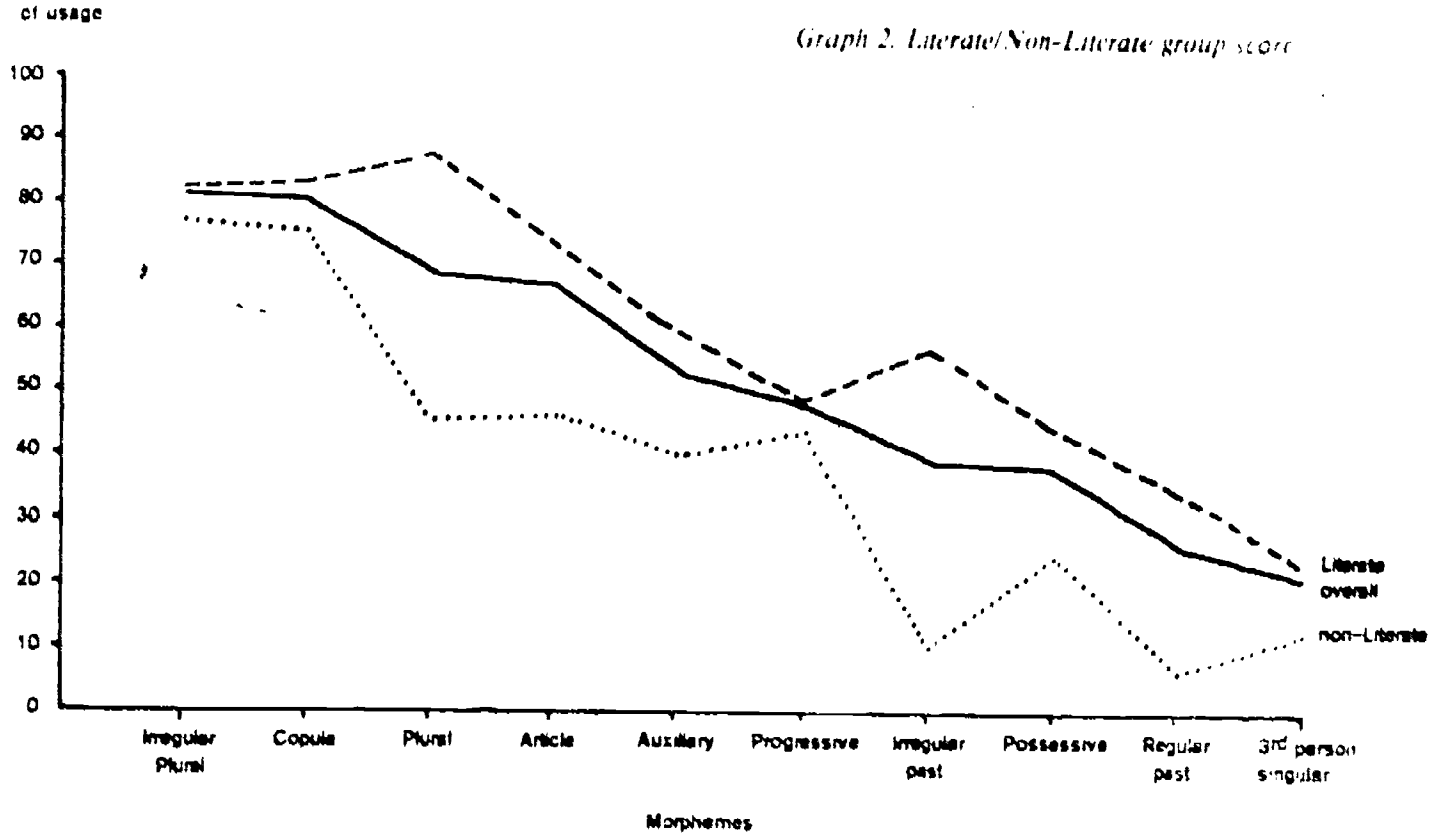
3.3. *The factor of non-literacy*

The first of these comparisons then, was between, on the one hand student, who were non-literate in their L1, and on the other hand, literate studentss who had been in the U.S., on average for 16.8 months and 15.9 months respectively, and who had been in English class for similar lengths of time, 10 months and 8 months. The average age of the two subgroups was also about the same; 35 and 38. These factors seemed to be reasonably equal, but there was a large difference in the factor of education in native country, 1.75 years for the non-literates and 11.8 years for the literate, (see Figures 2, 3 and 4 (p. 208—209)). The contrasting group score sequences of acquisition of the two subgroups are shown in Graph 2 (p. 211). The Spearman rank correlation between the sequences of these two subgroups is high (rho= .84, p .005). Graph 3 (p. 212) shows the contrasting group range sequence of acquisition, which also correlate highly (rho= . 84, p 005), though zero scores make this correlation rather meaningless. Obviously the two subgroups have very similar sequences of acquisition of morphemes, but the rate of acquisition varies considerably, with the non-literate group having a lower rate of acquisition for every morpheme. The differences are largest in the plural and irregular past, with considerable differences in regular past, article, possessive, and auxiliary. On average, the rate of acquisition of the non-literate subgroup is 20.9% lower for group score, and 26.4 lower for group range.

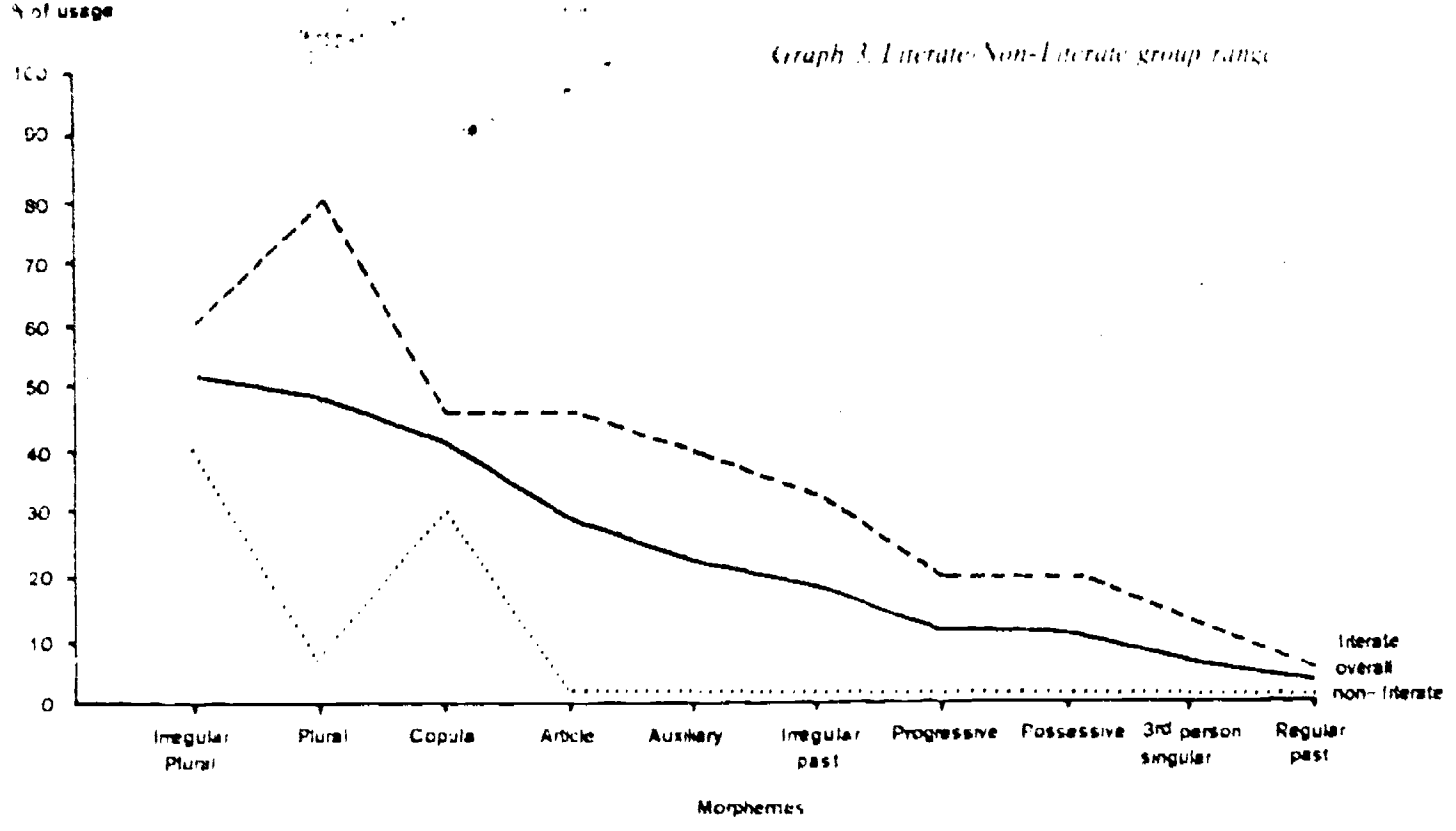
3.4. *The factor of non-Roman alphabet literacy*

The second comparison was between those who had gained L1 literacy in a language with a Roman alphabet, and those who were literate in a language such as Khmer, with a non-Roman alphabet. Again the two subgroups were

Graph 2. Literate/Non-Literate group score



Graph 3. Literate/Non-Literate group range



in many ways comparable, see Figures 2, 3 and 4 (p. 208—209). The Roman alphabet subgroup had an average age of 39, compared to 40 for the non-Roman alphabet subgroup and the ,former had been in the U.S. for 14 months and in school for 11 months, the latter for 16 months and 7 months respectively. Even though the non-Roman alphabet subgroup were literate, they had attended school for a shorter period than their control group, 8 years as opposed to 12 years. The group scores and group ranges are shown in graph form in Graphs 4 and 5 (p. 214—215). The sequences of acquisition for the two subgroups correlate significantly, (rho= .80, and rho= . 86, p. 005). The main differences in rates of acquisition are in the plural and irregular past morphemes, and the non-Roman alphabet group has a consistently lower rate of acquisition for all morphemes except irregular plural. The acquisition of the non-Roman alphabet group averages 16.7% lower in rate of acquisition for group score and 14.5% for the group range.

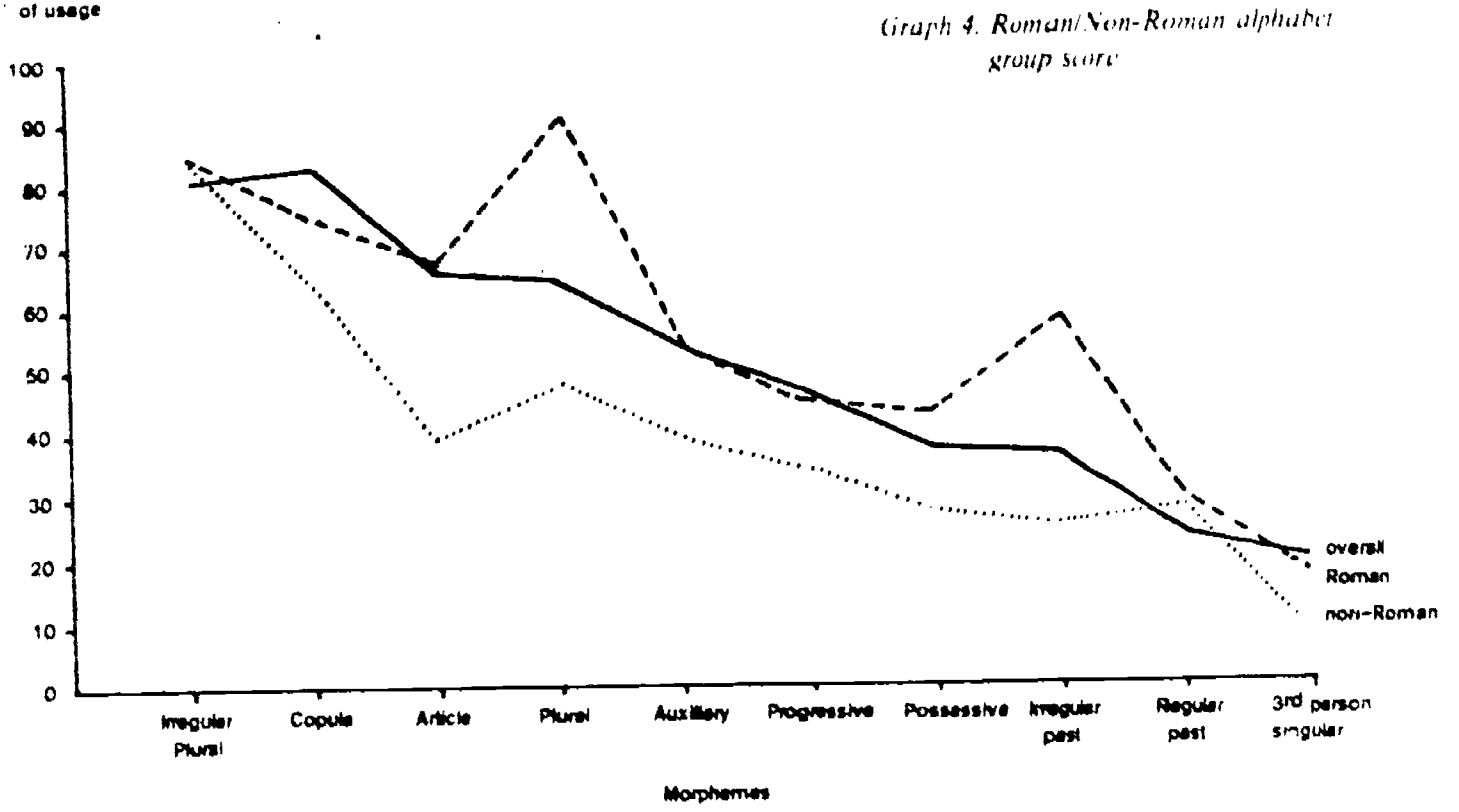
3.5. *The factor of a non-technological culture*

Another comparison was between those who had lived in what could be described as a typically western technologically advanced society and those who had not. Again the two subgroups remain quite similar as regards the factors of length of time in the U.S. and in English class. The non-technological group have been in the U.S. longer, 16.5 months as opposed to 15 months, but have been in school for a shorter period, 9 months as opposed to 10.2 months. The technological culture subgroup was older, on average, at 40.8 compared to 34.7 years. Once again the greatest difference between the subgroups was in length of schooling in native country, 14 years as opposed to 3.4 years, see Figures 2, 3 and 4 (p. 208—209)). Graphs 6 and 7 (p. 216—217) show the contrasting sequences of acquisition for group score and group range. The Spearman rank correlations are high (rho= . 80, p. .005 and rho= . 755, p. .01). The technological subgroup has a higher sequence of acquisition for all morphemes, except the copula. The main difference is in the plural morpheme, the rates for copula, irregular plural, article, auxiliary and progressive are very similar. The average difference in rate of acquisition for the group score is 12.7% lower for the non-technologically advanced subgroup, and 15.7% for the group range.

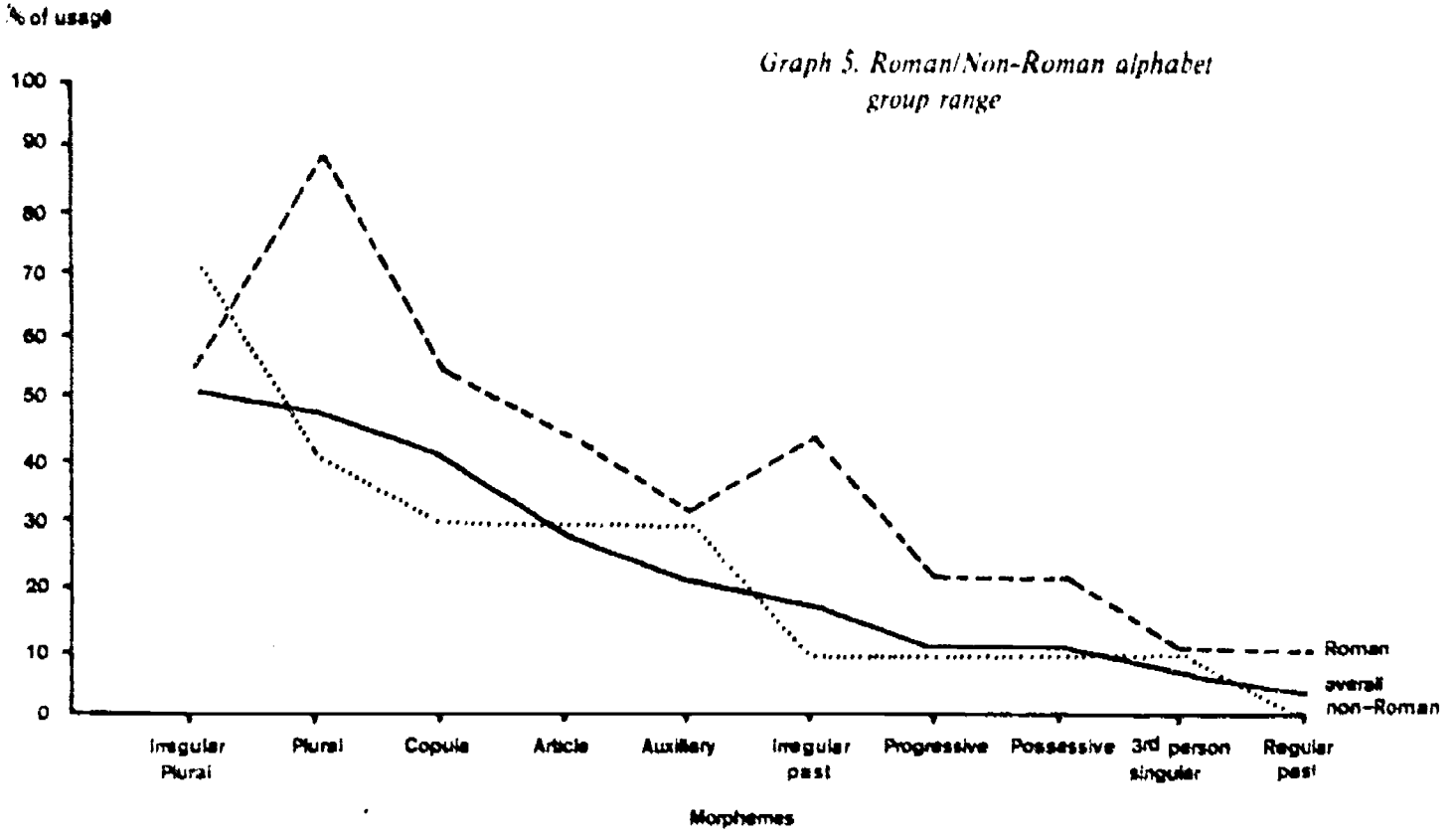
3.6. *The factor of a non-IndoEuropean L1*

The fourth comparison made was between the students whose first language belonged to the Ind European family, and those whose first language was non-Ind. European. Students with a prior second language knowledge of an Indo-European language (such as French learned in the colonial era) were

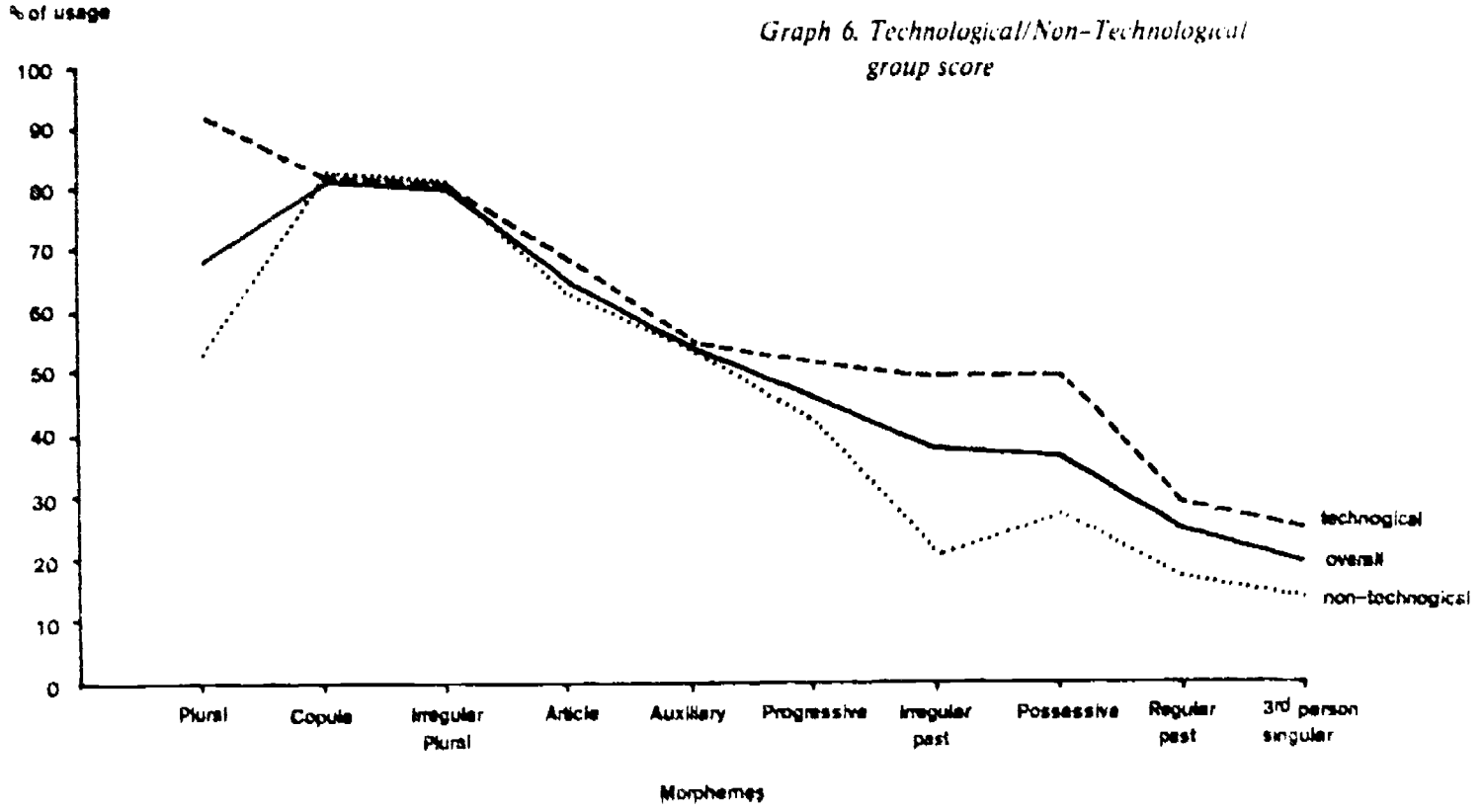
Graph 4. Roman/Non-Roman alphabet group score

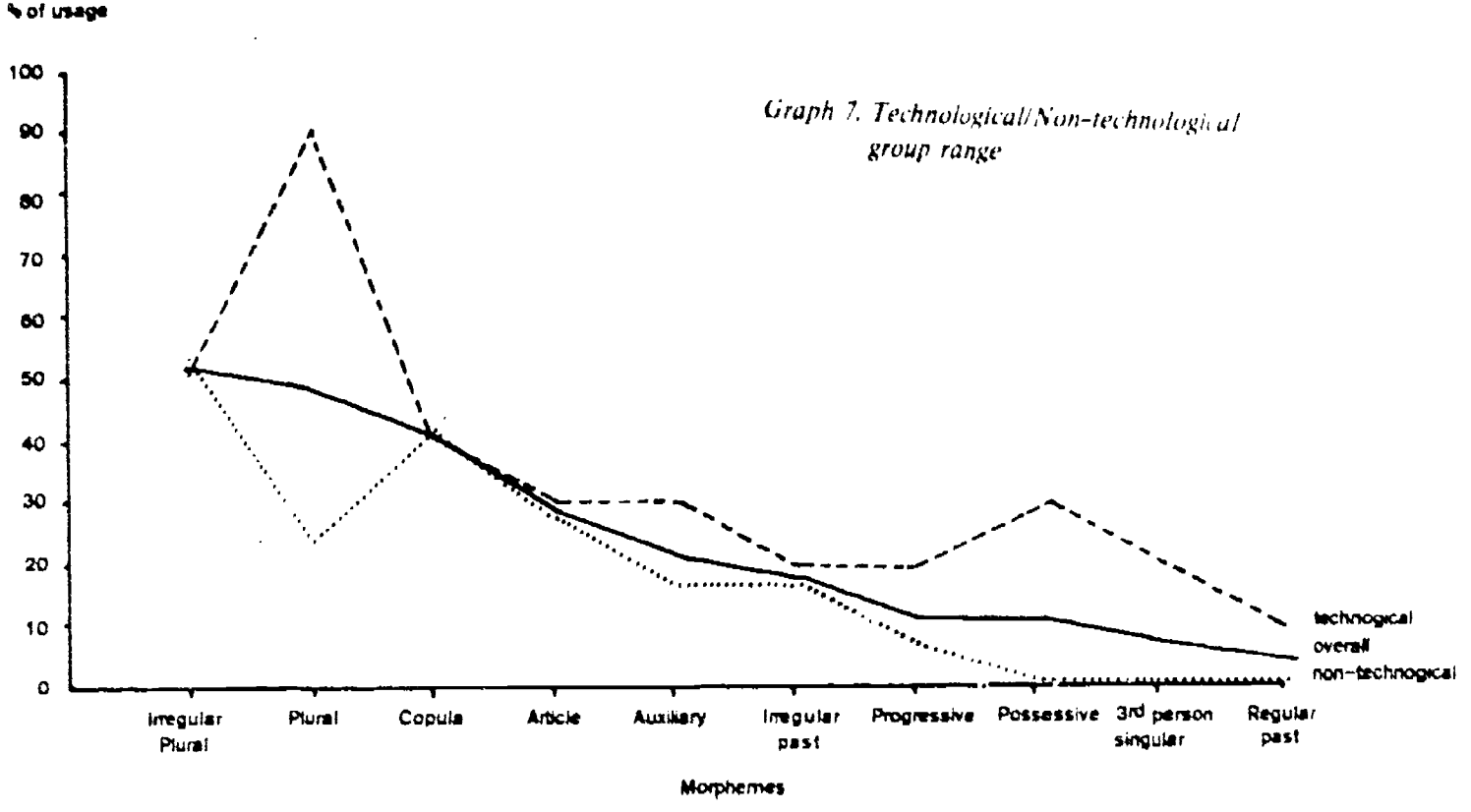


Graph 5. Roman/Non-Roman alphabet group range



Graph 6. Technological/Non-Technological group score





Graph 7. Technological/Non-technological group range

excluded from the latter subgroup. Members of the two subgroups had been in the English class, and in the U.S. for a similar time, for the IndoEuropean subgroup 9 months and 14.7 months respectively, and for the non-IndoEuropean subgroup 8.1 months and 16.8 months. The non-IndoEuropean subgroup were somewhat younger, by 34 to 41 years and had considerably less schooling in their native country, 2.8 years compared to 12.8 years, see Figures 2, 3 and 4 (p. 208—209). The group score and group range sequences of acquisition for the two groups are shown in Graphs 8 and 9 (p. 219—220). The correlations are not so high as in the groups considered earlier, though they are still significant (rho= .737, p. .025, for the group score, rho= .567, p .05). The IndoEuropean L1 rate of acquisition is higher than the non-IndoEuropean L1 rate of acquisition for every morpheme, with the largest difference for the plural and irregular past morphemes, and slightly smaller differences for the possessive, regular past and 3rd person singular morphemes. The rate of acquisition of the non-IndoEuropean L1 subgroup averaged 16.7% lower for the group score, and 14.5% lower for the group range, when compared with the IndoEuropean L1 subgroup.

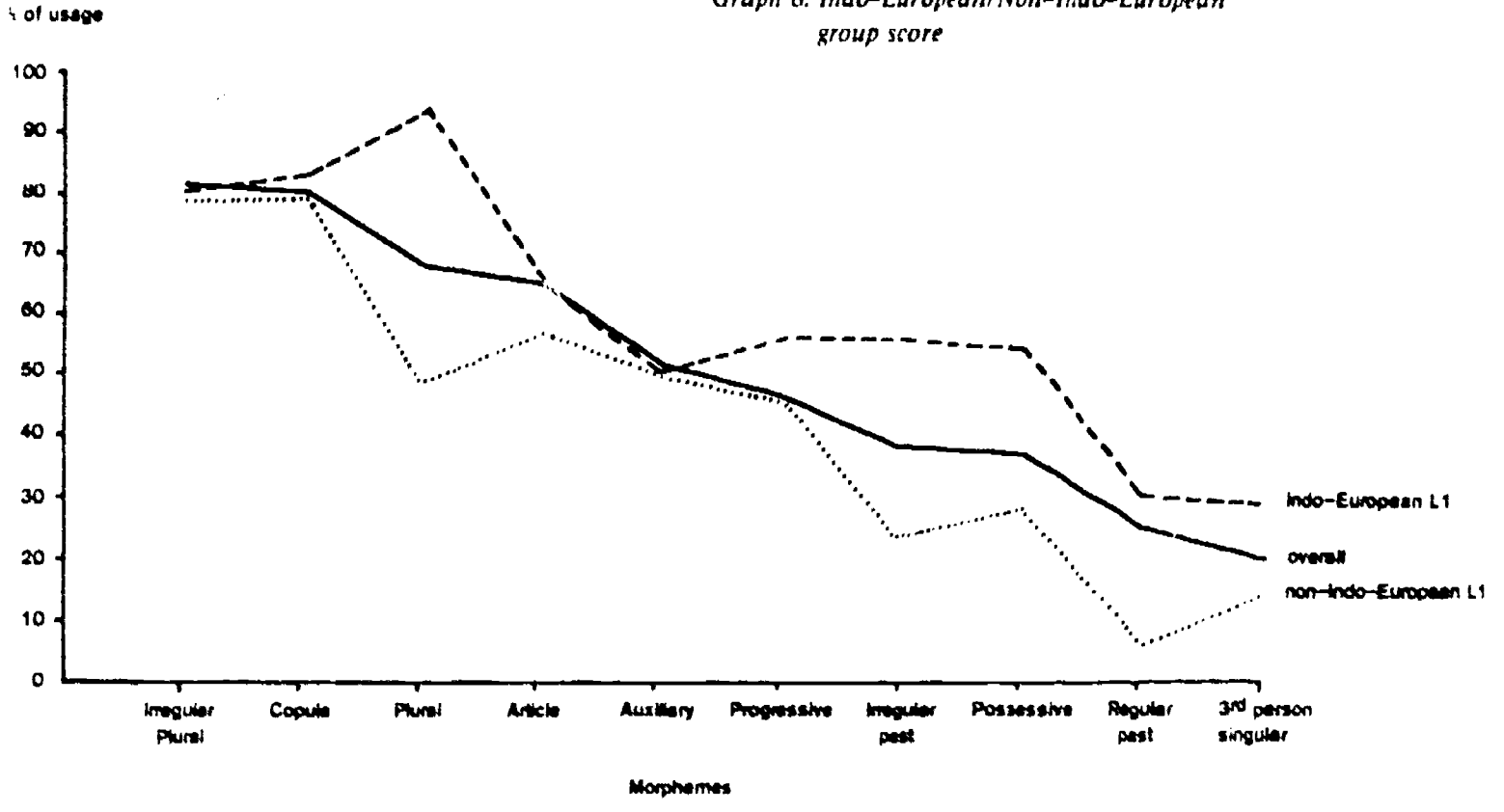
3.7. *The factor of age*

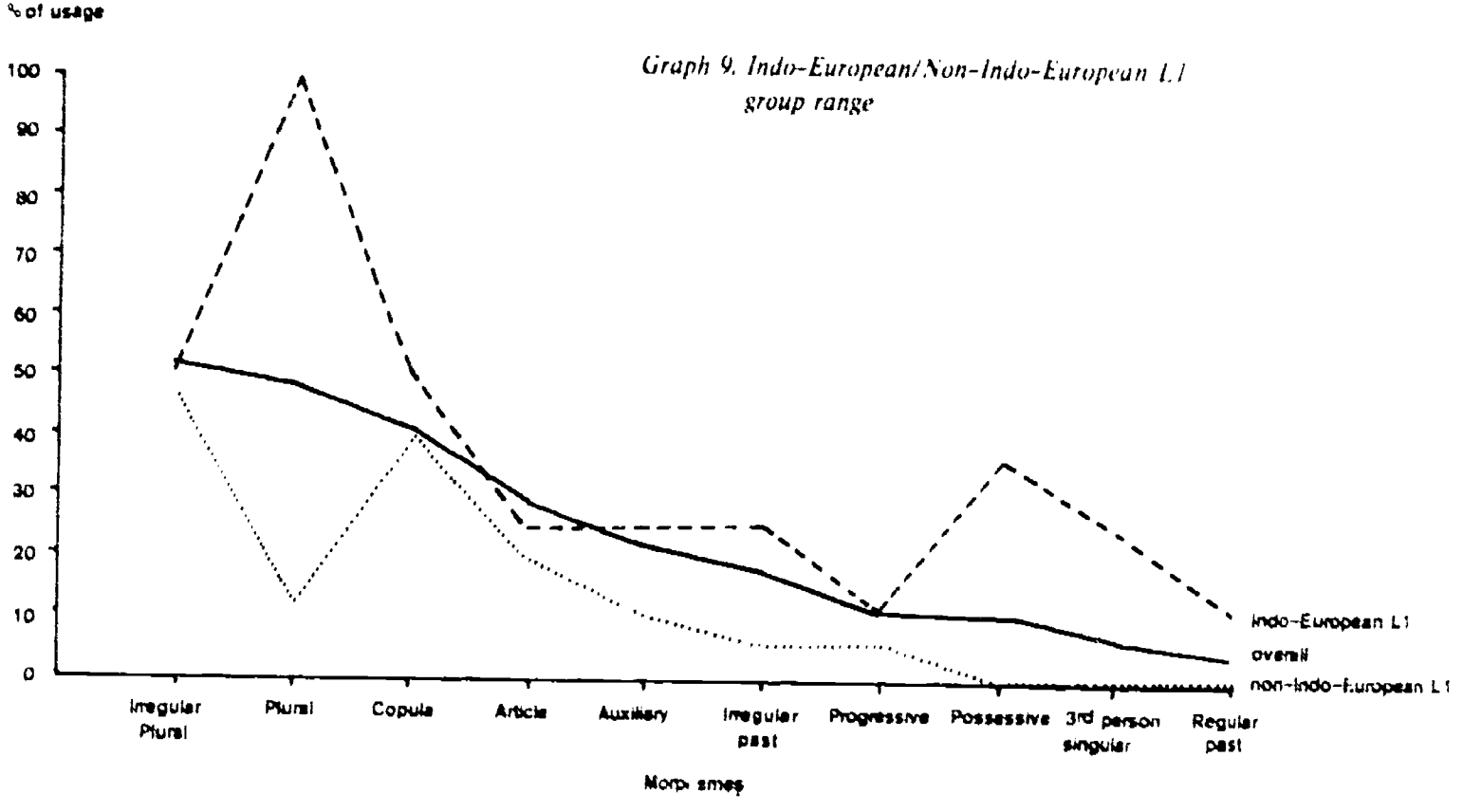
The fifth comparison was between the younger and older students. The average age of the older group was 48, and of the younger group 28. The older group had been in the U.S. longer, by 19 months to 12 months, and in English class considerably longer, by 11 months to 8 months. In terms of education in their native country, they were the most evenly matched of the five different pairs of subgroups for this factor, see Figures 2, 3 and 4 (p. 208—209). Graphs 10 and 11 (p. 221—222) show the sequences of acquisition of the two subgroups for group score and group range. The correlations between these rank orders are extremely high, (rho=. 973, p .005, for the group score, and rho= .832, p .005 for the group range). There was, in fact, very little difference between the two groups in rate of acquisition — 8.8% higher for group score and 0.9% higher for group range on average for the younger group, in spite of the fact that they had been in the U.S. and in class considerably longer. It is perhaps surprising that age appears to have so little effect on either sequence or rate of acquisition, since it is one of the factors which has been studied in some depth in earlier research, (see Krashen, Long and Scarcella (1979), and Fathman (1975a, b).

3.8. *Overall results*

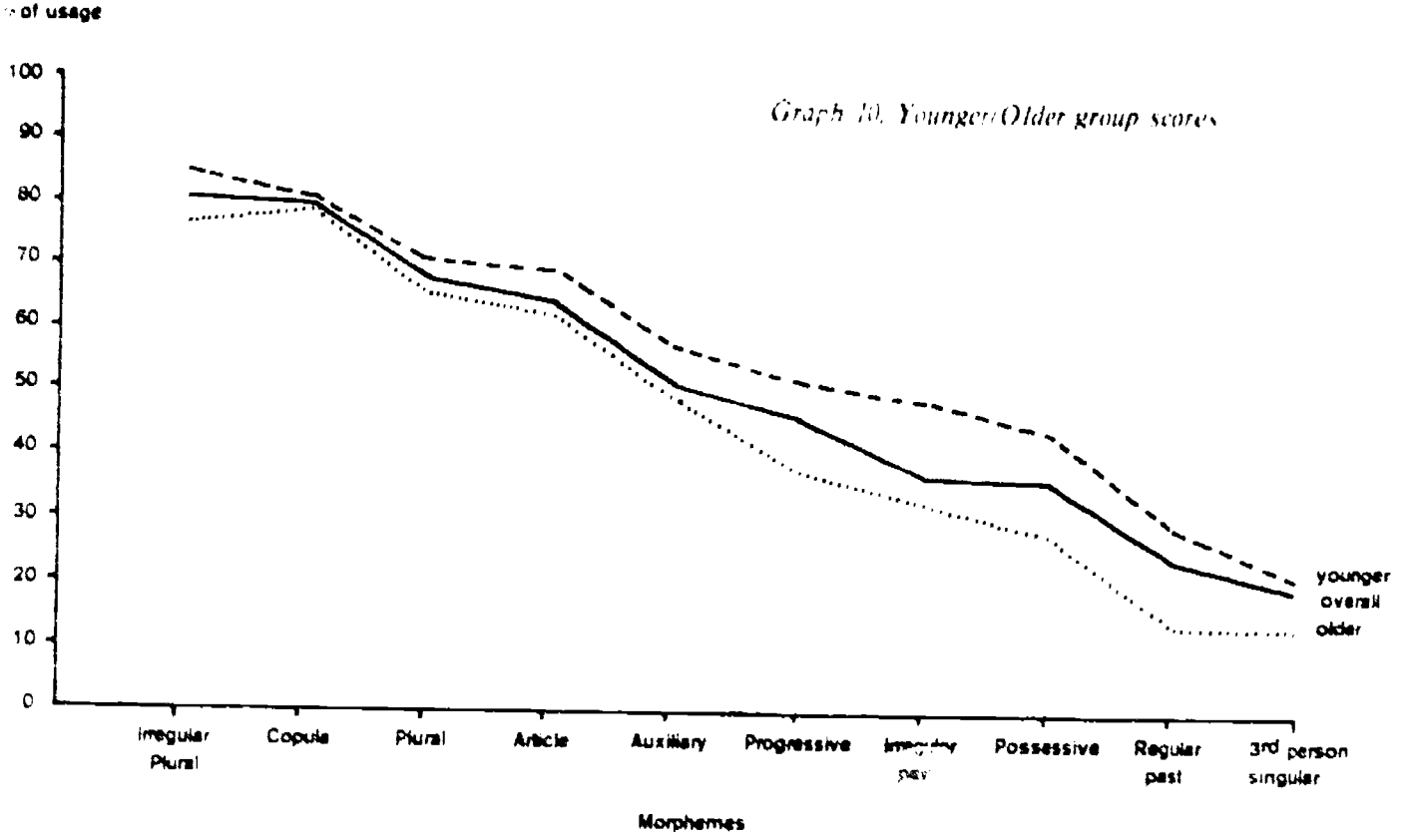
The results did not confirm my hypothesis that the factors of non-literacy, non-technological culture, non-IndoEuropean L1 or non-Roman alphabet would significantly alter the sequence of acquisition of adult ESL learners.

Graph 8. Indo-European/Non-Indo-European group score

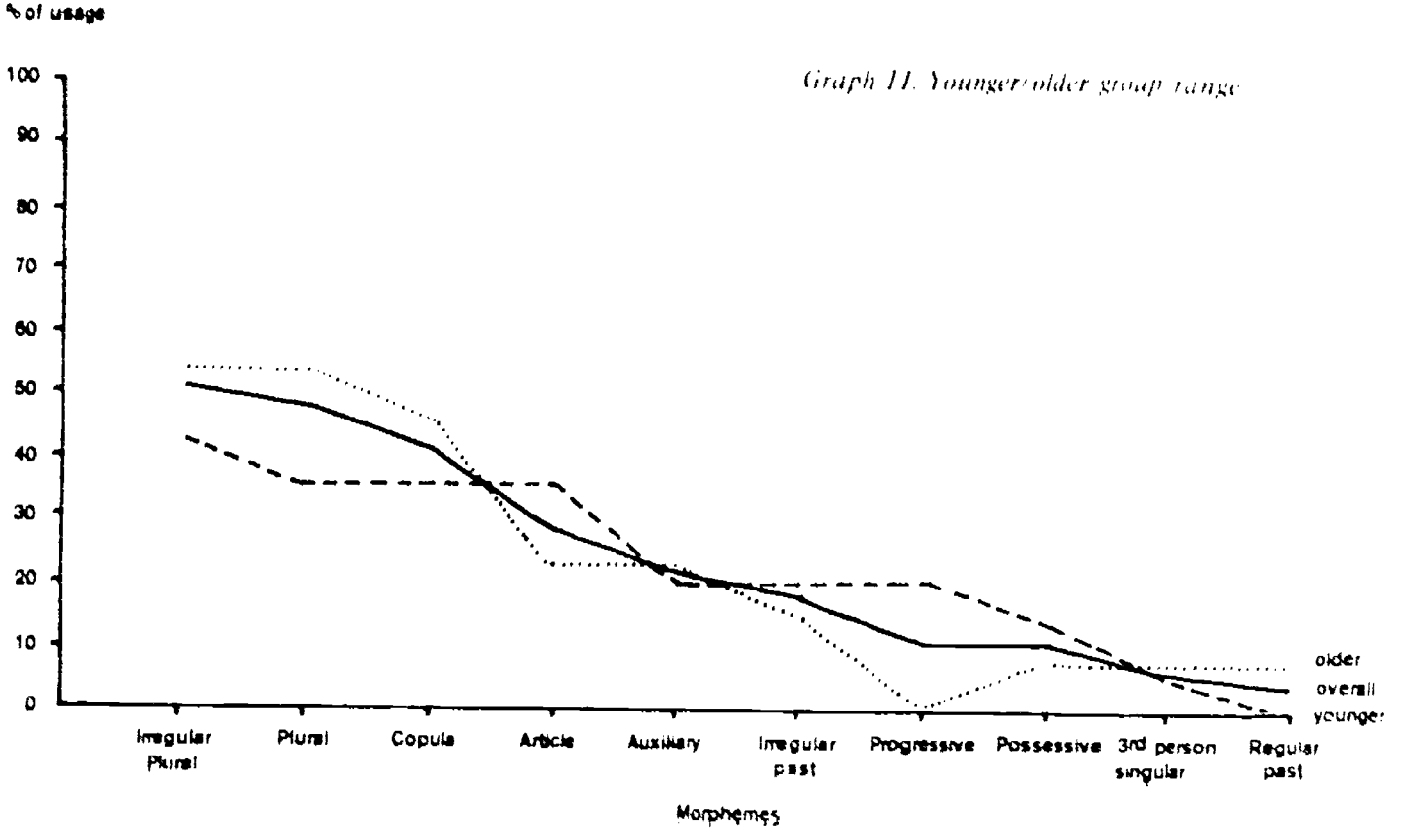




Graph 9. Indo-European/Non-Indo-European L1 group range



Graph 10. Younger/Older group scores



Graph 11. Younger/older group range

The sequences of groups with and without these factors correlate well. However, they obviously have some effect on the sequences, since the pairs of sequences are not identical; compare the high correlation between the younger/older subgroups, which have almost identical sequences, with the other pairs (see Figures 5 and 6) (p. 223-224).

My second hypothesis that rate of acquisition would be affected by the same factors was borne out. The groups (with the exception of the younger/older subgroups), differ considerably in rate of acquisition, and the groups affected by the factors studied all have a consistently lower level of acquisition. The non-literate subgroup is the most affected, with the non-Roman alphabet, non-technological and non-IndoEuropean subgroups affected only slightly less. Thus, adult learners of ESL who are non-literate, or who are literate in a language with a non-Roman alphabet, or whose culture is divergent from the English-speaking environment, or whose L1 is non-IndoEuropean have considerably lower rates of acquisition than learners without these factors. Older learners have a slightly lower rate of acquisition. For a comparison of

Figure 5

group scores		
literate/non-literate	rho = .84	average difference = 20.9%
Roman/non-Roman alphabet	rho = .80	average difference = 16.9%
tech/non-technological	rho = .80	average difference = 12.7%
IndoEurop/non-IndoEurop L1	rho = .737	average difference = 16.7%
younger/older	rho = .973	average difference = 8.8%
group mean		
literate/non-literate	rho = .80	average difference = 21.7%
Roman/non-Roman alphabet	rho = .78	average difference = 12.5%
tech/non-tech culture	rho = .85	average difference = 13.5%
IndoEurop/non-IndoEurop L1	rho = .767	average difference = 16.4%
younger/older	rho = .999	average difference = 11.1%
group range		
literate/non-literate	rho = .84	average difference = 26.4%
Roman/non-Roman alphabet	rho = .86	average difference = 14.5%
tech/non-tech culture	rho = .85	average difference = 15.7%
IndoEurop/non-IndoEurop L1	rho = .755	average difference = 14.5%
younger/older	rho = .832	average difference = 0.9%

the relative effects of these factors on sequence and rate of acquisition see Figure 6 (p. 224). The rho values and the percentages are averages of the group scores, means and ranges.

An analysis of the tables shows that the greatest differences in acquisition for all groups (with the older/younger subgroups excepted) occur in the

morphemes for plural and irregular past. One possible explanation for this is from contrastive analysis. The Vietnamese and English sound systems have little in common. For instance, the Vietnamese language only allows a very restricted choice of consonants in word-final position. Since Vietnamese

Figure 6

sequence of acquisition					
factor	non-Indo Europ L1	non-Roman alphabet	non-literacy	non-tech culture	older in age
rho =	.753	.81	.82	.83	.934
rate of acquisition					
factor	non-literacy	non-Indo Europ L1	non-Roman alphabet	non-tech culture	older in age
difference	23%	15.8%	14.6%	13.9%	6.9%

speakers form 33% of the non-literate subgroup, 40% of the non-IndoEuropean L1 subgroup and 44% of the non-technological culture subgroup, this may partly explain the low performance of these subgroups, as far as the plural and regular past morphemes are concerned, because most of the word-final consonants they require are not within the competence of the Vietnamese speakers, who form, in contrast, only 13% of the literate, and 0% of the Indo-European L1 and technological subgroups. However, there are no Vietnamese speakers in the non-Roman alphabet subgroup, and that group also has a very low performance rate for the plural; so Vietnamese pronunciation difficulties cannot provide the whole explanation.

4. *Implication of results*

There are several pedagogical implications and questions raised by this study. One is the importance of teaching literacy, not merely for its own sake, as a necessary skill in a modern society, but also because of the effect non-literacy has on the rate of acquisition of English, which is, of course, more important for the learner than sequence of acquisition. There is perhaps a case for teaching L1 literacy first, where possible. Since the importance of cultural divergence has also been made clear, there is perhaps a case for teaching the TL culture in the L1. On the other hand, communicative language teaching theorists would, of course, see this situation as an opportunity to provide meaningful and relevant content input in ESL learning, and this has usually been the solution reached by the programmes for teaching ESL

to the S.E. Asian refugees, and also in the programmes such as Neighbourhood English in Britain.

The implications of this study then, are that the factors of non-literacy, literacy in a language with a different alphabetical system, an L1 very different from the L2 and cultural divergence are important in second language learning. Therefore, the special needs of learners exhibiting these factors should be borne in mind when methods, materials and curricula are planned. d'Angeljan comments (1983 : 30) that there may be a tendency to regard these special needs as a response to a temporary situation created by the refugee crisis. But it seems very likely that immigrants from the third world, if not refugees, will continue to arrive in the west, with these same factors weighing against their acquisition of the language of their host country.

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