

A UNIVERSAL INTERLANGUAGE: SOME BASIC CONSIDERATIONS¹

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ABSTRACT

The aim of this paper is to present some basic considerations about the adequacy of interlanguages (ILs). Although the major concern is that about a universal interlanguage (UIL), i.e. a worldwide IL for all people and any utilization, some aspects of ILs with a more limited scope are described as well. Types of and arguments for and against proposed UILs as well as principles of language planning are summarized. Statistical data on the spread and estimated importance of the principal languages are included. The languages are classified according to cultural relatedness. A calculation of the acceptability of ILs is discussed, taking into account the relevant factors more fully than in previous attempts. Different bases of constructed languages (CLs), especially constructed interlanguages (CILs) are discussed. Some existing CLs are criticized, the main deficiencies being, first, violations of certain language planning principles and, second, if proposed as UIL, cultural bias due to either an overestimation of the spread of Western civilization or intentional neglect of other civilizations. (Interlinguistics, constructed languages, language planning, language policy, classification of languages, speaker statistics.)

¹This is an OCR interpreted and only minimally polished version of a term paper (C-uppsats) that I presented at the Dept. of Linguistics, Stockholm University, in 1975. My conference contribution "Socia bazo kaj komunika efikeco de interlingvoj" published in Szerdahelyi, Istvan (Ed.), *Miscellanea interlinguistica / Interlingvistika antologio*, pp. 205-215 (Budapest: Tankönyvkiadó, 1980) was based on this paper.

1 TYPES OF INTERLANGUAGES

1.0 Any human language can function as an IL. Even non-verbal codes can function as ILs, though not as UIL because of their restricted applicability. They will not be considered here. For use as a UIL have been proposed the following types of languages:

1.1 A widely spoken ethnic language

Such a language has already in itself a high communicative and economic value. This is the usual and, as we shall see, most rational choice of IL when there are no alternative languages which were considerably easier to learn and to use. The people whose language thus would be adopted, would, of course, have significant advantages over other people. Although the vast majority of them would not need to learn a foreign language, thus saving learning time and expenses, they would share the fruits of the others' efforts. The thus privileged people would have the further advantage of facilitated economic, cultural and ideological penetration. Their superior mastery of the IL would give them an advantage in argumentation and discussion on the international, more precisely 'inter-dialectal', level. Most modern national languages are actually representatives of this kind of IL.

1.2 A language with a negligible number of native speakers

1.2.0 If a language of any kind is spoken by few people as a native language, it is likely that the others would tolerate giving them the advantages which would follow such a choice. This kind of choice would indeed have a neutralizing effect. It would eliminate the risk of cultural and other domination on linguistic grounds. It would not evoke other peoples' Jealousy and chauvinistic feelings. It would, however, not necessarily facilitate the task of language learning, nor would it be completely neutral. Should a CL be accepted as the UIL, it can be expected that a number of individuals would adopt it as home language, and soon there would be a number of people with the CL as their first language. Thus it is motivated to group together CLs and small ethnic languages from the viewpoint of neutrality and justice. More specifically, such a language could be:

1.2.1 A *small ethnic language*, e.g., Albanian. Under certain circumstances this kind of choice would be rational. One such case among regional ILs was the adoption of Malay as the *Bahasa Indonesia*, the national language of Indonesia. Malay was in Indonesia spoken by just a small minority as a native language, but throughout the archipelago there existed people who already used it as an IL. Moreover, it is a language

said to be easier to learn and to use than e.g., Javanese, the most spoken ethnic language in that region. A disadvantage of Javanese as an IL can be seen in its double base-vocabulary to be used according to the social relations between the interlocutors.

1.2.2 *A dead classical language, e.g., Latin.* The necessary adaptation to modern needs should not be an insurmountable obstacle, as we can conclude from the successful reintroduction of Hebrew. A more serious obstacle for the use as UIL is the cultural bias linked to this kind of choice. In the case of Hebrew, however, this was a deciding factor in favor of its reintroduction. In addition, none of these solutions seems to facilitate learning.

1.2.3 *A pidgin language.* Pidgins emerge as ILs. Therefore they have some of the desirable features of a UIL. One could object that they lack universality. Their vocabulary is usually unstable and not fully adapted to every sphere of human life. This, however, could be corrected by language planning as in the case of 1.2.2. Adoption of a pidgin as UIL would to a certain degree favor peoples speaking one of its source languages, but even for most others it would facilitate learning compared with the learning of one of its source languages.

1.2.4 *An a posteriori constructed language; i.e. a CL based on certain source languages.*

The primary source languages of Esperanto, until now the by far most successfully propagated international CIL, can be said to be Latin, Greek, French, English, German, Russian and Polish. Because of the dominant Latin-originating sub set in the set of recognizably related lexical items in the modern ones among these languages, there is a remarkable similarity in vocabulary between Esperanto and more intentionally Latin-based CLs. Its grammar and phraseology is based on what can be called Standard Average European, but the creator, Zamenhof, was noticeably influenced by the traditional description of grammar in Latin-type school grammars. This was criticized by Leskien (1907). Nevertheless, Zamenhof succeeded in constructing an autonomous and regular system of deriving and compounding, by and large maintaining a biuniqueness relation between meanings and morphemes. Some imperfections exist, however. Several of these were avoided in subsequent CLs of similar type, as Ido and Novial (Jespersen 1928).

Another type, called *naturalistic* CLs, differs from these autonomous ones mainly in not maintaining that biuniqueness relation, following instead average European or Romance use. Among them we find Mundolingue (Lott 1899), Occidental (=Interlingue) and Interlingua by IALA, the "Interna-

tional Auxiliary Language Association". There is a previously existing Interlingua (Peano 1903). Interlingua by IALA is based on the written reflection of its source languages and propagated basically as a system of international writing. So interpreted, spoken Interlingua is to be regarded as a secondary coded writing. A similar, but not always so consistent tendency shows up even in the other CLs of this type.

There are furthermore several a posteriori CLs between and peripheral, to these classes, and CLs based on just one source language, as Wede (Baumann 1915) and Basic English (Ogden 1944). Some national languages, e.g., the Norwegian Nynorsk and Standard High German are CLs based on closely related dialects.

For a description of the history and typology of CLs, reference is made to Drezen (1967) and Bausani (1970). Comparative studies on the structures of the most well-known CLs have been published, among others, by Jacob (1947) and Manders (1947).

Adoption of a naturalistic CL as UIL would favor peoples speaking a Romance language or English and somewhat less other peoples of Western civilization as well. Especially, well-educated members of these peoples would be favored, as these without learning such a CL already possess some latent passive knowledge of it. To a lesser degree, the same is true for the autonomous European-based CLs. Adoption of a well-constructed autonomous CL would facilitate the task of learning, compared with the learning of one of its source languages even for Non-Westerners. The same can be true for certain naturalistic CLs, but if at all, then to a much lesser degree.

1.2.5 *An a priori constructed language*, i.e. a CL that in some essential part is not based on any ethnic language.

Several among the first CLs, the so-called *philosophical languages*, e.g., by Dalgarno (1661) and Wilkins (1668) were of this type concerning vocabulary. Their grammar and phonology was based on the languages known to the authors. The objectives included a logical classification of all ideas, which was expected to facilitate acquisition of knowledge. The classification used is structurally almost identical with those nowadays in use in libraries and patent offices. Another type of CL is a priori in grammar, e.g., Interglosa (Hogben 1943), sometimes misleadingly referred to as Chinese-based, because of its 'isolating' structure - so in Bausani (1970, p. 138). The grammar of Loglan (Brown 1960) is said to be based on formal logic. As usual in a priori CLs of recent date, phenomena of linguistic naiveté come to the fore (Bausani 1970: 139). Some of the a posteriori CLs, e.g., Volapük, contain a priori features manifested in their

selection of items from the source languages and/or a recast in the form of certain items. Necessarily, much in the form of an a priori CL depends on an arbitrary choice by the constructor. So far no a priori CL has been successfully propagated. Several a priori CLs contain features that make them inadequate as a means of speech communication.

2 PRINCIPLES OF LANGUAGE PLANNING

2.0 Based on considerations of what would be desirable for efficient communication, 'efficient' to be interpreted in the broadest sense of the word, a number of principles of language planning can be established. This has been done comprehensively by Tauli (1968) for language planning in general. Concerning the planning of CILs and an evaluation of their qualities, the same principles are valid, but there are differences in the relative weight of those sometimes contradictory principles. The question of weighting has not yet been treated in detail. In practical language planning, remaining problems are solved by way of intuition, but in planning of CLs based on rather different dialects the intuitions, if any, of language planners can not be expected to coincide; nor can it be expected that the most efficient solutions would be found in this way. Tauli (1968) presents a partial solution by ordering the application of the principles hierarchically in such a way that the needs of clarity, economy and aesthetics are satisfied in this order. Still the method relies on intuition. Presently there are not even strict and readily applicable methods for measuring some of the essential features to be considered, as familiarity, simplicity and redundancy. Present knowledge suffices, however, for pointing out major deficiencies in languages. The most important principles can be arranged in summary under the following headings:

2.1 Simplicity

The grammar should be as simple as possible. The quantity of rules and lexical units of all kinds should be the least possible. Tauli (1968; 32) points out that this should be valid as well for the units in use (message) as in store (code). There should be no 'exceptions' from rules. The proper criterion of 'simplicity' is a psychological one. It can, however, be expected that the differences between formal simplicity and psychological simplicity are minute, concerning the learning of a first language. Differences would be due to either an irrational formalization or an irrational functioning of the brain. But even the application of rules must be taken into account here. The number of rules applied to sentences, more precisely their total complexity, should be as low as possible. The simplicity measure as discussed by generative grammarians for the evaluation of grammars shows us a way of measuring simplicity. Though

it is not concerned with the application of rules in use, it could be applied to this aspect of simplicity as well. It has to be pointed out, that generative grammars in their present shapes do not constitute formal descriptions of the linguistic code as it functions in the brain. Concerning a second language, the structure of the first one has to be taken into account. This aspect is accommodated under the following heading.

2.2 Familiarity

Jespersen (1909: 28) proposed to apply Hutcheson's and Bentham's ethical formula "That action is best which accomplishes the greatest happiness for the greatest numbers" to the construction of an IL. He formulated "Die beste internationale Sprache ist diejenige, die der grössten Anzahl Menschen die grösste Leichtigkeit bietet". The formulation is weak. In one interpretation Chinese would be the best UIL. We can formulate it more precisely: "The best UIL is that which demands the least efforts of humanity". Thus, for linguistic items such as phonemes, syntactic structures, semantic extents, morphemes and other lexical items, that form is preferable which is easiest to produce and perceive, to recognize and memorize for the greatest number of people. For interdependent features, the principle has to be applied to the cluster rather than to the individual items. In passage 5. it will be shown that there are different ways of estimating efforts and that different degrees of justice demand modified formulations. As for phonetic features, the difficulties lie in production and perception. This question, relating a constructed UIL has been examined by Trubetzkoy (1939). His conclusions were criticized by Mayrhofer (1972), claiming that the proposed phonetic system with only 9 consonants was too restricted and consequently did not allow for sufficient redundancy with reasonable economy in the language. This leads us on to the next principle.

2.3 Optimal redundancy

Under this heading we can embrace two often contradictory claims. First, economy. Expressions should be short, especially, the more frequently a conception is to be verbalized, the shorter its expression should be. Second, clarity. Expressions should contain redundancy, especially, the greater the risk for semantic confusion, the greater the difference in expression should be. Implicit in the claim for redundancy is the more basic claim for absence of ambiguity. Optimal redundancy is achieved when clarity is guaranteed by the most economic use of signs. Yet it is still unknown to what degree redundancy improves clarity. Another unanswered question in applying this principle is how much deviation from the most economic use of signs should be allowed. Esperanto contains some violations of this principle exceeding those found in any of its source lan-

guages. E.g., lack of redundancy in the pronouns [li, ni, mi, vi, dʒi, ʃi] [tio, tʃio, kio] meaning 'he, we, I, you, it, she' and 'that, everything, what' respectively. Lack of economy in the copula [estas] (present tense).

2.4 Facultative precision

Speakers should have the possibility of expressing themselves with facultative precision. There should be no obligatory categories that would compel the speaker to express something irrelevant, unnecessary, or unknown. In most European languages there are such categories. E.g., some languages compel their speakers to express the sex of persons or the number of objects (singular or plural). To Jespersen this imperfection copied by the European CLs was pointed out by a Japanese Idist (Jespersen 1928: 63). Therefore he created an exceptional form neutral as to sex and number in his CL Novial. But as it is obtained by dropping the final vowel of nouns, some final consonantal clusters result that do not fit into the phonetic pattern of the language. Most East Asian and South-East Asian languages do not have these compulsory categories. In a vaster sense, the principle of facultative precision demands an existence of simple generic terms. More specific expressions should be achievable by an economical use of additional signs.

3 THE LANGUAGES OF THE WORLD

3.1 Data on the number of speakers

See Table 1. Source "Demographical data on the world population by states" (Witthauer 1974), Chinese dialectal investigation in 1955-58 (Kratochvil 1968), "Census of India" (1961), Census of the Soviet Union in 1971, as well as some other data from "Der Fischer Weltalmanach 1975" (1974). The figures are based on (Witthauer 1974). Concerning the dialects and languages of China, India, Pakistan, the Soviet Union and some minor countries, it has been supposed that the relative distribution of inhabitants using them remained unchanged compared with the data from the mentioned sources. Concerning recent international migrants it has been supposed that all accept the new national language as home language. Sufficiently reliable data on this matter were not available. Hindi-Urdu as home language includes the Bihari and Rajasthani dialects. This seems justified by those peoples' deliberate acceptance of Hindi or Urdu as their basic educational language. (Kloss 1969: 385-). The figures for Swahili and Malay are uncertain because there occurs a transition towards these languages as home language, notably among the school children of Indonesia. The figures for European languages as 'national' languages in African countries include only the people with the concerning language as home language. For countries with several-national languages equal in rights, the figures for home languages have been taken for national languages as well.

TABLE 1. THE PRINCIPAL LANGUAGES IN 1975

Left column: home language, millions of speakers. Right column: national language, millions of inhabitants.

English	314	316	W	Principal sources of loan words
Spanish	221	235	W	and loan translations:
Russian	150	255	W	
Portuguese	118	118	W	Latin
German	95	91	W	Ancient Greek
French	68	71	W	modern European languages
Italian	56	56	W	
Ukrainian	37	-	W	W: The European (Western) cultural sphere:
Polish	34	34	W	altogether 1,311 millions of speakers,
Rumanian	21	21	W	i.e. 32.7% of humanity.
Dutch	19	20	W	
Tagalog	10	43	W	
Arabic	134	145	I	Classical Arabic
Turkish	36	40	I	Persian
Persian	22	33	I	Ancient Greek and others
Hausa	20?	-	I	
Pushtu	19	19	I	I: The Afro-Asian (Islamic) cultural sphere:
Amharic	8	27	I	altogether 1,015 millions of speakers,
Swahili	3?	28	I	i.e. 25.3% of humanity.
Hindi	272	607	H&I	
Urdu		70	H&I	
Punjabi	11	-	H&I	
Marathi	46	-	H&I	
Gujarati	28	-	H&I	
Malay	35?	155	H&I	
Javanese	45?	-	H&I	
Bengali	126	83	H	Sanskrit
Telugu	52	-	H	Hindi
Tamil	47	-	H	
Kannada	24	-	H	H: The South Asian (Indian) cultural sphere:
Malayalam	24	-	H	altogether 997 millions of speakers,
Oriya	22	-	H	i.e. 24.9% of humanity.
Siamese	25?	42	H	
Burmese	23	31	H	
N. Chinese	590	870	C	
Wú	70	-	C	
Yuè	43	-	C	Chinese (several periods)
Xiāng	40	-	C	
Mín	38	-	C	C: The East Asian (Chinese) cultural sphere:
Kèjiā	31	-	C	altogether 1,070 millions of speakers,
Gàn	20	-	C	i.e. 26.7% of humanity.
Japanese	111	111	C	
Korean	52	52	C	
Vietnamese	38	43	C	
				Other, minor cultural spheres:
				altogether 193 millions of speakers,
				i.e. 4.8% of humanity.
All languages attaining				Humanity: 4,009 million people.
19 millions in either				
column are included.				

3.2 Cultural classification of languages

To the well-known classifications of languages by genealogical relatedness and by structural types we can add a third one with importance to interlinguistics, namely by cultural relatedness. The characteristic feature of languages that can be grouped together from this point of view is a set of loans with common origin. The language of origin has to be included. Although the borrowing characteristically is a mutual process, there is usually one dominating language of origin. Most evident to the observer are the common loan words, but loan translations should be counted as equally important. Some languages do not accept loan words, nevertheless their membership to a certain linguistic cultural sphere is well founded, e.g., Tibetan belonging to the Indian cultural sphere. An even more basic trait is the existence of common cultural objects and concepts necessitating simple expressions, be it by hereditary words, by loan translations, or by loan words. There exists a partially uniformed structuring of the semantic extents. Often even idiomatic expressions are shared by languages belonging to the same cultural sphere. Cultural relatedness is often of greater bearing in second language learning and in CIL planning than genealogical relatedness. The learning of French by a Swede is facilitated more by the cultural than by the genealogical relatedness of the two languages. Most of the existing a posteriori CLs intended for international use make use of the loans of common origin in the languages of Western civilization.

We find four supreme cultural spheres in the world. The languages in Table 1 are grouped according to these. There are further a number of very small cultural spheres, mostly containing languages which until recently have not been written. In addition there are 'hypospheres', more restricted in impact and extension, within and across the major cultural spheres. As examples can be named a Hanseatic sphere comprising Low-German, the Scandinavian and Baltic languages, or an Old-Austrian sphere including at least Austrian German, Czech, Slovak, Hungarian and Slovenian. There is also a British sphere, comprising besides English most of the numerous languages in the British Commonwealth of Nations. The difference in impact between these minor cultural spheres and the four supreme ones is explained by the latter one's much longer history of some millennia.

There seems to be even a qualitative difference between the loans within the major cultural spheres on the one hand and within the minor cultural spheres and occasional borrowings across cultural borders on the other hand. In the first case written forms or phonological deep structure

forms are loaned, often together with their full semantic extent. In the second case phonetic surface structure forms are loaned and their semantic extents are often reduced or otherwise changed.

Ordinarily, material, spiritual and linguistic cultural spheres coincide, but there are differences in degree of affiliation. There is e.g., Bengali, the majority of whose speakers accepted Islamic culture, though this did not influence the language to any great extent. The language probably resisted because it already was a well established literary language by its own. There was not much need for loans. On the other hand, with Hindustani as a mediator, Perso-Arabic loans spread into Indian languages whose speakers had not accepted Islamic culture. The composition of the Hindustani vocabulary is superficially illuminated by Table 2.

TABLE 2. Immediate etymological origin of words found in "A dictionary of Urdu, Classical Hindi and English" (Platts 1910) according to notes found there.

Origin:	Hindi	Sanskrit	Persian	Arabic	Turkish	doubtful
Number:	585	253	174	104	1	4
Percentage:	52.2	22.6	15.5	9.3	0.1	0.4

Sample comprising all 1,121 entries on pp. 50, 100, 150, ... 1,250. The set grouped under "Hindi" contains mainly words originating from Prakrit, but also a few dialectal forms of loan words. Approximately a quarter of the Persian words is originally Arabic. Among the 104 Arabic words there are two with Persian and one with Greek origin.

In a representative sample of present day Hindi, there would additionally appear a few English loans. Recent tendencies were, in Pakistan (Urdu), a vast use of Persian and Arabic loan words and, in India (Hindi), a planned creation of words for modern needs, mainly by elements loaned from Sanskrit. These newly coined words are aimed to replace less well-known loan words, especially those English words used only by persons knowing English.

The impact of Western languages on the languages of other civilizations is quite marginal. In Japanese and Malay, languages that have loaned a remarkable number of European words, the number of loans from their own cultural spheres is still much greater. Chinese has almost no loan words, except re-borrowings of technical and scientific terms coined by Japanese for their own language from Chinese elements. Probably there are loan translations from European languages, but these are difficult to trace.

Other European loans are limited mainly to geographical terms and a few curios, e.g., *mēi* 'America', *dè* 'Deutsch', *kētiedā* 'coup d'état'.

3.3 Economic power associated with languages

The importance of languages does not in the first place depend on the number of speakers, but on their collective economic strength. On the economic strength depend among other things the publication of literature, the scientific activity, trade, tourism and consequently the advantages of those who have learned the language as a second language. From this point of view the world's language situation looks quite different from that according to the numbers of speakers. The relative importance and practical value of languages can be estimated by the relative gross national product of their speakers. Most factors influencing this 'value' can be expected to correlate positively and fairly proportionally with the gross national product. This is shown in Table 3 for the principal languages in 1974. The validity as an estimation of the present importance of languages can be increased by integrating the values over a number of years, yet the values for the last year have higher validity as an estimation of the importance of languages in the near future.

TABLE 3. Estimation of the gross national product in 1974 in the region of certain national languages. The figures indicate the percentage of the world total. All values above 1% have been included.

European		Orient Asian		Afro-Asian		South Asian	
English	34.6	Japanese	8.2	Arabic	2.2	Hindi	1.5
Russian	13.2	Chinese	3.7	Hindi	1.5	Others	1.5
German	9.1	Others	0.4	Others	2.7		
French	6.7						3.0%
Spanish	3.9		12.3%		6.4%		
Italian	2.7						
Dutch	1.3						
Portuguese	1.3					Other languages approx.	1.0%
Polish	1.1						
Others	5.0						
	78.9%						
						(Sum 99.4%, error 0.6)	

Sources: OECD statistics for 1973, several data from *Der Fischer Weltalmanach 1975*. Corrected for 1974 was only the value of petrol according to current information.

4 CONDITIONS FOR THE SPREAD OF INTERLANGUAGES

4.1 The spread of ILs follows a rather simple, subjectively applied behavioral rule:

- 1) *A second language will be learned if and only if the presumptive learner estimates the advantages of knowing that language to be higher than the costs, i.e. learning efforts.*

This rule follows from the general human desire to achieve most by the least effort, the 'law of least effort' in human behavior. From 1) it can be deducted, in a practical sense, that:

- 2) *Learning progresses only until the expected advantages balance the costs.*

Due to 1) and 2), a less costly IL will be learned more perfectly and spread to vaster social strata within societies that are not completely dependent on its knowledge. In a situation with a sufficient number of people with similar, relatively constant and low advantages a pidgin will establish due to 2). The use of Latin as IL among learned people in medieval Europe was motivated by its value as a literary language. There was no other language with such an important literature. In more recent times, many a grammar school boy estimated the advantages of knowing that language as not so high, and their success was according to 2), sometimes a choice made by educational authorities does not coincide with that of the presumptive learner. In this case the learner at best aims at good marks. The knowledge received in this way is known to be fugitive. Thus, it would be preferable to offer alternatives. Presently English functions as an almost worldwide IL. It is also the economically most important language in the world and for most people it seems easier to learn than its competitors among ethnic languages. Still, English is not sufficiently spread regionally and socially to be called UIL. Provided reasonable standards, its number of speakers still does not amount to that of Northern Chinese. There function other ILs regionally in accordance with rules 1) and 2). As a rule, the choice of ILs is rational on the basis of the knowledge of those who decide to adopt them.

Under which conditions, then, might a CIL be accepted universally? It is evident why there are just a few adherents of CILs. Only few people with special interests estimate the present value of an international CIL to be higher than the costs of learning. Individuals act rationally, but do societies also act rationally, not deciding to adopt a CL as UIL? In trying to answer this question it should be observed that there is no world government that would decide rationally or justly considering all peo-

ples. Individual sovereign countries act without altruistic consideration of others. A significant deliberate renunciation of privileges has not been observed. Cooperation exists, but only if it promises advantages to all participating countries. Under these circumstances, the argument of neutrality and justice has no deciding effect. Only the advantages for individual countries have relevance to this question.

4.2 For a formal treatment of the question of acceptability, the following quantities are needed:

$val(IL)$ = the value (advantages) of knowing an interlanguage IL to a person

$cost(IL)$ = the costs of learning IL for a person.

η = the efficiency of an interlanguage, i.e. the proportion of the value of other languages which it copies.

η depends on e.g., how much of the literature in a language L is translated into the IL, further on what portion of speakers of L know IL and how well they know it. η varies between 0 and 1.

$val(IL)$ is composed of its own value $val_0(IL)$, which is approx. zero for a CL and the value copied from other languages by its efficiency η . Thus for a presumptive non-native user:

$val(IL) = val_0(IL) + \sum \eta_i val(L_i)$, where the copied value from all L except IL and the L of the presumptive user has to be summed up. This is meant to be indicated by index 'i'.

For a native user of IL as an interlanguage:

$val(IL) = \sum \eta_j val(L_j)$, where the copied value from all L except IL (= the L of the presumptive user) has to be summed up. This is meant to be indicated by index 'j'.

For a more precise treatment an additional quantity should be added, namely the value of L that is lost by the use of IL. To illustrate: Some literature written by native speakers of, say, Estonian, is not available in Estonian but only in Russian. This quantity can be neglected for the purpose of showing under which circumstances a transition from one IL to another is likely to occur. The loss is expected to be approx. the same under both ILs. Differences in $val(IL)$ depending on scope of contacts will be neglected here.

For a presumptive learner, cf. rule 1):

$\text{val}(\text{IL}) > \text{cost}(\text{IL}) \Rightarrow \text{IL accepted}$

If $\text{val}(\text{IL}_0) - \text{cost}(\text{IL}_0) < \text{val}(\text{IL}_1) - \text{cost}(\text{IL}_1)$, where IL_0 and IL_1 are alternative ILs, then IL_1 seems to be more advantageous than IL_0 . If values and costs are measured objectively, there is a restriction to the validity of this statement. Suppose that the value of IL_1 is ten times that of IL_0 and the costs of IL_1 are nine times those of IL_0 . Then, although IL_1 seems to be more advantageous, it might not be accepted because our resources are limited. Language learning competes with other useful activities. Alternatively a subjective measure of costs and values had to be used. We will in the following use the above statement only for showing the acceptability of less costly alternatives to IL_0 . We can then be sure not to overestimate the acceptability of alternatives when using objective measures. With this restriction, if the statement is true for the total set of individuals in the community concerned, IL_1 is likely to become the main IL. If IL_0 is an ethnic language and IL_1 is a CIL, then

$\Sigma[\text{val}_0(\text{IL}_0) + \Sigma_i \text{val}(\text{L}_i) - \text{cost}(\text{IL}_0)]$ for non-natives of IL_0 + $\Sigma[\Sigma_j \text{val}(\text{L}_j)]$ for natives of IL_0 has to be surpassed by

$\Sigma[\Sigma_k \text{val}(\text{L}_k)] - \text{cost}(\text{CIL})$ for all, where the value copied by CIL from all L except the L of the presumptive user has to be summed up, which is meant to be indicated by index 'k', in order for CIL to be acceptable.

Supposing that those who use IL_0 in any case, mainly native speakers, refuse to accept IL_1 , difficulties of consent will follow. If all the others consistently refused to use IL_0 , then IL_1 would in any case be acceptable, but this might not be a realistic assumption. If the use of IL_1 within the community of all non-natives of IL_0 seems more advantageous than the use of IL_0 by non-natives of IL_0 within the whole community concerned, then IL_1 will be acceptable despite initial resistance of IL_0 -natives, even if there is no coordinated refusal of IL_0 by non-natives of IL_0 . Thus,

$\Sigma[\text{val}_0(\text{IL}_0) + \Sigma_i \text{val}(\text{L}_i) - \text{cost}(\text{IL}_0)]$ for non-natives of IL_0 has to be surpassed by

$\Sigma[\Sigma_1 \text{val}(\text{L}_1) - \text{cost}(\text{CIL})]$ for non-natives of IL_0 , where the value copied by CIL from all L except the L of the presumptive user and IL has to be summed up, which is meant to be indicated by index '1', in order for CIL to be acceptable without difficulties of consent.

The difficulties in applying these formulas lie in the uncertainty in estimating values, costs and efficiencies. None of these quantities is readily measurable. Relative values of ethnic languages can be estimated,

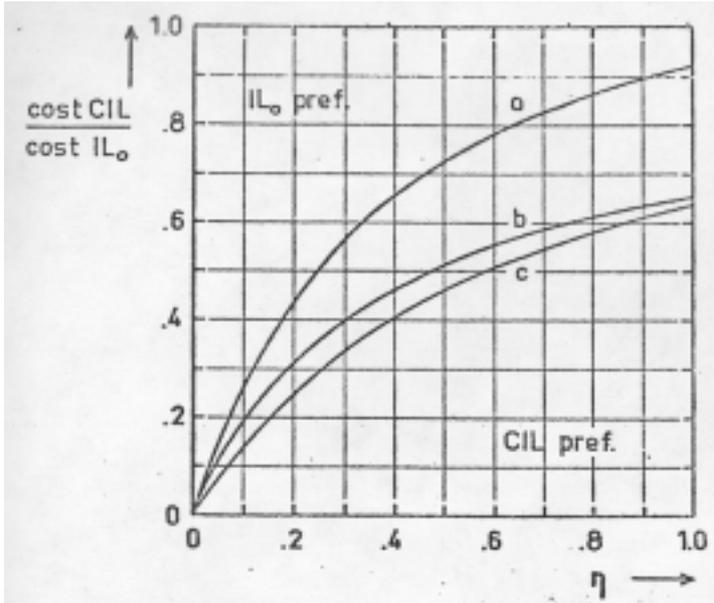
as proposed in passage 3.3, by the relative gross national product of their speakers. There seems to be only one other factor of comparable importance, namely Frequency of contacts (personal, literary and others). Obviously the differences in this factor are the reason for the existence of many regional ILs instead of a single universal one. There is a mutual reinforcement between the spread of ILs and the frequency of contacts. Relative costs can be estimated in different ways, as will be shown in passage 5. While values and efficiencies are important for the acceptability of ILs, the estimation of costs is of crucial importance even for determining or judging the adequacy in the weighting of source languages of a posteriori CILs. The efficiency of an IL differs among speakers of different ethnic languages as well as in different spheres of application such as trade, science, education, tourism and friendly contacts. An average value is difficult to estimate. Despite these difficulties, we can apply the above formulas to models of communities, using one further assumption. Relative costs and values have to be measured by the same unit. If we make the assumption that learners of IL_0 on an average invest just as much effort in the learning of the language, as corresponds to its value, we have established a definite relation between cost and value. In reality, there is probably a small net gain in many cases, but our assumption is near the truth. Thus,

$$\Sigma[\text{val}(IL_0) - \text{cost}(IL_0)] \text{ for non-natives of } IL_0 = 0.$$

While non-natives of IL_0 pay for the attainable advantages, natives of IL_0 do not. They have a net advantage without costs, namely $\Sigma[\Sigma\eta_j \text{val}(L_j)]$ for natives of IL_0 . Cf. argument in passage 1.1.

4.3 The acceptability of a universal IL_0 or CIL has been calculated on a simplified model of the world. The simplifications were the following: The frequency of contacts has been supposed to be equally distributed. The efficiency of IL_0 and of CIL has been supposed to be the same. The costs of learning have been supposed to be independent of native languages. As in passage 4.2, differences between the alternative ILs relating to their ease of use rather than to their learnability have been ignored.

For the number of speakers and the values of languages, the figures have been taken from Table 1. and Table 3 respectively. Concerning the estimation of costs, the two alternatives on the base of a 'humanistic' view cf. 5.2 and an 'economic' view cf. 5.1.3 have been calculated. Lines of equal acceptability have been calculated for different relations between $\text{cost}(CIL)$ and $\text{cost}(IL_0)$ and for different efficiencies η . The result is shown in Fig. 1.

FIGURE 1. Acceptability of alternative UILs: IL_0 and CIL.

'a' marks the line of equal acceptability on the base of a 'humanistic' view. 'b' marks this on the base of an 'economic' view. 'c' marks the limit of acceptability without difficulties of consent for CIL. It is the same for both cost estimates. IL_0 is English.

5 BASES FOR INTERLANGUAGES

5.0 The formulas described in passage 4.2 do not, without further considerations, suffice to determine the IL or derive the base, i.e. the relative weight of the source languages for the CIL that would be most advantageous and thus most likely to become accepted. Some factors depend on ideologies and scope of planning for the future. The scope of planning influences the transition from one IL to another. A transition from one IL to another could be advantageous for the younger generations and generations to come, but not for the older generation. Thus short term planning will have a conservative effect, whilst long term planning will facilitate transition from an IL_0 to a less costly IL_1 . In 4.2 and 4.3, long term planning has been presupposed. In the light of ideologies we can distinguish between imperialistic, humanistic and revolutionary points of view, in favor of different ILs or bases for CILs. We can also distinguish between different degrees of democracy within the framework of these ideologies.

5.1 Imperialistic bases

6.1.0 The common denominator of these approaches is that the people whose needs are considered are only a part of the people concerned, or that the needs of different people are weighted unequally. There is an unlimited range of different imperialistic approaches. Especially interesting are the types of ethnic, cultural and economic imperialism. Besides these, we could mention ideological, racial and other types. More unlikely, the weighting of source languages for a CIL could even be based on qualities irrelevant to communication, as e.g., the consumption of potatoes.

5.1.1 *ethnic*. Ethnic imperialism is the most obvious source of linguistic discrimination. The use of an ethnic dialect in inter-dialectal communication will result in ethnic discrimination at least if it is used in this situation even by natives of that dialect. The aim of CILs of the Esperanto type was to eliminate ethnic discrimination. As a reaction we can see the construction of CLs based on just one or a very restricted group of ethnic languages, e.g., Basic English. Though none of these has been very successful, some ethnic languages have been successfully propagated with the more or less explicitly stated aim of furthering the benefits of its native speakers.

5.1.2 *cultural*. Most of the existing CLs, notably the naturalistic ones are based on the languages of Western civilization, thus, on Western culture. Several constructors have expressed their intentional disregard and/or low opinion of other cultures, although they advocate their CLs for use as UIL. Thus, this kind of IL would eliminate ethnic discrimination in some degree, but not cultural discrimination. Nations who recently became independent from European rule could argue against such a CL as UIL that the Europeans tried to continue their imperialism by united forces. CLs based on the languages of one of the other three major cultural spheres used as UIL would entail the same kind of and roughly the same degree of discrimination. Adoption of such a language within one's own cultural sphere could be motivated on grounds that are not necessarily imperialistic.

5.1.3 *economic*. It could be argued that the costs of language learning are higher for nations with a high per capita economic productivity than for nations with a lower one. The view could be adopted that the effort of every human is worth as much as he is expected to produce during the lost amount of time. This view provides an ideal basis for a constructed UIL. 'Ideal' because there is a unique weighting of the source languages, which best corresponds to this view. This basis is illuminated in Table 3 and Fig. 3. A unique weighting of the source languages does not necessarily imply a unique language, but if optimal democracy is aimed at, even

the language will be uniquely defined. Some features of this language are described in 6.3.1 The notion of 'optimal democracy' is explained in 5.4.

5.2 A humanistic base

It could be argued that the costs of language learning are independent of per capita productivity. The view could be adopted that human effort is of the same value. This is the view implicit in Jespersen's formula, cited in 2.2. Jespersen, however, applied his formula only to Europeans and those inhabitants of other continents who either are of European origin or whose culture is based on European civilization. Without such restrictions, the basis is an ideal one, with a unique weighting of source languages, which best corresponds to this view. This base is illuminated in Table 1 and Fig. 2. As in 5.1.3, if optimal democracy is aimed at, the language will be uniquely defined. Some features of this language are described in 6.3.2. There is no alternative humanistic base,

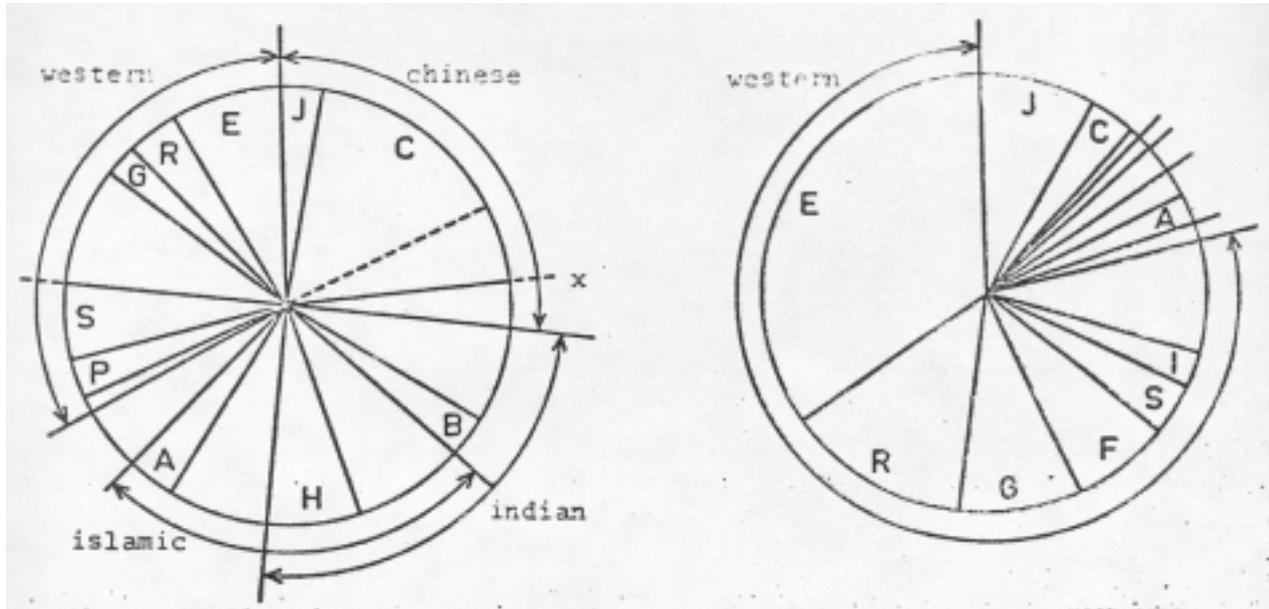
5.3 Revolutionary bases

5.3.0 There is at least one conceivable type, namely revolutionary on economic grounds. Though it could even be named revolutionary to aim at a higher than optimal degree of democracy, this is even possible within the framework of an imperialistic base. Other types of bases seem to be revolutionary in the beginning, but if successful, they would transform into imperialistic solutions. E.g., Nynorsk is based on formerly discriminated dialects. If it were accepted as the only national language of Norway, this would again be discriminatory.

5.3.1 *economic*. It could be argued that the costs of language learning are higher for nations with a low per capita economic productivity than for nations with a higher one. Rich nations can more easily afford the expenses for language learning than poor ones. Therefore the languages of the rich should be weighted less than those of the poor. But how much less? A clearly evident weighting of source languages, as in 5.1.3 and 5.2 for such a CL is not known. Anyway, if per capita productivity were the same in all nations, languages according to 5.1.3, 5.2 and 5.3.1 would coincide.

FIGURE 2. Relative number of speakers (home languages), the base of a 'humanistic' UIL.

FIGURE 3. Economic weight of national languages, the base of an 'economic' UIL.



x-- above line decreasing numbers, below line increasing numbers.

A = Arabic	E = English	H = Hindi-Urdu	P = Portuguese
B = Bengali	F = French	I = Italian	R = Russian
C = Chinese	G = German	J = Japanese	S = Spanish

5.4 Degree of democracy

By 'optimally democratic' we mean those solutions that demand a minimum of collective efforts. Considering the concerned community as a body, these solutions are the most rational. The solutions achieved in this way are not necessarily just. The ideal to be approached would be a language that demanded the same effort from everybody. A language that reached this ideal could not exist, but in vocabulary the principle of proportional internationality (Wüster 1966: 244-248) could be applied. It implies a selection of lexical items from the source languages proportional to the number of their speakers. The increase in justice so achieved has to be paid by an increase in collective costs. Application of this principle does not lead to unique solutions. Some a priori decisions have to be made. As we could call higher than optimal democracy revolutionary, lower than optimal democracy could be called imperialistic. Degree of democracy is a distinguishing factor among the autonomous and naturalistic European-based CILs.

6 SOME CONCLUSIONS

6.1 General

From what has been said in passage 4, and considering the irregularities in ethnic languages, it can be inferred that the most appropriate UIL in the present world would be an a posteriori CL with a base according to 5.1.3 or 5.2. The most rational IL for regional or universal use is not necessarily a CL. In regions with a dominant ethnic language, the advantages of such a language can not be surpassed by a distinct CL. In other words, the most rational CIL would practically coincide with the dominant ethnic language, e.g., French in France, Vietnamese in Vietnam. In cases with a slightly less dominating language, e.g., Russian in the Soviet Union, Mandarin in China, the most appropriate CIL would still be very close to that dominating language. In these cases its use as an IL by the minorities exerts pressure in the direction of simplification of that language. This pressure is hindered when incorrect language use leads to significant prestige loss or other disadvantages. Otherwise it might well be that some simplifications are introduced into the language, provided that it is used frequently enough as an IL.

If there were no dominating ethnic language, a CIL would be appropriate. In this case there would still be differences relating to the appropriate application of the principles of language planning. If the source languages contain features familiar to a vast majority of the concerned community, but not in perfect accordance with the other principles of language planning, it would be appropriate to give precedence to the principle of familiarity. It is quite unlikely that clearly adverse features would be common to several source languages, because such features tend to become eliminated.

6.2 Regional interlanguages

It could be questioned whether there would still remain a need for regional ILs if a UIL were accepted. The UIL could after all be used for any inter-ethnic communication. An observation of the present language situation in the world makes it seem unlikely that this would occur. An adoption of the UIL for communication within multilingual countries could be expected only in countries with a very heterogeneous population. There seems to be a need for national languages. They facilitate the establishment of a feeling of belonging to the same community, essential for cooperation and mutual support. The UIL, being essentially an international language, could hardly play that role distinct from that very role within the world as a whole.

At present an unsatisfied need for national languages exists in most African multilingual countries. In these instances an adoption of regional CILs with a base according to 5.2, not necessarily limited to single countries, would be appropriate. The dissemination of a CL, be it national or international, presupposes besides the existence of efficient public instruction a considerable amount of pertinacious propaganda. At least the latter was insufficient to further the propagation of a constructed standard Chinese based on the dialect of Peking but containing features which would bring the standard nearer to southern dialects as well as resolve some homonyms, despite the fact that it had been officially accepted in 1919 (Chao 1971).

Instead of a UIL it would be conceivable to adopt one CIL in each of the four major cultural spheres. This kind of solution would have been adequate at a time when inter-ethnic communication was still overwhelmingly restricted to members of the same cultural sphere. Nowadays this kind of solution would not be in accordance with actual needs. Nevertheless, CLs based on single cultural spheres would not be without applicability. The adoption of a UIL would make them superfluous as a means of communication, but as, they reflect the cultural heritage common to a number of nations, they could be of educational value for an understanding of one's own culture and language, as e.g., Latin was in the Occident when it no longer was a main literary language.

In this connection even the idea of a "terminological language", argued for by Wüster (1966: 413-434) has to be mentioned. In the vocabulary of Interlingua by IALA, embracing most of the international words current in some Occidental languages, a great number of synonyms exists. Moreover, Interlingua accepted all the diverging meanings of words that are international as to their form, but not as to their meaning. It would be desirable to eliminate the less well known synonyms and homonymities and to give a precise definition of the meanings of the remaining lexemes. The vocabulary established in this way could provide the raw material for future technical and scientific terms to be adopted in ethnic languages of Western culture.

6.3 Ideal universal interlanguages

Before outlining some features of the hypothetical ideal UILs, a word has to be said on prejudices brought forth by both critics and proponents of CILs. For those brought forth by critics of language planning, of CILs and by proponents of ethnic languages, reference is made to Tauli (1968: 9-28). Even some proponents of CILs are not free from them. As a typical example, in one or another form used as an argument for a European-based universal CIL, be it by prejudice or after-rationalization, we can cite

Spathaky (1972:3) "On haberea essite multo contente de fornir al mundo un lingua con un vocabulario indo-europee o, melior ancora, semito-indoeuropee, ma le facto es que linguas, como animales, non se copula con altre linguas extra limites definite per le taxinomia linguistic." This, in its de-metaphorized sense, is perfectly falsified by the existence of several 'Semito-Indo-European' languages, e.g., Urdu (see Tab. 1), representing a synthesis of two Indian languages, Hindustani and Sanskrit, both profoundly influenced by Dravidian languages, the structurally quite different Persian and the Semitic Arabic. Despite the heterogeneous composition of its vocabulary, the language is still capable of accepting further elements from other sources. It is true that the ability to accept foreign elements in some languages is more restricted than in others, for structural reasons. A UIL should have few of these restrictions, as is actually the case in most ethnic languages. The origin itself is irrelevant to the acceptability of items. If useful, any item can be borrowed, even basic prepositions and conjunctions, as is attested by many languages in the Afro-Asian cultural sphere and others.

Although the two hypothetical ideal UILs will not be found precisely, it is conceivable that languages could be constructed which might be called dialects of them. A common feature of them is that they are dependent on their source languages and follow them diachronically in their evolution. Otherwise they would not remain ideal. This means, the languages are modified by a change in the ethnic and, in the other case, the economic composition of humanity. No predictions relating to economic evolution will be made here. Concerning the ethnic composition, we can state that some peoples have passed the demographical transition with a rapid increase in population followed by stabilization. Other peoples have not yet finished this transition. It is generally agreed that the transition must be finished within a few generations; if not earlier, then by lack of bare necessities of life. As long as the transition is not finished by, say 80% of humanity, these ideal UILs will probably change more rapidly than ethnic languages usually do. There would be one factor working against this rapid change, should one of these UILs be accepted. From then on it could, be expected that several ethnic language will use the UIL as a source of loans, thus reinforcing its base. If a 'humanistic' UIL were to be introduced in the near future, it should be based on a cautious prediction of populations, taking into account that it is above all the youngest generation that will learn it.

6.3.1 *The economic UIL*

The present weight of the source languages for a CL according to 5.3.1 is shown in Fig. 3. It can be seen that the weight of English alone is greater than that of any genealogically or culturally related group of languages not including English. Hence, the CL can be expected to be quite similar to English. English peculiarities, however, would not be admitted. E.g., there is no support from other significant languages for the particular treatment of vowels in English phonology. Thus, the CL would be more similar to English in its phonological deep structure than in phonetic surface structure. The weight of English is surpassed by the next 5 most important European languages together. Thus a small number of European international words not to be found in English would be admitted. Most of the vocabulary would be taken from English with support from either Romance languages or German. Some irregularities in English grammar, relating to plural formation and verbal conjugation as well as peculiar English idioms would be absent in the CIL. To which extent in detail the principles of language planning other than that of familiarity would take effect, is a question which can not be answered without a more detailed knowledge about how the principles should be weighted against each other.

To adopt this language as UIL would mean to adopt a vehicle of economic imperialism. In the present situation, however, it would entail the advantage of lesser transitional difficulties compared with those for adoption of a 'humanistic' UIL. The reason for this is that for many speakers of English this CIL would be intelligible after a few hours of accustoming, while a humanistic UIL would have to be learned by everybody even if just aiming at a passive mastery.

6.3.2 *The humanistic UIL*

This language is theoretically fully defined by: "The language that demands the least efforts of humanity", provided that efforts relating to language are measured independent of other efforts. To give it a name, let us call it "Dunian". The Arabic word [dunija] would provide the most familiar morpheme for the meaning 'world', following our definition of the language. A language with a base at least similar to that of Dunian has been demanded for use as worldwide IL among others by Allwood (1961: 1-11).

Despite the insufficiencies in language planning methods it is quite feasible to outline some of the basic features of Dunian or Dunian dialects. The weight of the source languages is shown in Fig. 2. It can be seen that there is no significant dominating group of genealogically or cul-

turally related languages. There are several groups of approximately equal importance. The group of Indo-European languages seems to be dominating, but there are only few features that have been preserved in all of its subgroups. The set of lexical items of Dunian is expected to be composed mainly of elements originating in the international vocabularies of the four major cultural spheres. If the number of births in 1975 is taken as the base, the Afro-Asian cultural sphere is to be weighted highest². Nevertheless, roughly 50% of the vocabulary is expected to be of Occidental origin, because of the slightly stronger influence of these languages on languages of other cultural spheres.

A conspicuous consequence of the heterogeneous composition of the set of source languages is that familiarity is of secondary importance, i.e., it does not overrule the other principles of language planning. There are only very few lexical items familiar to more than 50% of humanity. Motivated expressions composed of morphemes of high frequency that can be expected already to be familiar to the learner will dominate among lexical items of low frequency. Even sound symbolism (Tauli 1968: 91-103) will be a source for motivation of expressions. Even if the principles of language planning other than that of familiarity were ignored, all decisions based on a maximization of the familiarity of all features, the result would be similar. This is due to the fact that the principles are also a major factor in the natural evolution of ethnic languages. Features not in perfect accordance with them exist in all languages, but these deviations are usually different among different languages and/or concern different features. It is e.g., quite unlikely to find lexical ambiguities embracing exactly the same meanings in unrelated languages. No lexical ambiguity is expected to be familiar enough to motivate an adoption by its own. Even the principle of facultative precision is expected to be adopted generally, This might not in every case follow from familiarity considerations because the Indo-European languages have conserved some compulsory categories even found in some other languages. However, even for those people who are familiar with them, compulsory categories are often a disadvantage.

6.4 Research

As for the present state of the art, interlinguistics and language engineering do not yet allow us to construct a language that could be asserted to be sufficiently close to an ideal UIL. Comprehensive and purposeful research work is necessary in order to reach this goal. Creating further deficient CLs in the intuitive way will not bring us much closer.

²Afro-Asian 33%, South Asian 32%, European 27%, East Asian 24%, Others 5%. Sources: Table 3 and estimates of birth rates from *The World Population Situation in 1970* (1971).

There are already several hundreds of them. What is needed in the first place is a formalization and verification of the theory of language planning. A clear economic motivation can be given for this demand of research.

Suppose an investment of 100 interlinguists working during 25 years each. Suppose further that the result of that work were a language that postulated 1 (one) hour less learning time on average than a previously existing IL, other qualities being equal. Suppose further that one hour of an interlinguist's work is worth as much as ten hours of a language learner's. Then, this investment would be justified if the number of learners were somewhat more than $100 \times 25 \times 2000 \times 10 = 50$ millions.

Both better results and more learners of an accepted UIL can be expected. At present 130 million people are born every year. Seen from another point of view: To accept a less ideal UIL would burden humanity with avoidable expenses for a long time to come.

REFERENCES

- Allwood, M.S. (1964) The future of world language communication. *The International Language Review* 35, 3-11.
- Baumann, A. (1915) *Wede - die Verständigungssprache der Zentralmächte und ihrer Freunde, die Neue Welt-Hilfs-Sprache*. München.
- Bausani, A. (1970) *Geheim- und Universal Sprachen*. Stuttgart: Kohlhammer.
- Brown, J.C. (1960) Loglan. *Scientific American*. (6).
- Census of India 1961 Vol. 1 Part II-C (II) Language Tables. New Delhi 1965.
- Chao, Y.R. (1971) Some contrastive aspects of the Chinese national language movement. *Monda Lingvo-Probl.* 3 (7), 31-39.
- Dalgarno, G. (1661) *Ars signorum*, Repr. in Engl. Linguistics 1500 - 1800, no 116. Menston 1971.
- Drezen, E. (1931) *Historio de la Mondolingvo*. Oosaka: Pirato 1967 (3rd ed.)
- Fochler-Hauke, G. (1974) *Der Fischer Weltalmanach 1975*. Frankfurt a. M.: Fischer.
- Hogben, L. (1943) *Interglossa*. London.
- Jacob, H. (1947) *A Planned Auxiliary Language*. London.
- Jespersen, O. (1909) Sprachliche Grundsätze beim Aufbau der internationalen Hilfssprache. In Couturat, Jespersen, Lorenz, Ostwald and Pfaundler. *Weltsprache und Wissenschaft*. Jena.
- Jespersen, O. (1928) *Eine internationale Sprache* (orig. English) Heidelberg: Winter.
- Kloss, H. (1969) *Grundfragen der Ethnopolitik im 20. Jahrhundert*. Wien: Braumüller.
- Kratochvil, P. (1968) *The Chinese Language Today*. London.
- Leskien, A. (1907) Zur Kritik des Esperanto. Brugmann and Leskien, *Zur Kritik der künstlichen Weltsprachen*. Strassburg.
- Lott, J. (1899) *Un lingue international pro le cultivat nations de tot mund*. Vienna.
- Manders, W. (1947) *Vijf Kunsttalen*. Purmerend: Muusses.
- Mayrhofer, M. (1972) Zur Problematik der Plansprachen. *Monda Lingvo-Probl.* 4. (10), 18-.
- Ogden, C.K. (1944) *The system of Basic English*. New York.
- Platts, J.T. (1930) *A Dictionary of Urdu, Classical Hindi, and English*. Repr. Oxford 1968: Oxford University Press.
- Peano, G., (1903) De Latino sine flexione. *La Revue de Mathematiques*, t. VIII.
- Spathaky, R.V. (1972) Interlingua se presenta al UNESCO. *Currero* 28.
- Tauli, V. (1968) *Introduction to a Theory of Language Planning*. Uppsala: Almqvist&Wiksell.
- Trubetzkoy, N.S. (1939) Wie soll das Lautsystem einer künstlichen internationalen Hilfssprache beschaffen sein? *Tavaux du Cercle Linguistique de Prague*. 8.
- Wilkins, J. (1660) *An Essay towards a Real Character and a Philosophical Language*. Repr. in Engl. Linguistics 1500 - 1,800, no 119. Menston 1968.
- Witthauer, K. (1974) Ungleichmässige Verteilung von 4 Milliarden Menschen. *Petermanns Geogr. Mitt.* (3), 227-230.
- The World Population Situation in 1970*. Population Studies no. 49 (1971). New York: United Nations.
- Wüster, E. (1966) *Internationale Sprachnormung in der Technik*. 2nd ed., Bonn.