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The Relative Importance of the European Languages

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The Relative Importance of the European Languages

By

Chr. Hjorth-Andersen

Abstract.

The European Union has introduced a "two foreign languages policy" with little solid knowledge of the consequences. I attempt in this paper to provide some facts for a serious discussion of language policy. In the first part of the paper, I look at the European languages on a world scale, employing the relevant measure GNP rather than the population measure usually preferred by linguists and politicians. The results are quite dramatic as English can be shown to be completely dominant.

In the second part of the paper, I look at the relative importance of the European languages in Europe. In order to put the discussion on a firm footing I propose two indices from the linguistic literature, the Greenberg index of communication in a union and the Lieberson index of successful communication between countries. These indices are computed for Europe (25) using Eurobarometer data.

In the third part, I look at the likely future linguistic development of Europe, and take a sceptical look at the "two foreign languages policy" as the costs of implementing such a policy for many persons in Europe would seem likely to exceed the benefits.

Keywords: Language, English, German, French.
JEL: R1, Z0

Sammendrag.

EU har indledt en officiel politik, hvorefter alle medlemslande bør stræbe efter, at deres befolkninger lærer mindst 2 fremmedsprog. EU har derimod ikke besluttet hvilke fremmedsprog, der skal anbefales. I dette arbejdspapir belyses den relative styrke af de europæiske sprog engelsk, tysk og fransk fra et globalt såvel som et europæisk synspunkt.

I første del ses sprogene i et globalt perspektiv. Udgangspunktet er ikke antal mennesker, der taler et bestemt sprog, men derimod hvilke økonomier, hvor et bestemt sprog dominerer. Engelsk dominerer således f.eks. i Indiens økonomiske liv, selv om mange indere ikke taler engelsk. I papiret laves der en totalopgørelse af samtlige lande i verden og deres sproglige tilhørsforhold. Herefter kan det enkelte lands økonomi og dets sproglige tilhørsforhold bestemmes.

Resultatet er givet i nedenstående tabel:

Andel af verdensøkonomien	
Sprog	Procent
Engelsk	36,3
Fransk	5,3
Spansk	5,8
Tysk	5,2
Portugisisk	3,1
Russisk	3,7
Arabisk	2,7
Kinesisk	13,5
Japansk	6,9
Andre sprog	17,4
I alt	100

Over en tredjedel af verdens økonomi er domineret af engelsk, og det er det laveste af de benyttede mål. Dette skal ses på baggrund af, at fransk, tysk og spansk hver dominerer godt 5 procent af verdensøkonomien. Efter denne målestok er engelsk på globalt plan mere end 6 gange så vigtigt som noget andet europæisk sprog.

I anden del af arbejdspapiret ses der på forholdene i Europa forstået som EU 25. Den væsentligste kilde er Eurobarometer, som er Kommissionens institut for surveyundersøgelser. Eurobarometer har adskillige gange målt, om et repræsentativt udsnit af befolkningen er i stand til at deltage i en samtale på et fremmedsprog, og da hvilket.

Udgangspunktet tages i begrebet det tilfældige møde: Hvad er sandsynligheden for, at to tilfældigt udvalgte europæere kan føre en samtale sammen? Svaret er følgende:

Engelsk:	30,3 pct.
Tysk:	10,6 pct.
Fransk:	7,6 pct.

Selv i Europa, hvor Tyskland og Frankrig har deres hjemmebane, er sandsynligheden for et vellykket møde mellem to personer 3 gange så sandsynligt på engelsk som på fransk eller tysk.

På denne baggrund giver arbejdspapiret en kritisk gennemgang af EU's "to fremmedsprog" politik. I gennemsnit taler EU's borgere 0,6 fremmedsprog. Der er en markant forskel mellem landene. Luxembourg ligger over 2 fremmedsprog i gennemsnit, medens de skandinaviske lande og Holland ligger tæt på 2 sprog. Men det afgørende i billedet er, at de store lande ikke er i nærheden af at tale 2 fremmedsprog eller blot 1 fremmedsprog.

Det gennemsnitlige antal fremmedsprog vil naturligvis stige for den unge generation, men måske ikke så meget, som man kunne tro. I gennemsnit taler unge europæere mellem 15-19 0,8 fremmedsprog, og det tal vil falde, hvis de forskellige ansøgerlande bliver optaget i EU. Der er meget langt fra den officielle europæiske målsætning til de faktiske realiteter.

Men selv i det hypotetiske tilfælde, at alle lande gennemførte en sådan politik, ville det ikke ændre det engelske sprogs dominans. Det første fremmedsprog ville for de fleste europæiske lande blive engelsk. Det andet fremmedsprog ville imidlertid typisk blive delt mellem tysk og fransk og evt. andre sprog. Hvis 40 pct. valgte tysk, 40 pct. valgte fransk, og 20 pct. et andet sprog, ville omkring 25 pct. af europæiske møder blive vellykkede på tysk og omkring det samme på fransk. Ingen af de to sprog udgør derfor, selv under ekstreme antagelser, noget generelt alternativ til engelsk.

Men det sproglige problem er vigtigt, hvis Europa skal bevare sin globale konkurrenceevne. Enhver kan se, at hvis alle europæiske landes jernbaner havde hver deres sporvidde, ville denne hindring for fysisk kommunikation være et afgørende handikap for Europa i den globale konkurrence. Men det er mangelen på sproglig kommunikation også. Det betyder forøgede omkostninger og tabte forretningsmuligheder. EU's sprogpolitik tilgodeser kulturelle og politiske hensyn, men prisgiver de økonomiske.

THE RELATIVE IMPORTANCE OF THE EUROPEAN LANGUAGES

1. Introduction

Languages are important from a number of perspectives. Language problems are generally recognized to be a major obstacle to trade. Languages have important political, social, cultural, and economic aspects. Many countries invest heavily in language instruction as part of human capital, and millions the world over voluntarily spend their spare time studying a foreign language

Economists have mainly focused on the incentives for immigrants to learn the language of their new country. Chiswick and Miller have written a number of papers on that subject (see e.g. 1995 and 2002) and estimate substantial returns to investment in languages for immigrants. Chickwick and Miller (1995) have also shown that the decision to learn a foreign language empirically conforms to the hypotheses that may be drawn from considering the decision as an investment, cf. also Grin (2002). Church and King (1993) have emphasized the fact that the choice of foreign language is subject to heavy network externalitites: The more people that use a language, the more useful the language is.[1] Lazear (1999) has shown theoretically and empirically that immigrants tend to settle in areas where their mother language is spoken, and thus there may be "pockets" where the national language is not spoken.

Thus, economists have not entirely neglected the issue of languages.[2] Nevertheless, I think that language proficiency has not been given its due attention. Many parts of the world are organized in unions, as in India, the former Soviet Union, The United States of America, and the European Union. In such a union, commucation between people should be considered as a part of the infrastructure of the union on par with the telephone system, the motorway system, the railway system, and the internet. Economists would certainly be quick to point out the inefficiency of a system where the railway could only function efficiently within a country but due to different guages not between countries. However, that is exactly the case when it comes to communication between people. Communication within European countries is usually quite good, but quite complicated between countries.

Nevertheless, there has been little attention to the choice of language in the primary and secondary school system. The European Union has adopted an official "two foreign languages policy" but has left it to the member states to decide which languages they should be. The choice of the two languages is thus an issue confronting all countries in Europe. This choice may of course be based on number of considerations. History, geographical proximity, cultural inclinations, and linguistic considerations will of course play a part. The choice of language has, however, also an important economic dimension, and so the question arises how much economists can contribute.

From an economic point of view, the two languages chosen should be the most economically important. However, the question is just which languages that would be. Linguists usually weight the importance of a language by the number of people speaking the language. The figures given by Ammon (2003) are typical in this respect, see Table 1.

However, the number of people speaking a language may often be quite irrelevant from an economic point of view. In economics, we are used to measuring the importance of different countries by their GNP rather than the number of inhabitants. This approach has been discussed

[1] This fact has been strongly emphasized by de Swaan (2003). The literature on networks, see for example the symposium on network externalities in the Journal of Economic Perspectives 1994, vol. (2), mentions languages as an example, but this in essence seems misplaced. The literature on networks and the adoption of standards is very interested in strategic interaction between firms but this aspect is entirely missing with respect to languages. While there may be strategic interactions in the adoption of languages, no one owns a language. A language is a public good available free of charge to anyone and so most of the literature on the adoption of standards does not apply to languages.

[2] However, de Swaan (2003) complains about the lack of interest by economists. On their part, sociolinguists such as Coulmas (1992), Graddol (1997) and de Swaan (2003) make energetic attempts to use economics in their examination of languages.

but at the same time almost dismissed in the linguistic literature.[3] However, Ammon (1995) published figures estimating the economic strength of languages using data from the late 1980s that may be used for purposes of comparison.

The present paper attempts in part one to redress this situation and will present estimates of the relative importance of the various European languages in a global context.

Table 1. Number of people speaking different languages

The most spoken languages in the world (millions**)**	
Chinese	1123
English	322
Russian	288
Spanish	266
Hindi/Urdu	236
Arab	202

The most spoken languages in the EU (millions**)**	
German	89,4
French	63,9
English	61,6
Italian	57,2
Spanish	39,6
Dutch	21,1

Source: Ammon (2003)

Interest is concentrated on the European languages as these languages present the major problem. No other languages are widely used outside their original country: English, French, and Spanish are widely spoken outside England, France, and Spain. In fact, they are spoken in so many countries that, offhand, it is quite difficult to guess the approximate number of speakers of a particular language.

In part II, the focus is on European languages in the European Union. As a necessary step for a serious discussion, a characterization of the current situation is presented. This includes a presentation of indices proposed to describe the linguistic situation in a union, and an empirical attempt to characterize the linguistic situation in Europe using data supplied by Eurobarometer.

Part III focuses on the future prospects of languages in Europe. To some extent, this is determined by linguistic policy as the European Union has launched an official "two foreign languages policy". If this policy were to be taken seriously, it would in fact be a major investment of educational resources. For the economist, it poses the question whether the policy is justified in from an economic point of view. While the data does not provide the possibility of a definitive answer, it does, nevertheless, give a possibility of illustrating the central problems.

[3] In his book, *Language and Economy,* Florian Coulmas mentions the issue: "Mackey [in his book *Bilinguism et contact des langues*, Paris, Klincksieck] advanced the idea that the international rank of a language should be computed by multiplying the demographic strength with the average per capita income of its speakers. …Ranking languages according to an index calculated on the basis of primary speakers and per copita income provides only limited evidence." (Coulmas 1992 p.189). Graddol (1997) in his booklet, *The Future of English?,* has similar considerations of the economic importance of languages but in a later article (Graddol 1999) he emphasizes demographic shifts rather than economic changes. Ammon (1995) presented the figures for the economic strength of a language as one of several indicators of the international standing of a language.

Part I. European languages in a global perspective

The aim in this part of the paper is to provide some data on for the economic importance of the languages of the world. In doing so, it will differ from the linguistic literature as exemplified in Table 1 in two respects.

The first is that linguists concentrate on the number of people that actually speak the language, whereas in this part of the paper we shall concentrate on the size of the economy that is dominated by the language. Spanish and Quechua are both official languages in Peru, and it may be that a sizeable fraction of Peruvians actually communicate in Quechua. For people outside Peru, the important fact is, however, that it is possible to communicate in Spanish, and it is simply irrelevant that it is also possible to communicate in Quechua. From an international point of view, communication between Peru and the rest of the world may be conducted in Spanish. It may, of course, also be conducted in a lingua franca language, typically English, but the important point is that if you are able to communicate in Spanish, you can communicate with Peru, at least for economic purposes. Therefore, the entire Peruvian economy is characterized as being dominated by Spanish. This is quite important for the purposes of the present paper as is it not necessary to establish the exact number of Spanish or Quechua speaking people in Peru. It suffices simply to establish that Spanish is one of the official languages in Peru, and to determine the size of the Peruvian economy.

The second is that the importance of a language is measured by some measure of GNP rather than the number of inhabitants in the country. For purposes of comparison, we shall include figures for the population also.

2. The Data

In order to present a complete worldwide survey of the countries where European languages are spoken we need two different sets of data: One is a list of all the countries in the world by GNP, and the second is an indication of which European languages that are actually used in the countries of the world.

With respect to the first data set, the World Bank publishes GNP measured in US dollars. However, the list of countries is not quite complete. GNP is presented for 183 countries, but 25 countries have no entry for GNP. Apart from a number of small islands, the missing countries include Taiwan, Burma, and Iraq. This is not a major problem, as the total GNP of all the countries listed by the World Bank is 35,794,641 million US dollars while the GNP of the world is given as 36,356,240 million US dollars.

The measure of GNP is calculated in local currency and then converted into dollars, using the exchange rates. It is well known that this conversion may give misleading results especially for the poorer countries, and so the World Bank presents GNP in international dollars as well as Purchasing Power Parity (PPP).

The second data set is a list of languages. The list published by the CIA in *The World Factbook* is used; see the home page on https://www.cia.gov/cia/publications/factbook/index.html. The list includes almost all countries in the world. At this point, it may be worthwhile mentioning that the CIA is certainly not a standard source for economic papers, and data supplied by the CIA may be regarded by some with scepticism. Whatever the credibility of CIA estimates in other respects, *The World Factbook* is precisely what it claims to be, a book of facts that may be readily examined and evaluated for a particular country.[4]

[4] *The World Factbook* is in fact used occasionally in economic papers, se e.g. Bjørnskov (2003)

The CIA also publishes figures on PPP in current dollars, and the two measures, the one by the World Bank and the other by *The World Factbook*, are very close. The World Bank gives the World GNP in PPP dollars as 51.776.267 million dollars while the corresponding figure for the CIA is 51.410.000. For the most important countries, the two measures are nearly identical, but for some quite small economies, there may be divergences as indeed could be expected. For the purposes of this paper, one gets the same results using either measure. As the CIA database is the more complete, it has been preferred.

Thus, the database of countries is almost complete. *The World Factbook* lists 259 countries or rather geographical areas. Of these, 23 are uninhabited, and so we have 236 countries with at least a few inhabitants. Of these 236 countries, 8 have been eliminated as there is no information about their GNP. The 8 omitted countries include the Holy See (Vatican City), and a number of very small islands, the smallest being Pitcairn Island with 46 inhabitants. The only "real" country missing from the list is Western Sahara with 267,000 inhabitants.

The list of languages consists of

1. English
2. French
3. Spanish
4. German
5. Dutch
6. Italian

These are the major European languages as indicated in Table 1. With the entry of Poland into the EU, Polish would be larger than Dutch but Polish is not spoken outside Poland. However, for purposes of comparison, the results for the following lanugages are also tabulated:

7. Arab
8. Russian
9. Chinese
10. Japanese

An attempt is made to classify each country into 4 language categories. For each language L we shall use the following categories.

1. *L is the mother tongue of the inhabitants.*

French is the mother tongue of most French people. There may be regional dialects, but these are ignored. Accordingly, the entire French economy is allocated to French.

2. *L is the mother tongue of some of the inhabitants in the country but another European language is also spoken in the country.*

It is estimated how many inhabitants that speak each language. For some quite important countries such as Switzerland, Canada, and Belgium, *The World Factbook* includes a numerical assessment of the relative importance of each language, and these assessments have been used in the calculations. For some other and less important countries, a pragmatic solution has been used, simply allocating 50 per cent to each European language. For example, on the Jersey Islands French as well as English are official languages and so 50 % of the economy is allocated to English and 50 % to French. Admittedly, this may not be quite correct for each individual case but it is an issue of minor numerical importance.

Russian is a special case due to the collapse of the former Soviet Union. I have chosen to include the former republics of the Soviet Union in this category rather than the category "other languages". This may be a transitory phenomenon but it seems likely that Russian has retained

some importance in the former republics that is not reflected in the present choice of official language. The figures for Russian should thus be considered as an upper limit.

3. *L is the only official language in a country with one or many local dialects. This is an important case.*

This is the case in a large part of Africa. For example, for Guinea *The World Factbook* states: *"French (official), each ethnic group has its own language".* Therefore, Guinea has been assumed to belong to that part of the world economy where French is dominating.

4. *L is one of the official languages, the other(s) being Non-European.*

The most important case is India. The Factbook comments: "*English enjoys associate status but is the most important language for national, political, and commercial communication; Hindi is the national language and primary tongue of 30% of the people; there are 14 other official languages: Bengali, Telugu, Marat, Tamil, Urdu, Gujarati, Malayalam, Kannada, Oriya, Punjabi, Assamese, Kashmiri, Sindhi, and Sanskrit; Hindustani is a popular variant of Hindi/Urdu spoken widely throughout northern India but is not an official language".* English is not the only official language but it is the only official European language. Moreover, it is safe to assume that English will be used in communication with India, for political and commercial purposes.

There can be little doubt that the categorization is subject to some error. Quite a few countries do not have an official language, as it is simply taken for granted. For example, English is not recognized as the official language is the USA but the American economy is, of course, assumed to belong to that part of the world economy that is dominated by English. Sometimes, a country has several official languages, one of them being a distinctly minor language. For example, New Zealand has English and Maori as official languages but the entire economy is assumed to belong to English. In an Appendix, all countries are presented, and the assumption regarding language stated.[5] Due to inaccuracies in *The World Factbook*, and probably more importantly lack of knowledge on the part of the author, a few categorizations may be misleading. However, as the point here is to determine the relative importance of the different European language, a few debatable categorizations will have almost no impact on the results. Antigua and Barbuda has the language description "English (official), local dialects" and has been assumed to belong to category 3. However, as the entire GNP in PPP is only about 0.8 billion dollars it matters very little for the results if that particular categorization should be misleading.

The data were collected in the summer of 2004 from the webside, and the figures for population and GDP are the most recent figures available, mainly from 2003.

3. European languages in the global economy

In Table 2 the basic results are presented.

[5] The appendix is available at the end of the paper

Table 2. The European languages in the world economy.

Category		World Bank data		*The World Factbook* data			
		GNP in USD		Population		GDP in PPP	
		Millions	Per cent		Per cent	billions of USD	Per cent
	1	13,930,526	38.9	404,491,782	6.3	14,014	27.2
	2	3,370	0.0	662,324	0.0	9	0.0
	3	197,795	0.6	418,694,722	6.6	663	1.3
	4	1,038,592	2.9	1,269,998,861	19.9	4,037	7.8
English total		**15,170,282**	**42.4**	**2,093,847,689**	**32.8**	**18,723**	**36.3**
	1	1,868,860	5.2	64,765,054	1.0	1,776	3.4
	2	272,581	0.8	16,941,468	0.3	297	0.6
	3	48,169	0.1	132,722,290	2.1	157	0.3
	4	144,611	0.4	85,335,301	1.3	484	0.9
French total		**2,334,221**	**6.5**	**299,764,113**	**4.7**	**2,714**	**5.3**
	1	1,789,934	5.0	269,755,281	4.2	2,596	5.0
	2	1,447	0.0	261,526	0.0	1	0.0
	3	109,523	0.3	39,297,983	0.6	174	0.3
	4	74,849	0.2	42,459,829	0.7	196	0.4
Spanish total		**1,975,753**	**5.5**	**351,774,619**	**5.5**	**2,967**	**5.8**
	1	2,652,111	7.4	90,632,807	1.4	2,517	4.9
	2	210,243	0.6	4,769,337	0.1	165	0.3
German total		**2,862,354**	**8.0**	**95,402,144**	**1.5**	**2,683**	**5.2**
	1	641,846	1.8	194,806,819	3.1	1,562	3.0
	2	13,189	0.0	10,978,552	0.2	21	0.0
	3	5,387	0.0	20,615,388	0.3	23	0.0
	4	6,765	0.0	445,286	0.0	9	0.0
Portuguese total		**667,187**	**1.9**	**226,846,045**	**3.6**	**1,614**	**3.1**
	1	511,556	1.4	16,318,199	0.3	461	0.9
	2	181,330	0.5	6,208,966	0.1	179	0.3
	3	1,875	0.0	289,344	0.0	4	0.0
	4	80,895	0.2	21,796,200	0.3	230	0.4
Dutch total		**775,656**	**2.2**	**44,612,709**	**0.7**	**875**	**1.7**
	7.1	1,465,895	4.1	58,085,980	0.9	1,553	3.0
	7.2	23,519	0.1	566,266	0.0	18	0.0
Italian total		**1,489,414**	**4.2**	**58,652,246**	**0.9**	**1,571**	**3.1**
	1	433,491	1.2	143,782,338	2.3	1,287	2.5

	2	165,903	0.5	139,362,379	2.2	641	1.2
Russian		599,394	1.7	283,144,717	4.4	1,928	3.7
Arabic		660,173	1.8	308,892,407	4.8	1,402	2.7
Chinese		1,409,852	3.9	1,321,597,462	20.7	6,978	13.5
Japan		4,326,444	12.1	127,333,002	2.0	3,567,0	6.9
Other languages		3,523,596	9.8	1,163,396,451	18.2	6,487	12.6
Total		35,794,327	100	6,375,263,603	100	51,509	100

The overall impression from Table 2. is radically different from Table 1. *A quick calculation using currency rates as given by the World Bank would give the result that English is the major European language for about 40 per cent of the world economy. English dominates economies comprising about one third of the world population, and English is according to the PPP measure also dominates a little more than one third of the world economy.*

Of course, this result is to some extent due to the inclusion of India in the set of countries where English dominates. If India is excluded (which I do not believe it should be), English dominates about one sixth of the world population and a little more than thirty per cent of the world economy by the PPP measure.

In the world economy, French and Spanish are of approximately equal importance measured by population or by PPP. German is equal in importance to French and Spanish measured by PPP but not by population. Russian and Arabic lose their importance when measured by PPP, amounting to less than 4 and 3 per cent of the world economy, respectively.

In a Eurocentric world, it is interesting to see the rise of Chinese and Japanese. Together they are the dominant languages for about one fifth of the world economy, and both are more important than the European languages French, Spanish, and German by the PPP measure.

It is definitely worth noting that these results only depend to a small degree on the classification used. The dominance of English is primarily the result of English being spoken in some very important economies. English is spoken as a mother tongue in 27.2 per cent of the world economy, and if we include the countries where English is used as the official language this percentage increases to 36.3. The same applies to a somewhat lesser degree to French. French is spoken as the mother tongue (category 1) in 3.4 per cent of the world economy, and if we include all the countries that have French as the official language, this percentage increases to 5.3. French is the official language in many countries but these countries are typically quite poor and add little to GNP.

In 1995, Ammon (1995) published the first figures giving the economic strength of the various countries. He did not present a world total so we shall relate his figures setting English = 100. In Table 3, the figures by Ammon and the figures computed from Table 2 are presented.

If we compare the figures given by Ammon (in current US dollars) with the similar figures in Table 2, we see some similarities and some marked differences. French has almost maintained status quo but otherwise the traditional competitors to English have being losing ground. The relative economic strength of German and Spanish has declined.[6] The decline in importance compared to English is quite noticeable for Arabic and is very remarkable for Russian. Of course, these differences are due to different methods of calculation as well as different years of

[6] It is perhaps quite telling that the contribution by Ammon was published in a book about the German language with mainly German professors as contributors. The book, however, was in English.

Table 3. The economic strength compared to English

	PPP	Ammon (1995)	GNP
French	0.146	0.157	0.153
Spanish	0.160	0.173	0.130
German	0.143	0.255	0.189
Portuguese	0.085	0.055	0.045
Dutch	0.047	0.048	0.052
Italian	0.085	0.071	0.099
Russian	0.102	0.188	0.040
Arabic	0.074	0.084	0.042
Chinese	0.372	0.105	0.092
Japanese	0.190	0.299	0.285

Sources: Ammon (1995, p.31) and Table 2.

comparison but the overall impression is, nevertheless, that compared to previously published figures we may observe a relative decline for the competitors to English.[7]

4. The lingua franca problem

In the linguistic literature, attention is devoted to the number of people speaking a language. Frequently, a distinction between three categories is made.

I. L1 is the total number of people speaking a language as their mother tongue,
II. L2 is the number of people that who do not speak the language as their mother tongue but use it as an official language in the national bureaucracy as well as in the more internationally oriented business life.
III. L3 is the number of people who do not have the language as their mother tongue or as a national language but has learned it as a foreign language.

Crystal (2003) has a rather authoritative discussion of English as lingua franca and estimates L1 to be about 325-400 million worldwide, and L2 to be about 430 million. For L3 he estimates that about 750 million have reasonable proficiency in English learnt as a foreign language. His final estimate is that about 1.5 billion people can communicate in English, or slightly less that one quarter of world population.

[7] The figures by Ammon (1995) were later quoted by Graddol (1997) and Zughoul (2003). Graddol (1997) has also published a measure of "*global influence* of major languages". According to this measure German should have about 42 per cent. of the influence of English in 1995, see Graddol (1997, p. 59). This figure seems difficult to understand given the information in Table 3.

Some of the work by Graddol is based upon a model called *engco*. "The model calculates an index of "global influence" taking into account various economic factors which have been discussed earlier, including Gross Language Product and openness to world trade (Traded Gross Language Product). The model also includes demographic factors, such as the numbers of young speakers and rates of urbanisation. Finally, it takes into account the human development index (HDI) for different countries." Graddol 1997, p. 59). For specific details, the reader is refered to www.english.co.uk. The author has been unable to get those details from the webside, however.

Crystal's concept of English speaking persons is straightforward but conceptually quite distinct from the concept used in this paper. In the USA, and especially in India, many people do not speak English, and therefore would not be included in Crystal's figures. On the other hand, many Europeans are able to use English as a lingua franca, and these would be included in his figures.

We have no solid knowledge of the use of English as a lingua franca, or for that matter of the use of any other language. We do not know if commercial transactions between for example Germany and France are conducted in German, French or English. However, it seems likely that English is used in the economies dominated by English for purposes of international trade and communication. Furthermore**,** for the non-European countries, Russia, Japan, China, and the Arabic countries, it is unlikely that communication and trade will take place in Russian, Japanese, Chinese or Arab. Therefore, for commercial purposes English is likely to be used as the lingua franca. Indeed, one of the major problems confronting competitors to English such as Spanish and French is that English is so dominant on the world scene, and each of the competitors has only a small market share. Therefore, the obvious choice for a Russian or a Chinese person is to learn English, while there is no obvious second choice. A firm in the English-speaking world, on the other hand, will of course take advantage of this and not bother too much about learning Russian or Chinese.

If we assume that people speaking one of these four languages will use English as lingua franca, the dominance of English will increase from 36.3 to 63.3 per cent of the world economy using the PPP measure of GNP, and from 42.4 to 61.9 using the currency measure. In fact, this may be an underestimate as a substantial fraction of "other languages" is also likely to use English as a lingua franca. *Whatever the precise assumptions used, we may safely conclude that, from an economic point of view, the use of English is certainly underestimated as the lingua franca of the world in the linguistic literature.* English may be the lingua franca for about one quarter of the world population, but for economic purposes, English is likely to be used far more than that.

5. The commercial interest in languages for a particular country

In the appendix, all countries are listed along with the likely European language used in commerce. So far, these data have been used on a global scale but they are also quite easy to use also for the purposes of examining an individual country. Obviously, for historical or geographical reasons, countries that are closer to each other in an economic or cultural sense will tend to trade more with each other. The question that arises with the "two foreign languages" policy is which two languages should be chosen from an economic point of view, and the languages that are most important according to some economic indicator would seem to suggest themselves. The most important economic indicator would seem to be the export interests of the country, and so we may ask which languages that would fulfil that criterion.

As an illustration, Hjorth-Andersen (2004) presents a table giving Danish exports to various countries in millions of US dollars, and from the appendix, the countries may be translated into languages. In Table 4, Danish exports are presented by the language spoken in the importing country in question.[8]

[8] "It is a general rule of thumb, probably existing since the earliest days of international trading, that seller must be carried out in the custumers' language unless the commodity is in short supply or there is a monopoly provider" Graddol (1997, p. 29). According to this quotation, the language spoken in the importing countries would be a useful first step for the analysis, although the rule of thumb is probably slightly out of date due to English as a universal commercial language. We do not know if actual transactions between Denmark and Germany are carried out in English or German and presumably, the major transactions are carried out in English.

Table 4. Danish exports by language.

Million DKK	Total	Per cent
English	90,171	20.8
German	88,525	20.4
French	33,447	7.7
Spanish	17,169	4.0
Italian	14,782	3.4
Russian	7,592	1.7
Swedish	54,938	12.7
Other languages	127,605	29.4
Total	**434,229**	**100.0**

About 20 % of the Danish exports are to English speaking countries, and about 30 % to countries with "other languages" where English is most likely to be used as lingua franca. However, from a Danish point of view, German and French are certainly not of about equal importance as would be the general implication from Table 1. For a number of reasons, Denmark exports almost three times as much to German than to French speaking countries, and in this calculation exports to French speaking countries outside of Europe have been taken into account. Thus, German would seem to be the obvious choice as the second language for Denmark, and in fact it has enjoyed this position in the Danish school system for decades.

This result depends, of course, entirely of the composition of Danish exports, and other countries in Europe may have another ranking. Nevertheless, it is meant to illustrate that it is possible to provide a basis for the economic choice of the second foreign language that all European countries are supposed to teach.

Part II. European languages in a European perspective

The present linguistic situation in Europe (EU 25) is quite fragmented, even chaotic. In order to survey the situation the usual scientific approach would be to establish a framework for the discussion and then proceed to measurement. This is exactly what the part II attempts to do. First, we shall discuss the linguistic measures that have been introduced to measure the communication possibilities between nations, and then we shall use existing surveys from Eurobarometer to provide approximate measures.

6. Linguistic measures of the random encounter

As a basis for the evaluation of the linguistic diversity of Europe, it seems natural to take, as a starting point the case where no European speaks a language other than the mother tongue. Lazear (1999) introduced the notion of a random encounter in his theoretical work. Suppose that two persons are drawn at random from a geographical area such as, e.g., the European Union. In that case, only, e.g., a German-speaking person randomly meeting another German-speaking person would be able to communicate. If language *i* has the fraction s_i of the European population, the chances of a random encounter between two individuals speaking language i will be s_i^2 . The total number of random encounters that results in communication is $\sum_i s_i^2$, where the summation is carried out over languages. This measure of linguistic ability thus translates into the Herfindahl index commonly used in industrial economics to describe concentration in a market. It would thus seem to be an easily interpreted measure of the linguistic fragmentation of Europe. In fact, such a measure of linguistic diversity was suggested by the famous American linguist Joseph H. Greenberg half a century ago (Greenberg 1956). In order to measure diversity rather than uniformity, he suggested the measure $1-\sum_i s_i^2$ that became known as Greenberg's A (Monolingual nonweighted method).

It is not the only possible measure, however. As the choice of a linguistic measure depends upon the problem at hand, a number of measures may be used. As an introduction to this subject, we shall consider a problem with three countries A, B, and C. In each country, a different language is spoken by all inhabitants as the mother tongue. Without language instruction, no communication is possible between the inhabitants of the three countries but some inhabitants do speak languages other than their mother tongue.

Table 5. An example of a linguistic area

	Language						
	A	**B**	**C**	**B+ C**	**A+ C**	**A+B**	**Total**
Country							
A	93	20	10	2	-	-	125
B	30	25	3	-	2	-	60
C	8	4	2	-	-	1	15
Total							**200**

In country A, there are 125 million people. Of these, 93 milllion speak only A, while 20 million speak A and B, 10 million speak A and C, and 2 million speak A, B, and C. The data

presented in Table 5 is obtainable from national surveys. We shall use the convenient abstraction of ignoring differences in language skills; a person either knows or does not know a language. Thus, each country is characterized by four different types of inhabitants differentiated according to their language skills. The fraction of each type as part of the total is immediately calculated from Table 5.With three countries, we get 3 x 4 different types of encounters. The procedure is simply to enumerate the number of successful encounters where a random person meets another random person.

Table 6. An illustration of random encounters

			Language												
			A				B				C				
			A	**A+B**	**A+C**	**A+B+C**	**B**	**B+A**	**B+C**	**B+A+C**	**C**	**C+A**	**C+B**	**C+A+B**	**Total**
Country			0.465	0.1	0.05	0.01	0.125	0.15	0.015	0.01	0.01	0.04	0.02	0.005	
	Type	Fraction													
A	A	0.465	0.216	0.047	0.023	0.005			0.070			0.005		0.019			0.002	0.386
	A+B	0.100	0.047	0.010	0.005	0.001	0.013	0.015	0.002	0.001		0.004	0.002	0.001	0.099
	A+C	0.050	0.023	0.005	0.003	0.001		0.008	0.001	0.001	0.001	0.002	0.001	0.000	0.044
	A+B+C	0.010	0.005	0.001	0.001	0.000	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.010
B	B	0.125		0.013		0.001	0.016	0.019	0.002	0.001			0.003	0.001	0.054
	B+A	0.150	0.070	0.015	0.008	0.002	0.019	0.023	0.002	0.002		0.006	0.003	0.001	0.149
	B+C	0.015		0.002	0.001	0.000	0.002	0.002	0.000	0.000	0.000	0.001	0.000	0.000	0.008
	B+A+C	0.010	0.005	0.001	0.001	0.000	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.010
C	C	0.010			0.001	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.002
	C+A	0.040	0.019	0.004	0.002	0.000		0.006	0.001	0.000	0.000	0.002	0.001	0.000	0.035
	C+B	0.020		0.002	0.001	0.000	0.003	0.003	0.000	0.000	0.000	0.001	0.000	0.000	0.011
	C+A+B	0.005	0.002	0.001	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.005
		1													**0.812**

In the entire population, there are 93 million A citizens speaking only A, or a fraction 93/200 = 0.465. With a probability $0.465^2 = 0.216$, such a person would meet another A citizen speaking only A. Obviously, it is a successful encounter. With a probalibity of 0,465 x 0,125 an A only speaking citizen would meet an B only speaking person, which would not be a successful encounter and so it is not included in the measure of successful encounters. Unsuccessful encounters are entered in Table 6 as a blank space. The probability of a successful encounter between the individuals in the union is 0.812, and this is the *Greenberg H index of communication*.[9]

It should be noted that as the H index is computed by adding cells, it is easily decomposed into parts. Country A contributes 0.539 to the index, country B 0.221, and country C 0.052. In a random encounter, country A will play an important part, simply because it is a big country.

It should also be noted that the contribution to the H index in each country may be decomposed into three parts. One part consists of A persons only meeting A persons, indicated in the lightly shaded area in Table 6, this contribution is 0.391. Another part is the contribution by the language instruction in countries B and C, indicated by the box in Table 6. This contribution is 0.095. The contribution of language instruction in country A (as well as to some extent B and C) is 0.053 given in the dark shaded area. The total thus becomes 0.391+ 0.095 + 0.053 = 0.539. The total number of encounters is $(125/200)^2 = 0.625$.

[9] Greenberg's A index (for monoglot speakers) is simply given as $1- (125/200)^2 – (60/125)^2 –(15/200)^2 = 0.514$. Greenberg (1956) in fact introduced 8 indices, some of them based on a measure of distance between the languages.

The relative importance of the 3 languages may be readily computed. 166 million individuals speak language A (125 million in country A, plus 30 + 2 million in country B, and 8 + 1 million in country C). The probability of a successful encounter in language A is thus $(165/200)^2 = 0.689$, and similarly the probability in language B is 0.189, and in language C 0.026. The sum of successful encounters in the three languages is 0.689 + 0.189 + 0.026 = 0.904. The relative importance of the three languages may then be computed as a percentage of the total percentage of succesful languages. The relative importance of A is thus 0.689/0.904 = 0.76, while the relative importance of B and C is 0.21 and 0.03, respectively. Language A is thus almost 4 times as important as language B with respect to communication.

Adding the total number of successful encounters for each language will, of course, give a larger value than the Greenberg index, as it includes encounters that are successful in more than one language.

The importance of lingua franca may also be stated. Persons in country A can communicate with B citizens using language C in 0.002 encounters. B can communicate with A citizens using C in 0.001 encounters, and C can communicate with A citizens using B in 0.002, and so the total encounters using a pure lingua franca (not a native language for the two persons) would be 0.005.

In his book "*The World of Words*" (de Swaan 2001) the political sociologist Abram de Swaan introduced another measure of the communication value of a language, the Q-measure. The purpose of this index is not to characterize the linguistic situation in the union but rather to illustrate the importance of the individual languages. *The Q-measure of language J* is defined as

Q_J = (Index of prevalence of J) * (Index of centrality of J)

The index of prevalence of language J is simply the proportion of persons in the union speaking language J. A total of 125 million speak A as a native language, and from table 5 we may add 30 + 8 +2+1 = 41 million speaking A as a foreign language, giving a total of 166 million. This gives the prevalence of A as 166/200 or 0.83. The similar indices for language B and C are 0.435 and 0.16.

The index of centrality for language J is defined as the total number of persons in the union speaking language J as a foreign language divided by the total number of people speaking a foreign language.

From Table 5 we see that 80 million speak a foreign language, and that 41 million speak A. The index of centrality thus becomes 41/80 = 0.513 for language A. The centrality index of language B is 0**.**338 and for language C 0.213. The Q index for language A then becomes 0.83 x 0.513 or 0.425. The Q indices for languages B and C become 0.147 and 0.034, respectively.

There is little doubt that the index of prevalence and the index of centrality make very good sense, and each may be used for particular purposes. The problem is with the Q-measure. It is defined as the product of the other two indices but no justification is given as to why these indices should be multiplied. Implicitly, this would imply that the two indices were equally important in describing the communication value of a language but this need not be the case. For example, languages such as Faroese or Greenlandish are spoken by only a few, while languages such as Chinese or Hindustani are spoken by hundreds of millions. However, these languages are not learnt in the world at large and so would have a centrality index and hence a Q-value equal to 0. Thus, the Q-value would not seem to be a suitable measure of the importance of a language.[10]

Greenberg's H index of communication is suitable for a description of language diversity at the union level. In a political union, it is desirable that all people can communicate, and the higher the value of the index, the better communication. It is, however, quite dependent upon the size distribution of the countries included. For example, as mentioned above the random encounters of the A-citizens meeting each other will add 0.391 to the index, simply because there are many A-

[10] The prestige attached to de Swaan has nevertheless meant that there are references to the Q-value in linguistic papers, e.g. Loos (2000) and House (2003).

citizens that are likely to meet in a random encounter. Thus, the Greenberg H-index will describe to situation in the union as an entity but will tell us little with respect to the communication possibilities between the different countries.

An elaboration of the Greenberg index was provided by Lieberson (1964). He poses a different question: What is the probability that a citizen of one country will be able to communicate with a citizen of another country? In this paper, a modification of his index is used. For convenience, the term "Lieberson" index is used even though the index proposed does not account for multilingualism but it does capture the spirit of describing commucation in a union.

The basic and readily available data are distribution of language skills by country. The basic data are typically as given in Table 7, which is a modified version of Table 5. In each country we know the percentage of the population speaking a certain language as well as the population of the country.

Table 7. The basic data given in surveys.

	Language			
	A	**B**	**C**	**Population**
Country				
A	-	0,16	0,10	125
B	0,50	-	0,08	60
C	0,53	0,27	-	15
Total				**200**

Based upon such data, we may proceed in four steps as illustrated in Table 8.

Table 8. An illustration of the computation of the "Lieberson" index

1. Succesful encounters in language A		**Country**		
		A	**B**	**C**
Percent speaking		1	0.50	0,53
Country A	1.00	-	0.500	0,533
B	0.50	0.500	-	0,267
C	0.53	0.533	0.267	-
2. Probability of meeting				
Country A			0.893	0,676
Country B		0.800		0,324
Country C		0.200	0.107	
3. Bilateral country indices		**0,506**	**0.475**	**0.447**
4. "Lieberson" index for language			**0.493**	

The first step is to compute the probability of a successful meeting $p_{i,j}^{J}$ between a person from country *i* with respect to country *j* for language *J*. We get simply

(1) $$p^J_{i,j} = p^J_i * p^J_j$$

where p^J_i is the probability that inhabitants in country *i* speaks language *J*. For language *J*=A, we get the probability of a successful encounter between country A and B as 1 x 0.50 = 0.50 as all persons in country A speak A, and 50 percent of country B inhabitants speak A. Similarly, we get the bilateral index between A and C as 0.533 and between B and C as 0.267.

So far, we only have bilateral probabilities between countries. The second step is to compute the probabilities of a meeting. Let *K* be the number of countries (*K* = 3 in the example), and N_j the population in country j. In a random setting, a person from country i will meet a person from country *j* with the probability $q_{i,j}$

(2) $$q_{i,j} = N_j / \sum_{j \neq i}^{K} N_j$$

For country A we get that $\sum_{j \neq i}^{K} N_j = 75$ (There are 75 million people outside country A in the union.) The probability of meeting a foreigner from country B is thus 60/75 = 0.8 and from country C = 15/75= 0.2. These probabilities must be computed for each country separately but are, of course, invariant with respect to language.

In step three we define a bilateral index for language J with respect to the union as

(3) $$L^J_i = \sum_{j \neq i}^{K} p^J_{i,j} * q^J_{i,j}$$

We get, for example, $L^A_A = 0.500 * 0.8 + 0.533 * 0.2 = 0.506$. This is a bilateral index for language A for country A with respect to the union. The similar indices for country B and C are $L^A_B = 0.475$ and $L^A_C = 0.447$. Individuals from country A are thus slightly more likely to be successful in communication outside their country than individuals from the other countries.

We now have indices for each country that characterize the communication between countries in language J. The fourth step is simply to define a "Lieberson" index for language J in the union as

(4) $$L^J = \sum_{i=1}^{N} \frac{N_i}{N} * L^J_i$$

We simply weight the individual country indices with their share of the population in the union. Thus, for language A we get:

$$L^A = 0.506 * 125 / 200 + 0.475 * 60 / 200 + 0.477 * 15 / 200 = 0.493$$

The similar indices for language B and C are $L^B = 0.145$ and $L^C = 0.028$.

Finally, we may compute an index for the entire union simply as

(4) $$L = \sum_J L^J$$

In this example, we get L = 0.493 + 0.145 + 0,028 = 0.666.

The index L will provide an upper bound for the Lieberson index as there is some double counting due to multilinguilism. The Lieberson index properly computed from Table 5 is 0.632.

The L index will be lower than the Greenberg index, partly because it is an upper bound on the communication possibilities, partly because all successful encounters between nationals are excluded in the L index while they are included in the Greenberg index.

Nevertheless, the values L^A, L^B and L^C may be compared and will indicate the relative importance of the languages in international communication. The "Lieberson" index proposed here has an intuitive interpretation as it is based on the idea of random encounters in a union. If the "Lieberson" index for a given country is 0.2 for English and 0.1 for French, simply means that in a random encounter a meeting is likely to be twice as successful in English compared to French.

The various indices may, of course, in a specific context give the same conclusion but they need not do so. As an illustration, see the following example for a union with 4 countries.

Table 9. A union with four countries.

	Language				
Country	A	B	C	D	Total
A	33	4	2	1	40
B	4	23	2	1	30
C	2	1	16	1	20
D	1	1	0	8	10
Total					100

	Indices				
Language	**Prevalence**	**Centrality**	**Q**	**Greenberg**	**"Lieberson"**
A	0.470	0.350	0.165	0.221	0.209
B	0.360	0.300	0.108	0.130	0.257
C	0.240	0.200	0.048	0.058	0.193
D	0.130	0.150	0.020	0.017	0.074

The basic data are presented in the upper part of Table 9. In country A 33 speak only A while 4 speak B, 2 speak C and 1 speaks D. For simplicity, it is assumed that all persons in the union only speak one foreign language.

A total of 7 speak A as a foreign language (4 in country B, 2 in country C, and 1 in country D). The total number of people speaking a foreign language is (7+6+4+3) = 20. We may thus compute the indices of prevalence, centrality, and the Q-index. We may also compute the Greenberg index and the "Lieberson" index as illustrated above. In the example, we see that by the Q index, language A is more important that language B.

The approach adopted here is to distinguish between the importance in the union as opposed to international communication between countries in the union. Communication in the union, including communication between nationals, is better in language A than in language B as indicated by the Greenberg index. However, communication between countries is better in language B as the "Lieberson" index for language B is larger than for A.

7. Linguistic measures of Europe

Data on language proficiency has not been collected on a scientific basis but Eurobarometer, the survey institute of the European Commission, has carried out several surveys of a representative sample of Europeans with respect to (among other things) their command of foreign languages. These were published in Eurobarometer 52 (abbreviated EB 52) in 1999 covering EU 15, EB 55.1 in 2001 covering EU 15, and EB 243 in 2006 covering EU 25 as well as the 4 applicant countries, Romania, Bulgaria, Croatia, and Turkey. To these surveys may be added a special survey of Eastern Europe in 1997.

In EB 243 the population in the 29 countries aged 15 or more was also given. When computing indices, these numbers are used throughout the paper. The reason for this choice is that differences in the indices cannot be attributed to different population figures. It should be emphasized, though, that the results are not very sensitive to the choice of population data.

In 2001, Eurobarometer asked the question: "Which language can you speak well *enough to take part in a conversation, apart from your mother tongue?* /DO NOT PROBE – DO NOT READ OUT – SEVERAL ANSWERS POSSIBLE)". The wording of the question in Eurobarometer 243 was almost identical: "*Which languages do you speak well enough in order to be able to have a conversation excluding your mother tongue?*"

Knowledge of non-European languages such as Arabic and Chinese is almost non-existent. With 29 countries and 25 European languages, the picture becomes quite complicated and so we shall concentrate on the three major languages English, German, and French. Spanish comes in as a distant fourth language.[11]

It is thus possible to compare the responses from EB 52 in 1999, EB 55 in 2001 and EB243 from 2006. In Table 10 the results are presented.

In all cases the sample includes persons aged 15 years and more. This may introduce a slight underestimation of especially German and French as these are often taught in upper secondary school as the second language.

Several points need to be made in relation to Table 10. It is quite possible, even likely, that the individual and subjective answer to the question "being able to have a conversation" may result in an overestimate of actual linguistic proficiency. When asked, people are, as a rule, inclined to exaggerate their knowledge and their capabilities. Obviously, one would have liked proper proficiency tests but these are not available.[12]

One should remember that the individuals were asked about language proficiency other than their mother tongue, and therefore we get, for example, the answer that 3 per cent of the people in the UK speak English due to immigrants that do not have English as their mother tongue. In the rest of this paper, language differences within a country will be ignored. Thus, it will simply be assumed that all persons in the UK and Ireland speak English, all persons in France and Belgium speak French (at least well enough to participate in a conversation), and all persons in Germany and Austria speak German. True, there are immigrants in these countries who do not speak the dominant language in the country, and there are linguistic minorities in some countries, e.g. the Catalan and Basque speaking people in Spain or the Swedish-speaking Finns.

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[11] The official Community languages of the European Union are Czech, Danish, Dutch, Estonian, English, Finnish, French, German, Greek, Hungarian, Italian, Latvian, Lithuanian, Maltese, Polish, Portuguese, Slovak, Slovene, Spanish and Swedish. Irish will become the 21st official language on 1 January 2007. After the scheduled accession of the applicant countries, the Union will operate in 25 official languages. The remaining part of Europe, the countries of the former Yugoslavia and Albania (and possibly also Norway and Switzerland), may eventually join the union. This would further complicate the linguistic situation but would have little impact on the numbers presented in the present paper.

[12] In Bonnet (2003), results based on proper tests are presented for European school children in 8 countries. Pupils may be compelled to participate in such a test. It is far more difficult to arrange for a representative sample of adults.

Table 10. Comparison of 3 surveys of language proficiency in the European Union.

	English			German			French		
COUNTRIES	**EB 243**	**EB 55**	**EB 52**	**EB 243**	**EB 55**	**EB 52**	**EB 243**	**EB 55**	**EB 52**
Belgium	0.59	0.37	0.42	0.27	0.16	0.15	1.00	1.00	-
Czech Rep.	0.24	0.16	-	0.28	0.33	-	0.02	0.00	-
Denmark	0.86	0.79	0.76	0.58	0.48	0.50	0.12	0.08	0.08
Germany	0.56	0.44	0.41	1.00	1.00	-	0.15	0.12	0.09
Estonia	0.46	0.22	-	0.22	0.11	-	0.01	0.00	-
Greece	0.48	0.36	0.39	0.09	0.05	0.03	0.08	0.04	0.05
Spain	0.27	0.18	0.17	0.02	0.01	0.01	0.12	0.07	0.07
France	0.36	0.32	0.30	0.08	0.07	0.06	1.00	1.00	-
Ireland	1.00	1.00	-	0.07	0.04	0.03	0.20	0.15	0.12
Italy	0.29	0.28	0.28	0.05	0.03	0.03	0.14	0.18	0.17
Cyprus	0.76	-	-	0.05	0.05	-	0.12	0.04	-
Latvia	0.39	0.18	-	0.19	0.15	-	0.01	0.00	-
Lithuania	0.32	0.10	-	0.14	0.07	-	0.02	0.00	-
Luxembourg	0.60	0.46	0.53	0.88	0.81	0.81	0.90	0.85	0.88
Hungary	0.23	0.06	-	0.25	0.08	-	0.02	0.00	-
Malta	0.88	-	-	0.03	0.03	-	0.17	0.17	-
Netherlands	0.87	0.75	0.78	0.70	0.57	0.57	0.29	0.12	0.14
Austria	0.58	0.55	0.51	1.00	1.00	1.00	0.10	0.09	0.08
Poland	0.29	0.11	-	0.19	0.13	-	0.03	0.03	-
Portugal	0.32	0.22	0.23	0.03	0.03	0.02	0.24	0.16	-
Slovenia	0.57	0.31	-	0.50	0.30	-	0.04	0.00	-
Slovakia	0.32	0.00	-	0.32	0.19	-	0.02	0.00	-
Finland	0.63	0.50	0.51	0.18	0.12	0.11	0.03	0.01	0.02
Sweden	0.89	0.76	0.77	0.30	0.22	0.24	0.11	0.07	0.06
United Kingdom	1.00	1.00	1.00	0.09	0.06	0.05	0.23	0.11	0.09

Source: Eurobarometer 8, 52, 57, 243

Note: The shaded cells are not the original values but values assumed in this paper. The EU 55 has been supplemented for Eastern European countries with EB 8 but no data were available for Cyprus and Malta before EB 243. The division of Germany into former East and West Germany is not presented.

Inspection of Table 10 will bring out the following points. The surveys EB 52 and EB 55 are mostly quite close. There are some minor differences, such as the drop in proficiency in English from EB 52 to EB 55 in Luxembourg, where the percentage speaking English has fallen from 53 to 46 percent.

However, from EB 55 to EB 243 there are dramatic changes in many countries. For example, the percentage of people in Belgium speaking English has risen from 37 to 59, in Poland from 11 to 29 percent, in Slovenia from 31 to 57 per cent. The percentage of people speaking German has gone up by 11 percentage points in Belgium and 20 percentage points in Slovenia. The percentage of persons speaking French in the Netherlands has gone up from 12 to 29 per cent.

These changes are not easy to interpret. The changes are far larger than would be expected as a result of sampling error, so in principle, there are three explanations. The previous surveys EB 52 and EB 55 are misleading, the survey in EB 243 is misleading, or the numbers reflect real changes. Of course, these explanations may be combined. It should be remembered that the time span is only a few years, and so the changes are far larger than could be explained by new and linguistically more competent generations.

EU 243 does not explain these changes but only comments: "In comparison with the situation in 2001, more respondents state that they speak English (+6 points), French (+3 points), German (+6 points) and Spanish (+1 point)" (p.12).[13] From Table 10, we may compute Table 11.

Table 11. Indices for the European Union

Index of prevalence	Percent speaking	English	German	French
EB 55				
EU 25	As foreign language	0,280	0.086	0.098
	As mother tongue	0.139	0.193	0.144
	Total = index of prevalence	**0.419**	**0.279**	**0.242**
EB 243				
EU 25	As foreign language	0.366	0.118	0.117
	As mother tongue	0.139	0.193	0.144
	Total = index of prevalence	**0.505**	**0.312**	**0.261**
EU 29	As foreign language	0.341	0.109	0.110
	As mother tongue	0.115	0.160	0.119
	Total = index of prevalence	**0.456**	**0.269**	**0.229**
Greenberg H index				
EB 55, EU 25		0.176	0.078	0.059
EB 243, EU 25		0.303	0.106	0.076
EU 243, EU 29		0.208	0.073	0.052
Centrality index				
EB 55, EU 25		0.609	0.196	0.195
EB 243, EU 25		0.609	0.196	0.195
EB 243, EU 29		0,609	0,195	0,196

Note: The data published in EB 243 on population 15+ has been used. The centrality index is computed from English, German, and French. Knowledge of foreign languages apart from these languages is not included, and so the values are slightly exaggerated though the relative size of the centrality index of a language compared to another is not.

The number of people speaking English as a foreign language has gone up by 8.6 percentage points, from 0.28 in EB 55 to 36.6 in EB 243. The percentage of people speaking French and German has increased as well.

According to EB 243, about half the population is able take part in a conversation in English, 31 in a conversation in German, and 26 per cent in a conversation in French.

The Greenberg index based on EB 243 would give the likelihood that about 30 *% of all random encounters in Europe would be successful in English, 11 percent in German, and 8 percent in French*. We thus get an upper bound for successful encounters equal to 50 per cent. This figure is, however, most likely to be substantially higher than the true figure. First, the figure is technically overestimated due to multiliguilism, though this problem could eventually be overcome. Second, as discussed above, the data in EB 243 probably provides an overestimate of actual linguistic proficiency (as judged by previous surveys). Third, all the figures are based upon self-declared values of proficiency, and they are quite likely to be exaggerated, though to an unknown degree.

[13] By looking at Table 10, these numbers are not easily understandable, as the proficiency in English would seem to have gone up by more than 6 points, but presumably this is due to the understanding that the table is about foreign languages, so English spoken in the UK is not taken into account.

There has been a marked increase in measured ability in commucation from 2001 to 2006, real or not. Nevertheless, this increase is likely to disappear if the new applicant members become actual members.

The centrality index has not changed much, and English is adopted three times as often as German or French as a foreign language.[14]

Europeans do not at present speak two foreign languages. In fact, on average they speak 0.60 languages per person aged 15+ in the present EU 25 according to EB 243. This number will decline to 0.56 in a future EU 29.These numbers are slightly underestimated as they do not include the numerous though numerically not very important cases of knowledge of foreign languages apart from English, German, and French, such as a Portuguese person speaking Spanish or a Finn speaking Swedish. *As an estimate, we get about 0.5 foreign languages spoken per person at the start of the new millenium, and even that, as noted, may be exaggerated.* Eurobarometer 243 comments (p.9) that a majority of respondents in 9 countries are able to hold a conversation in at least two languages. However, this comment downplays the fact that the smaller countries are the more proficient.

In fact, we may formally analyze the relationship between the number of foreign languages spoken in a country and a number of variables. For illustrative purposes, I have chosen the average number of foreign languages spoken in a country as a function of the size of the country, the income level and a dummy describing whether the country is a former eastern-bloc country or not. The larger a country, the less incentive there is for the people to learn foreign languages. The income level may, similar to Snow (1998), be thought of either as a proxy for the quality in the school system, or it may be thought of as an indicator of commercial need for linguistic competence in more advanced economies.

We shall use *The World Factbook* data on income per person measured in PPP prices, and the population data presented in EB 243.

We get in a linear regression

$$\underset{\text{\# of languages:}}{} \underset{}{0.68} + \underset{(3.18)}{9.27 \times 10^{-6}}\ \underset{(1.43)}{\text{Income}} - \underset{(-3.24)}{1.16 \times 10^{-8}}\ \underset{}{\text{Population}} - \underset{(-0.83)}{0.13}\ \underset{}{\text{East-bloc}}$$

$N = 29$, $R^2 = 0.37$, t-values in parenthesis

Thus, we get confirmation that the smaller countries have, on average, higher proficiency in foreign languages, a result in line with the model of Lazear (1999).The income variable is positive and significant if included with only population but loses the significance once the dummy variable describing the eastern bloc is included.

Inspection of Table 10 also gives the result that geographical vicinity is important. The string of small or middle sized countries adjacent to a German-speaking country – Belgium, Czech Republic, Denmark, Lithuania, Luxembourg, Hungary, Netherlands, Poland, Slovenia, Slovakia – has a country average of 41 percent of the population speaking German as opposed to a European Union country average of 22 percent. Linguistic closeness also matters as is evident from the knowledge of French in other Romance speaking languages.

So far we have described the communication in the union as an entity, and these measures are dependent upon the size distribution of the countries in the union. Much more directly related to national linguistic policy is the communication between countries.

[14] As the centrality index as well as the prevalence index is presented in Table 11, it is simple to compute de Swann's Q-value. We get 0.314 for English, 0.059 for German, and 0.049 for French. By the Q-measure, English would be 6 times as important as German.

Table 12. "Lieberson" index of communication for EU 25 and EU 29. EB 243.

	EU 25			EU 29		
	English	German	French	English	German	French
Belgium	0.297	0.084	0.243	0.267	0.073	0.213
Czech Rep.	0.123	0.087	0.005	0.110	0.075	0.005
Denmark	0.431	0.179	0.032	0.389	0.154	0.028
Germany	0.276	0.165	0.043	0.245	0.145	0.036
Estonia	0.232	0.069	0.003	0.210	0.059	0.002
Greece	0.243	0.029	0.021	0.219	0.025	0.019
Spain	0.143	0.007	0.033	0.128	0.006	0.029
France	0.189	0.027	0.160	0.168	0.023	0.143
Ireland	0.501	0.022	0.052	0.452	0.019	0.046
Italy	0.156	0.018	0.039	0.138	0.015	0.034
Cyprus	0.384	0.016	0.031	0.346	0.013	0.027
Latvia	0.197	0.059	0.003	0.178	0.051	0.002
Lithuania	0.162	0.044	0.005	0.146	0.038	0.005
Luxembourg	0.303	0.274	0.234	0.273	0.237	0.205
Hungary	0.118	0.078	0.005	0.106	0.067	0.005
Malta	0.444	0.009	0.044	0.401	0.008	0.039
Netherlands	0.428	0.208	0.075	0.386	0.179	0.066
Austria	0.292	0.299	0.026	0.263	0.258	0.023
Poland	0.152	0.061	0.008	0.136	0.052	0.007
Portugal	0.163	0.010	0.063	0.147	0.008	0.055
Slovenia	0.288	0.155	0.010	0.260	0.134	0.009
Slovakia	0.162	0.100	0.005	0.146	0.086	0.005
Finland	0.317	0.056	0.008	0.286	0.049	0.007
Sweden	0.442	0.094	0.029	0.399	0.081	0.025
United Kingdom	0.431	0.031	0.061	0.390	0.026	0.053
EU 25	**0.247**	**0.072**	**0.047**	-	-	-
Bulgaria	-	-	-	0.106	0.033	0.021
Croatia	-	-	-	0.223	0.091	0.009
Romania	-	-	-	0.134	0.017	0.055
Turkey	-	-	-	0.083	0.012	0.003
EU 29				**0.2013**	**0.0549**	**0.0441**

Source: EB 243

From Table 12 we get a detailed view of the linguistic situation in Europe between countries. *About a quarter of all random encounters between foreigners* (persons not from the same country) *will be successful in English, 7 per cent in German and 5 per cent in French. Thus, within the European Union English is more than three times as important as German and almost five times as important as French.*

It is worth noting, that for all countries, including France and Germany, a random encounter is more likely to be successful in English than in German or French. Austria is a slight exception to this rule. The reason is that technically Germans are counted as foreigners.

It is also interesting to note that the three large countries do no better than some of the small countries do. Of course, England, Germany, and France should have a major advantage as their inhabitants already speak one of the major languages. However, the very fact of being a major country has traditionally meant that instruction in foreign languages was not considered as important, and so while these countries of course have saved resources on linguistic education, they end up no better than a number of small countries with respect to communication in Europe!

8. The quality of communication in Europe

Obviously, we would like to know not only the extent of communication but also the quality. As previously emphasized, our indices do not rely on proficiency tests but on self-reported measures. Thus, for the present we will have to rely on indirect indicators. A couple of such indicators will be reported here.

Eurobarometer 54 special data

In 2000, the Eurobarometer asked Europeans a number of questions about language. This survey supplements the survey presented in the previous section. There are two major differences. One is that the wording is different as the interviewees were asked whether they used a foreign language apart from their mother tongue and, if so, which. This data is interesting as it provides some information as the the quality of communication. We may readily assume that commucation in the first language is much better than in the second and especially the third. It should be emphasized that the answer to this question is much less subjective. A person may indulge in self delusion by exaggerating the language skills but the answer to which language is the first language is likely to be much more precise.

The second is that the survey is not published for the individual countries but only for the EU (15) total. The main results are presented in Table 13.

Table 13. The knowledge of languages in Europe (EU 15)

Percent	English	French	German	Spanish	Italian
1st language	32.6	9.5	4.2	1.5	0.8
2nd language	6.8	7.8	4.3	3	1
3rd language	1.1	1.6	1.6	1.5	0.9
Total	**40.5**	**19.2**	**10.3**	**6.6**	**3**

Source: Eurobarometer 54 – special edition, paragraph 1.2.1

If we add the number of people speaking, e.g., English as their mother tongue (MT) and the people outside the English speaking countries who use English as their first, second, and third language, we get the total number of people in Europe able to communicate in English. In a random encounter, we get the figures in column 2 for English as the first language and English as the first and second language, etc.

Table 14. The Greenberg index according to language proficiency in EU 15.

	MT	MT+1	MT+1+2	MT+1+2+3
English	0.028	0.193	0.246	0.255
German	0.056	0.073	0.091	0.099
French	0.034	0.069	0.107	0.115
"Total"	**0.119**	**0.335**	**0.444**	**0.469**

If we simply add the figures for each language in Table 13, we would get that 79.6 per cent of the European population speak a foreign language. Yet 47 percent of Europeans state that they speak only their mother tongue.[15] This implies that language skills are rather skewly distributed. Some Europeans speak more than one foreign language, and many speak none. The totals presented for the "Lieberson" and the Greenberg indices are therefore exaggerated.

Eurobarometer 243. In 2005, the interviewees were asked to evaluate the quality of their language skills. In Table 15, the proficiency is given as an EU-total by language. 22 percent of those speaking English as a foreign language rated themselves "very good". For simplicity, it was assumed that the percentages for the EU applied to each country. A communication index similar to Table 12 was then computed.

Table 15. The quality of communication in EU 25.

	EU 25		
Fraction in EU speaking language	**English**	**German**	**French**
Very good	0,22	0,17	0,15
Good	0,47	0,42	0,39
Total	**0,69**	**0,59**	**0,54**
The "Liberson" index for EU based upon			
Very good and good	**0,143**	**0,042**	**0,025**
Very good only	**0,034**	**0,016**	**0,010**
The Greenberg Index based upon			
Very good and good	**0,153**	**0,069**	**0,046**
Very good only	**0,048**	**0,046**	**0,026**

Source: EB 243, p. 14 and Table 12.

The results in the previous section change dramatically if we restrict the computation to include only communication between individuals who rated their language skills as "good" or "very good". It may very well be that the quality of self-rated language skills has improved in all languages, as stated in EB 243 (p. 14), but only a fraction of the previous encounters would have resulted in good communication. For example, if very good communication is required due to the requirements of the workplace we see that only 3.4 percent of the random encounters between foreigners will be successful in English.

Thus, we se from Table 15 that communication in Europe as characterized by indices is very dependent upon the quality measure used. As a consequence, multilingualism is of minor importance compared to the quality measure used.

About four out of five encounters using the criteria "good or very good" will not result in good communication and consequently, in the terminology of Lazear, will not result in trade. We do not know the economic loss resulting from this diversity. Undoubtedly, it varies from market to market, as the notion of a random encounter is not equally applicable. It is probably not very important in the financial markets or in the product markets generally as long as the transactions are carried out by firms and not individuals. If two firms want to trade goods, only a few individuals in each firm need to communicate. Typically, in an industrial society there is no need

[15] Eurobarometer 54 special, section 1.2.1.

for most employees in one firm to communicate with the employees in the other firm. However, that may gradually change once the emphasis shifts from manufacturing to service industries.

However, the loss is likely to be quite substantial in the labour market. Moreover, the notion of a random encounter is certainly important from a political and cultural point of view. The notion of a random encounter provides a basis for the discussion and for a consistent framework but it need not always be a relevant measure.

On the one hand, it could be argued that the random encounter model is the most favourable model for other contenders as it only involves two individuals. If the random encounter involved more than two individuals the position of the dominant language would be much stronger.

On the other hand, for many purposes, encounters are not random. Businessmen want to meet other businessmen, and students want to meet other students, and they may consider the random encounter to be of little interest to them. It could be argued, though, that this is not a deficiency of the indices *per se* but rather of the available statistics. In the future we may get data for linguistic proficiency of businessmen, students, etc, and compute a separate index for each group.

Part III. The linguistic future of Europe

9. The choice of language instruction as an investment decision.

The results in the previous sections refer to the actual state of affairs in Europe at the turn of the century. However, the development in the decades to come will depend upon the choice of languages that young people make. Let us for the moment disregard official language policy and look at the individual incentives to learn languages. The decision to learn a foreign language is usually described as an investment decision, cf. Chiswick and Miller (1995) and numerous papers by Grin, see for example Grin (2001, 2002). There is an initial investment and a flow of later benefits.

The initial investment $\sum_{t=0}^{k}(a_t w_t + c_t)(1+r)^{-t}$ consists of a_t hours per year spent studying the language with the opportunity cost w_t per hour. Of course, for young people the opportunity cost w_t may not be large but they do have alternative uses of their time, not only in the labour market but also in studying other subjects such as mathematics or science. In addition to the time spent, there may very well be direct costs involved at the rate of c_t per period. The cost per period is thus $a_t w_t + c_t$. This cost is incurred over k periods.

r is the subjective rate of interest. This subjective rate of interest may very well be substantially higher than the market rate of interest as the investment in a particular language involves a risk factor.

It should be noted that from the point of view of the individual it is a major investment involving thousands of hours to achieve a reasonable level of proficiency. For the individual as well as society, it is thus a major investment.

In the literature on language adoption by immigrants, it is common to assume that the costs stop when the immigrant enters the labour market at time k. The labour market will provide additional instruction and upkeep of the original language skills. Upon entering the English-speaking labour market, an immigrant in the US speaking Spanish will more or less automatically maintain the skill in English that was originally acquired. Presumably, this is also the general case in Europe for immigrants coming from outside Europe.

The important point is, however, that his may not be the standard case for people born in Europe. Most people in Europe expect to work using their mother tongue with more or less occasional use of a foreign language. Therefore, it seems likely that the language skills originally acquired would have to be maintained at a cost. In particular, this would seem to be true for languages such as French or German as these languages are often learnt as second languages, see Table 13.

At time k, the investment pays off with an increase in salary Δw^1_t compared to the situation with no knowledge of the first foreign language, and so the discounted benefits from the investment will be $\sum_{t=k}^{n}\Delta w^1_t(1+r)^{-t}$.

Chiswick and Miller (1995) provide ample international evidence that investment in language education is quite profitable for immigrants and presumably, this would also be the case in Europe for immigrants. However, in this paper we are not considering immigrants in particular but the situation in Europe for ordinary citizens where emigration is usually only a vague possibility. Migration between European countries so far has been rather limited - to some extent no doubt precisely because of language problems – and so the most pertinent question would be how much wages could be expected to increase with knowledge of a first foreign language while retaining a job in the national labour market. This issue has been investigated with respect to English in Switzerland (Grin 2002) and English in Israel (Lang and Siniver 2006). It is not easy to

estimate the value of human capital with any precision, and it is even less easy to establish the value of a component of human capital such as the economic value of language proficiency. In particular, the question is if a wage differential may be interpreted as a result of language proficiency or simply as a result of unobserved ability, and it is certain that the value would differ between the individual countries. In fact, such a differential would generally be dependent upon supply and demand for the language in question in each country.[16,17] As stressed by Dustman and Sost (2001, 2002), the issue is further complicated as language proficiency is an ordinal variable, and usually a self-reported variable, introducing substantial complications due to measurement error.

It may be that further research will provide us with the dozens of European country studies needed to evaluate the economic value of learning a first foreign language but these studies do not exist at present, and so we have to resort to indirect measures. In fact, the emphasis on economic incentives may very well be somewhat misplaced. In Eurobarometer 243 special, Europeans were asked about their motives for learning an additional language. 35 percent indicated that they wanted to use it for holidays abroad, 32 percent wanted to use it at work, 27 per cent for personal satisfaction, and 27 percent to be able to work in another country (p. 35).[18] Economic incentives will, on the one hand, certainly not tell the whole story about motivation for learning an additional language but, on the other hand, they should not be ignored.

Thus, it seems likely that a more comprehensive formulation should be attempted. Further research will probably have to abandon the convenient abstraction of either knowing or not knowing a language and use a measure of proficiency. Such a measure may be provided by one of the linguistic tests offered by TOEFL or the Cambridge exams. Obviously, the higher the proficiency in language J is the better communication will be when abroad and the higher will be the personal satisfaction.

Knowledge of a foreign language J will, in general, give utility to a person from country i described by a utility function $U = U(P^J \mid i)$. The utility may be assumed to depend upon the language spoken in country i. The utility of learning a foreign language is much larger for a person from a small country than for a person originating in a country where one of the major languages is spoken. This formulation would indicate two major areas of research: The determinants of the proficiency and the typical features of the utility function.

a. The determinants of proficiency. There is a vast literature on language instruction but this literature does not conform easily to the framework usually favoured by economists.

Proficiency does, of course, depend upon the time spent learning the language in question. If $a(\tau)$ denotes the intensity of language training we get

$$P_t^J = \int_{\tau=0}^{t} a(\tau) d\tau$$

[16] The investment in foreign language proficiency need not be profitable. The investment might have been undertaken with personal satisfaction in mind rather than economic gain, or the investment might turn out *ex post* to be a poor idea. The investment in Russian taken by many persons in Eastern Europe proved to be economically almost worthless after the collapse of the Soviet Union.

[17] Grin (2002) speculates that the relative value of English will progressively erode over time as more and more people become proficient in English just as the premium due to literacy has eroded over the past centuries. However, lack of ability to read and write will in most countries imply a wage reduction as is amply demonstrated by immigrants in present day Europe, and in the future this may also be the case for English. It is really a question of what is considered normal. Proficiency in a foreign language is not normal in many countries and may be associated with a wage premium. In the future, proficiency may be the norm and lack of proficiency associated with a wage reduction.

[18] In the Eurobarometer 54 47 percent wanted to use it abroad, 37 percent for personal satisfaction, while only 26 percent said that they wanted to use it at work and 18 percent wanted to be able to work in another country. Coulmas (1992, p. 104) presents a table describing the motivations of Swiss students for learning English. 97.4 % of the students mentioned that English was used all over the world. 55.1 % believed that it increased job opportunities. It is interesting that only 12.9 % mentioned that they wanted to read Anglo-American literature.

as a major determinant.[19] Herdina and Jessner (2000) speculate that the growth in P_t^J can probably be described as a logistic curve (presumably for $a(\tau)$ being constant). If this is true, the practical implication is that it will take quite some time before a useful level of proficiency is achieved. This fact becomes especially important when the issue is the "two foreign languages policy" promoted by the EU.

Apart from the time spent, P_t^J also depends upon a number of other factors:

- The quality of instruction (competence of teachers, quality of textbooks, etc.) [20]
- Individual aptitude and motivation
- The linguistic background of the person.

It would be a worthwhile task to establish the determinants of P_t^J but so far, little work has been done on this issue.[21]

With respect to the last factor, the linguistic background of the person, it should be noted that the costs of learning a first foreign language are not equally distributed in Europe. This is where the notion of *linguistic proximity* comes in. Of course, some languages are easier to learn for a given individual than others are. It is easier for an Italian to learn another Romance language such as French than a Germanic language such as Swedish.[22] This problem has usually been dealt with using some measure of closeness based on linguistic considerations, see e.g. Snow (1998) or Ginsburgh (2005). Essentially, however, these measures based upon linguistic considerations miss the point. The real question from an economic point of view would be to ask: How many hours would it take for a national of country i to learn language A or B to a specified proficiency level? Linguistic measures of closeness between language A and B are usually symmetric, but an economic measure of closeness need not be. It might very well take an Englishman longer to learn Danish than a Dane to learn English, simply because Danes would be familiar with the pronunciation and have some vocabulary from start. Of course, we do not have these economic measures of linguistic closeness.[23]

Once the acquisition of new learning stops at time t_0 the person achieves the proficiency level $P_{t_0}^J$ and the question is whether the person will keep this efficiency level. It would seem likely, however, that the level of proficiency would decline unless the person actively uses the language. In an economic model it would be natural to assume an exponential decline so that $P_t^J = P_{t_0}^J * e^{-\delta t}$ for $t \succ t_0$. However, we do not know the approximate value of δ and we

[19] This formulation would let the time of beginning τ=0 be exogenous. Actually, it is widely debated when the acquisition of the first foreign language, typically English, should begin. 39 percent of European citizens would accept the introduction of language teaching to children between 0 and 5 years when it comes to the first foreign language (Eurobarometer 243, p. 41).

[20] We do not have any quality indicators of education, only quantitative measures of input data such as the number of years of compulsory education in the school system, the qualifications of teachers etc, see *Key Data on Teaching Languages at School in Europe*, a section of *Key Data on Education* published by the European Commission. No data on the costs are given.

[21] Bonnet (2003) presents actual tests of pupils' skills in English for 8 European countries. However, as the pupils are approximately of the same age (15) the important aspect of P_t^J as a function of the length of instruction cannot be ascertained. One interesting result was that French and Spanish school children obtained results only slightly below children in Scandinavia with respect to linguistic competencies but achieved markedly lower results with respect to oral communication. It is tempting to interpret this finding in light of the practice of not dubbing films in English in Scandinavia.

[22] For immigrants in Europe the first foreign language will usually be the language spoken in the country in question. As immigrants frequently are not completely familiar with the first language, their costs of learning a second foreign language may be expected to be higher than for others.

[23] Snow (1998) does provide evidence, however, that a measure of linguistic closeness will explain part of the achievement of foreign students in the TOEFL test.

certainly do not know whether the exponential form is even approximately correct.[24] This lack of knowledge of the obsolescence factor would seem to be a major problem because we might not be able to trust instruction given in schools to provide actual communication abilities later in life.

b. The utility function. An individual from country i is assumed to get utility from being able to communicate with people not speaking the language of country i. We may assume that U=U(N), where N is the number of other people who the individual may communicate with.This is in fact the basic assumption in the model by Church and King (1993). Presumably, we have U'(N)>0 and U''(N)<0, the marginal utility of being able to communicate with ever more people is positive but declining. One of the dominant motives for learning a language was, as noted above, the desire to use the language abroad where it is important to be able to communicate with someone in the hotel or at the train station. It is of declining importance to be able to communicate with all people in the hotel or at the train station.

Let the union consist of languages A, B, and other languages C. Let N^A be the number of people speaking A, N^B the number of people speaking B, and N^{A+B} the number of people speaking A and B. Let $N^A > N^B$ and define $N^{B|A}$ as $N^{A+B} - N^A$.

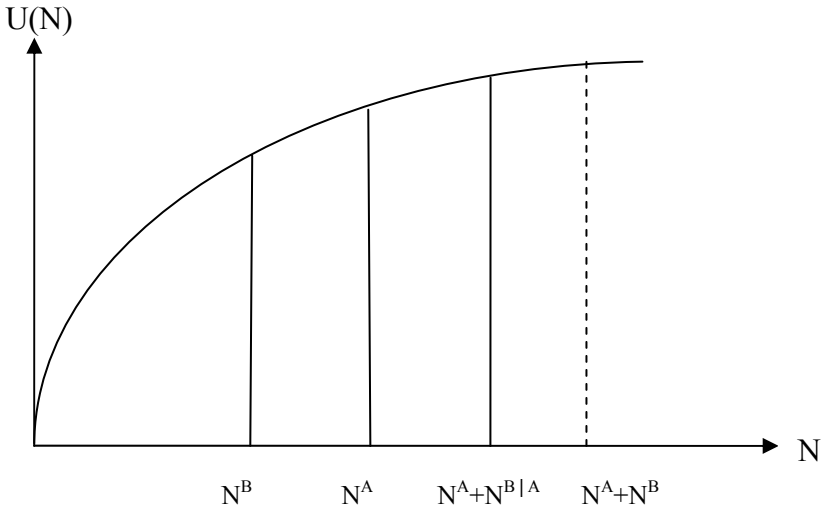
In a sequential setting a person who has learnt a language A sufficiently well will have utility $U^A = U(N^A)$. Should the person then decide to learn language B the utility becomes $U^{A+B}=U(N^A+ N^{B|A})$.

In Figure 1, the utility function is illustrated. A is chosen as the first foreign language. A is spoken by more people and therefore provides greater utility. As the second language B is spoken by N^B people but of these people some already speak A, and so proficiency in B will only add $N^{B|A} < N^B$ new people.

Therefore, there are *two* reasons why a second language will be disadvantaged. The first is that quite often the choice of first foreign language A is obvious or even mandatory in school. For example, an Italian may have English as a compulsory subject, and German later as a choice. The number of Germans that may be reached will not correspond to the German speaking population but rather to that part of the German-speaking population that does not already speak English. From Table 10 we see that 56 percent of the Germans speak English.

The second reason is simply the diminishing marginal utility.

Figure 1. Utility of language A and B.



[24] "Language maintenance has been very little researched so far, but deserves much more attention in future linguistic investigations, since it appears to be the most crucial aspect of the language acquisition process" (Herdina and Jessner, 2000, p.93). They speculate that the obsolescence of language proficiency may be described in the same way as the acquisition but provide no evidence to back up this speculation.

About half of the population of Europe 25 does not speak one of the major languages, English, French, and German, as their mother tongue, and so the decisive question is which language young persons outside the dominant language areas decide to learn.[25] There are two considerations for this decision, the benefits and the costs.

From Table 10, the choice of English is obvious once it is taken into account that English is spoken in Europe not only as the mother tongue but also as the first foreign language of many Europeans. If a young person learns English, that person will be able to communicate with about half of all Europeans while the percentage is substantially lower if the person learns German or French. If we add this observation to the observation that English completely dominates the world trade and the scientific world English is the obvious choice of a first foreign language from a benefit point of view. It could be argued, though, that what matters is not the present but rather the future number of speakers of a language. Investment in a language is a lifelong investment and so the decisive factor should be the perception of future use rather than actual present use. Presumably, perceived future use and present actual use are highly correlated. In EB 243 the question was asked covering EU 29: "Which two languages, apart from your mother tongue, do you think are most useful to know for your personal development and career?" 68 percent answered English, while 25 percent gave French and 22 percent gave German as the answer. The position of English becomes even stronger when parents which languages that their children should learn.[26]

.However, once the choice of English as the first foreign language has been made, the individual may consider learning another foreign language to reach an even further audience in Europe.[27]

Once you have decided to study English and consequently decided to spend a_t hours for a number of years the question is: How much will that decision lower your costs of the study of a second language, are there economies of scale in the number of languages learnt?[28] There would be little doubt that the process of learning a first foreign language will reduce the hours spent learning the second but the question is by how much. We do not know the answer to that question. One reason may simply be that the question is not usually put that way, asking for an estimate of hours saved to to proficiency in the first foreign language. Common knowledge suggests that once you have learnt English you may recognize some of the words, particularly in French, but the French or German grammar will still be quite different as indeed most of the common words will be. Therefore, it seems likely that while there is a reduction it will not be very large, say in the magnitude of 10 to 20 percent.

With respect to the benefits, it is possible to take the analysis a little step further. Once a person has English as the first foreign language, the person is likely to prefer to use that language abroad. Let us assume that the person is considering German. 56 percent of Germans, however, already speak English, see Table 10, and so new communication possibilities would only be relevant for the non-English speaking German population.

With these assumptions we find that an additional 13 percent of the population of Europe 29 may be reached by learning German as a second language. The corresponding figure for French is 14 percent. These figures are substantially lower than the figures for the prevalence of German and French presented in Table 11.

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[25] This is an important fact from a political point of view. Not even an unlikely coalition between the three major languages would be able to impose the other nations a decision to use these languages for supranational purposes.

[26] In EB 54 a slightly different question was asked: English was thought by 75 percent to be useful to know, French by 40 percent, German by 23 percent, and Spanish by 18 percent.

[27] Saiz and Zoido (2002) discuss the investment in a second language in an American context. They obtain a small wage premium, in the order of two per cent, but they stress that there are numerous econometric issues involved in the estimation. In particular, the question arises whether this is due to a selection process. However, while interesting from a methodological point of view, it seems quite unlikely that American results can be carried over to a European setting.

[28] The Danish linguist Rasmus Rask (1787–1832) was renowned for his extensive knowledge of languages and was once asked how it was possible to learn so many languages. He replied that once you had learnt the first twenty the next twenty came rather easily!

The specific numbers may be debated, and the specific calculations and data may be debated. However, the essential point is that once a language (English) is established as the first foreign language it puts the second foreign language into a quite difficult position as people considering learning a second foreign language realize that much in their potential second foreign language audience already speaks a language with which they are familiar (in this case, English). The figures indicate that the benefits measured as communication possibilities for the second foreign language are less than half the benefits of the first foreign language, surely outweighting any economies that may be involved in learning a second language.[29]

Indeed, it may very well be argued that the benefit measure would tend to be favourable to French and German as it is based on communication with Europeans rather than economic factors. If it is accepted that English is dominant in trade and science, the commercial value of learning a foreign language is, in general, certain to be less than the number of additional persons with which the additional language makes it possible to communicate.

This is not meant to be an argument against learning a second foreign language and indeed, there may be many individual reasons for doing so but it does indicate that the investment in a second foreign language is, in general, likely to be far less profitable than in the first. Economists are wont to be sceptical about policy initiatives that are not compatible with individual incentives. For political reasons, the European Union may want a "two foreign languages policy" but it need not generally be in the individual interest of the citizens of Europe to comply.

10. Eurobarometer data for young Europeans.

Most people obtain the major part of their language instruction in their young years, and the surveys presented in Table 10 and the indices in Table 11 and Table 12 of course reflect the political and social circumstances in the country in question going back several decades.[30] Greece, Portugal, and Spain were politically isolated for many years, and Finland had close ties to the Soviet Union that are not reflected in the tables. It is therefore of particular interest to see how the present situation is likely to change.

Eurobarometer has interviewed a representative sample of young Europeans aged 15-24 in the EU 15, see EB 47,2. The question was identical to the question used in EB 55 and so a table similar to Table 12 may be calculated. The results are presented in Table 16. For purposes of comparison, the figures for EU 15 have also been included.

For all countries, we see a marked increase in the index for English and an increase in the index for French. It should be remembered, though, that the table only concerns EU 15. In other words, *if* young people in the decades to come obtain the same procifiency as today, and *if* the young people maintain their proficiency, we may expect a substantial increase in the figures presented in Table 11. The tendency is not restricted to the old EU 15 countries but also applies to the new member states and the applicant states.

The total Lieberson index is 0.674. Two out of three encounters will result in some conversation, though this is certain to be an overestimate due to multilingualism and the enlargement of Europe. With the present tendencies, Europe is likely, for decades to come, to remain much more linguistically fragmented than the US though the precise economic impact of this fact is difficult to estimate.

[29] Coulmas (1992, pp. 138-152) presents the discussion in cost-benefit terms although he emphasizes the uncertainties. In fact, it seems highly unlikely that a cost-benefit analysis will ever be precise as there are too many imponderables. This is not to say, however, that the economic arguments should not be spelled out clearly.

[30] See *Eurobarometer 54 special, section 4* for details about where Europeans have acquired their language skills.

Table 16. The "Lieberson" index of tomorrow, EU 15

	EB- 47,2 - Young Europeans				EB 55 all Europeans +15		
	English	German	French		English	German	French
Belgium	0.408	0.052	0.330		0.179	0.050	0.262
Denmark	0.655	0.218	0.043		0.377	0.148	0.023
Germany	0.485	0.159	0.070		0.217	0.119	0.039
Greece	0.466	0.018	0.038		0.175	0.016	0.012
Spain	0.292	0.005	0.036		0.093	0.003	0.021
France	0.445	0.047	0.240		0.164	0.025	0.147
Ireland	0.690	0.053	0.154		0.477	0.012	0.042
Italy	0.383	0.018	0.104		0.145	0.011	0.054
Luxembourg	0.529	0.302	0.336		0.222	0.250	0.239
Netherlands	0.638	0.211	0.089		0.352	0.170	0.035
Austria	0.496	0.321	0.060		0.264	0.295	0.026
Portugal	0.370	0.009	0.119		0.108	0.010	0.046
Finland	0.632	0.080	0.029		0.241	0.037	0.003
Sweden	0.659	0.108	0.047		0.361	0.069	0.020
UK	0.636	0.045	0.103		0.385	0.021	0.035
EU 15	**0.476**	**0.077**	**0.109**		**0.294**	**0.077**	**0.042**

Source: Eurobarometer 47. 2 and 55.

About half of the successful encounters will be in English, a little more than 10 percent in French, and a little less than 10 percent in German. In other words, young people are about 5 times as likely to use English as their language of communication than any other language. Thus, the Lieberson measure using random encounters will give a rather different idea of the relative importance of the different languages than the population measure in Table 1 or the prevalence index in Table 11. Essentially, this is due to the squaring implicit in the notion of random encounters and is a simple consequence of the fact that communication takes place between two people. Suppose, for example, that you have a union where all speak their own mother tongue understood by no one else, and the knowledge in the union of language A is 0.4 and 0.2 of language B. The probability of a random encounter between two types speaking A is $0.4^2 = 0.16$ and of type B is $0.2^2 = 0.04$. Language A may be spoken in the union twice as often as language B but will be used four times as often in random encounters.

In the hypothetical case that either Germany or France were to stop education in English in order to promote their own language, the Lieberson Index for young Europeans for English would fall to 0.29 and 0.35 respectively, indicating that unilateral action on the part of one country would not stop the use of English among young Europeans. No country is large enough to implement, on its own, a development that would stop the dominant role of English. Of course, this point can be made even more forcefully for EU 29.

The data from Eurobarometer 47.2 for young Europeans will also allow us to give a preliminary estimate of future linguistic proficiency in Europe. From the data it is calculated how many (young) Europeans that speak one of the major languages as a foreign language. If we subtract the number of young Europeans that speak the language as their mother tongue, we may calculate the average number of foreign (major) languages spoken by Europeans of tomorrow. It turns out that this number is about 0.74 for EU 15 though with marked differences. The average number of languages is more than two in Luxembourg and close to 2 in the Netherlands and Denmark, but unfortunately considerably below 1 in the major countries.

Of course, we do not know whether Table 16 will actually indicate the future. It is possible that language instruction will be strengthened but it would take a massive effort over a prolonged period to change the tendencies markedly. Language instruction is not like monetary policy that may be changed overnight. Changes in language instruction are likely to be slow, due to political

inertia, lack of properly trained teachers, and – probably as important – lack of interest in the population at large. Politicians may, to some extent, force pupils in secondary school to take lessons in a certain foreign language but such an effort is not likely to provide good results unless the pupils themselves perceive the language to be important. Moreover, in democratic societies it is not easy for politicians to promote a linguistic policy that the voters do not consider to be in their interest.

It would seem to be far more likely that the situation described in Table 16 will be overstating the future communication between Europeans. To sum up, there are three main reasons.

First, the indices are certain to be lower in EU 25 than in EU 15 and even lower in a future EU 29, or whatever the number may be.

Second, the indices are based upon self-declared measures of communication skills. While these measures to some extent will give an idea of the relative importance of the languages, it should be remembered that sometimes communication would actually be quite poor. They certainly cannot be compared to a similar index for the United States.

Third, for Table 16 to be indicative of the future it requires that young people do not forget the languages they learnt as pupils. Especially for languages learnt as second or third foreign language this requirement would seem to be highly questionable.

11. Language policy in the European Union.

The official policy in the European Union, as confirmed in various treaties, is that all official languages are equally important, and that citizens should be able to communicate with the authorities in their own languages. At present, The European Union has 21 official languages in 2006 and that number is likely to increase. For the practical functioning of the Union, this is of course impossible, and the working languages in the bureaucracy used to be French, and is still French and increasingly English.[31] This aspect will not be pursued here.

For the present purposes, the resolution by the Council of the European Union 14 February 2002 is far more interesting as it "invites the Member States within the framework, limits and priorities of their respective political, legal, budgetary, educational and training systems

> "to take the measures they deem appropriate to offer pupils, as far as possible, the opportunity to learn two, or where appropriate, more languages in addition to their mother tongues, and to promote the learning of foreign languages by others in the context of lifelong learning, taking into account the diverse needs of the target public and the importance of providing equal access to learning opportunities. In order to promote cooperation and mobility across Europe, the supply of languages should be as diversified as possible, including those of neighbouring countries and/or regions;"

In other words, with the appropriate provisos, member states are encouraged to have a "two-foreign languages policy". The resolution is not legally binding but in each country it will of course be used by interest groups and political parties to introduce such a policy. After all, that was the purpose of the resolution.

If this resolution were to be carried out to the letter, it would represent an annual investment amounting to billions of Euros. The average number of foreign languages in EU was 0.45 according to EB 55 and according to EB 243 0.60 for EU 25 and 0.56 for EU 29. Even for young people, as already mentioned, the average number of foreign languages among young people is only 0.74 though all these figures are slightly underestimated due to the exclusion of minor languages. At present, only one country, Luxembourg, can satisfy the two foreign languages vision. A couple of small countries would not be far away from the target but for Europe in general it would mark a major change in policy.

[31] See e.g. de Swaan (2001) and Philipson (2003).

Economic aspects do not seem to have been discussed at all, as there is no mention of economic aspects in the official papers.[32] This is a "political thing". However, there are a number of important points to be considered.

The first is that the Council has failed to address the central issue of communication between Europeans and the European nations. From the Treaty of Rome onwards to the proposed treaty of the European Union, languages have been considered a question of education and culture and thus exempt from central coordination.[33] Yet in principle, it would seem to be an obvious object for coordination. In any union communication between the member states and their inhabitants is of vital importance but so far no coordinating measures have been introduced in the EU. The EU has a common competition policy, a common trade policy, and a common monetary policy, and these policies have been introduced in order to overcome coordination problems. Communication is, by definition, a two sided matter and yet is decided by the one side alone. If, e.g., Poland decides to promote English, such a decision will presumably be made purely with Polish interests in mind but it has implications for all European countries. Instruction in foreign languages has by definition an aspect of external effects that is at present conveniently ignored.

The second is whether the "two foreign languages policy" is in the general interest of Europeans.[34] For a young person, mastering a language to a high proficiency level is a major investment. English is the obvious choice of a first foreign language, as is confirmed in the previous section. Mastering a second language to the same proficiency level will imply costs almost as large mastering the first language but the derived benefits may in general be assumed to be much lower. French, German, or some other language will give access to far fewer new persons, and the utility of this addition may be much lower. The inherent danger is, of course, that some of the effort devoted to a second language in practice will actually be at the expense of English with the result that communication will be poor in both languages. If this were the case, then the resolution could eventually be very costly indeed in terms of lost communication and "trade".

The third is the equity issue. There can be no doubt that people born in an English speaking country have an advantage, and to a lesser extent, the same applies to people in German or French speaking countries. de Swaan (2001) talks more neutrally about a location rent.[35] Philipson (2003) is more critical and talks about linguistic rights and linguistic imperialism.[36] Indeed, it may seem unfair that the English should enjoy this advantage, and proponents of an artificial language such

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[32] See e.g. the description by Coulmas (1991). If costs are discussed at all, it will be with respect to translation costs in the EU or the costs of various linguistic programmes.

[33] de Swaan <82001) has an illuminating discussion about the prospects of reducing the number of official languages in the European Union. Everyone agrees that the number should be cut down but it is almost impossible to formulate a policy that could be adopted by a majority.

[34] Such a general policy also ignores that there are at present three different categories of Europeans: a) Europeans already speaking one of the major languages as their mother tongue, b) Europeans speaking one of the small official languages, and c) Europeans that do not have one of the official languages as their mother tongue (For example, Catalan speaking people in Spain or immigrants speaking Arabic or Turkish). It would seem highly unlikely that the same policy should be applied to three so different groups.

[35] Economists may be more tolerant of location rents. In general equilibrium textbooks, prices and wages are determined by the initial resources that the agents possess, and these initial resources need not be fairly distributed. Moreover, as a matter of practical policy, it may be that the British have a linguistic advantage but e.g. Norway has an oil advantage, Italy a climate advantage, and the Eastern countries a disadvantage related to prior economic development. It would seem to be quite unnatural to single out a linguistic advantage for international negotiation, as suggested by Pool (1991a).

[36] The difference of opinion is most likely due to differences of opinion about the causes of adoption of English as a foreign language. Philipson, (2001, 2003, and numerous other works) would be inclined to see the adoption as somehow promoted or forced by commercial and political forces. de Swaan sees the adoption as a natural consequence of individual choices: "Recently, a movement to right the wrongs of language hegemony has spread across the Western world, advocating the right of all people to speak the language of their choice, to fight "language imperialism" abroad and "linguicism" at home, to "strengthen language" rights in international law. Alas, what decides is not the right of human beings to speak whatever language they wish, but the freedom of everyone else to ignore what they say in the language of their choice" (de Swaan 2001, p. 52)

as Esperanto are still alive.[37] Questions of equity seem to an important factor in the resolution. Why else would the resolution encourage two foreign languages rather than one? The obvious answer is that a "one foreign language policy" would imply that English be chosen as the primary language in Europe, and that was politically unacceptable.

Even if the resolution were implemented to the letter, the consequences would not be clear, as the choice of the second language would not be determined. Indeed, it is not even clear who would make the choice. In some countries, it would presumably be dictated by the central government, in others by local government, and in still others by the individual pupils or their parents. Commercial interests, as mentioned in section 5, would sometimes give an indication, as would linguistic closeness and historical and cultural ties. The likely result in Europe would be that some young people would choose German as the second foreign language, some would choose French, and yet others would choose another language. As the usefulness of languages is heavily influenced by network effects, even a perfect implementation of the "two foreign languages policy" is not likely to provide a general alternative to English.

The basic problem may be illustrated by an example. Let us assume that a "two foreign languages policy" was carried out to the letter. The first language would be English in all countries. The second language would be split between German, French, and some third language chosen more because of local circumstances. This third language could be the official language in the country for immigrants, or it could be a language chosen because of geographical or linguistic proximity. A reasonable distribution would be that German as well as French was chosen by 40 percent of the European population while the last 20 percent would be spread among many languages. This would imply that about 25 percent of all encounters would be successful in German and the same in French while all encounters would be successful in English. Together German and French would provide the means of communication for a half of all random encounters in Europe. Thus, neither language would provide a *general* alternative to English. If the German chancellor and the French president were to meet and flip a coin as to whether French or German should be the second language in Europe, they might establish a viable alternative. The present prospect is that neither will accede to the other and market forces will dictate that both will lose the battle with English.

[37] See e.g. Pool (1991b) and Philipson (2003). While such a language in a sense could be said to be fair, it would imply that a billion people should give up an important part of their human capital. It would also require dictatorial power on a worldwide scale to implement as no one would take up Esperanto without the assurance that it was taught everywhere else.

12. Concluding remarks.

In many countries language policy is a very divisive issue. However, there are major economic interests at stake and so it seems quite appropriate that economics provides the basis for a rational choice. From an economic point of view, the basic facts are the heavy network effects and the commercial need for communication and trade. To compete on a world scale, Europe must have a proper infrastructure, and that includes the linguistic infrastructure.

Europeans have an economic interest in being able to communicate in some language with other Europeans and with the rest of the world. The fact is that English is the dominant language and therefore the rational solution is to choose English as the European language of communication. Actually, as documented in this paper, market forces are forcing this solution upon European politicians whether they want to acknowledge it or not. Linguists may want multilingual solutions but they are hardly unbiased observers. Typically, they have spent a lifetime learning languages and little else, whereas most people are engaged in a profession and want to communicate but have little interest in languages per se. However, serious concern is often voiced by the public with respect to two issues connected with the adoption of English as the lingua franca.

One concern is that the adoption of English would imply acceptance of a cultural domination of Great Britain and, especially, the United States. However, this view is based upon the assumption that language and culture are intimately connected, and this assumption may be disputed.[38] House (2003) makes the distinction between *languages for communication* and *languages for identification*. An Italian air captain, a Swedish biologist or a Czech receptionist may very well use English in their working life for communication without identifying with the dominant Anglo-American culture. The dominant motive for learning English is the use of English as lingua franca for work or pleasure rather than the absorption of Anglo-American literature. It used to be the case that English was intimately connected with the Anglo-Saxon world but the very logic of a lingua franca implies that this link will be loosened. In a world, where English is used as a lingua franca, it will not have the cultural implications that were formerly associated with English in the Anglo-Saxon world. A Finn may read a book in English by a Nigerian author, or a German may make hotel reservations in Egypt without any implication of embracing the Anglo-Saxon culture. The basic fact remains that without a lingua franca, the Finn would probably not be able to read the Nigerian book at all, and the German would have considerable trouble making the reservation.

The other concern is with respect to the mother tongue in a country that adopts English as an unofficial second language. If the smaller countries of Europe, e.g. Denmark and Greece, adopt English as a second language, the question is if this will imply the eventual loss of their mother tongue.[39] The answer so far would seem to be no, at least for the present generation. Greeks and Danes may take up English for business purposes but they will use Greek and Danish in their daily life. In the countries of Europe, children are brought up with their national language rather than English. English may be introduced as a second language later but their mother tongue life and their language of identification is still Greek or Danish. The protection of the national language is strongly supported by national states everywhere, and no measures have been introduced anywhere to the effect that a national language should be abandoned. On the contrary, national languages are jealously conserved in all member states in the European Union, and there is no basis for the fear of losing the mother tongue. However, economists have to fear this fear as it is a major obstacle to the provision of a lingua franca in Europe. Without an efficient means of communication, Europe will be severely handicapped in global competition.

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[38] In a Danish survey (Preisler 1999) the majority did not consider the use of English as an expression of any nation's cultural influence but thought of it in terms of "the need for a world language". 26 percent of the Danes considered the English language to be a danger to the Danish language, and 19 per cent considered it a danger to the Danish culture. These percentages are likely to be much higher in many European countries.

[39] In several countries, for example Sweden and Denmark, this aspect has been discussed in official reports; see SOU (2002) and Kulturministeriet (2003).

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Appendix: Data for part I in The Relative Importance of the European Languages

Note	Economy	WB millions of US $	Population	GDP billions of $	Code
1	Afghanistan	..	28.513.677	20.000	12
2	Albania	6.124	3.544.808	16.130	12
3	Algeria	65.993	32.129.324	194.300	9
4	American Samoa	..	57.902	500	1,4
5	Andorra	..	69.865	1.300	12
6	Angola	13.189	10.978.552	20.590	5,2
7	Anguilla		13.008	104	1,1
8	Antigua and Barbuda	757	6.832	750	1,3
9	Argentina	129.735	39.144.753	432.700	3,1
10	Armenia	2.797	2.991.360	11.790	8,2
11	Aruba	1.875	71.218	1.940	6,3
12	Australia	518.382	19.913.144	570.300	1,1
13	Austria	251.456	8.174.762	245.500	4,1
14	Azerbaijan	7.124	7.868.385	26.340	8,2
15	Bahamas, The	5.260	299.697	5.099	1,1
16	Bahrain	7.683	677.886	11.380	9
17	Bangladesh	51.897	141.340.476	258.800	12
18	Barbados	2.628	278.289	4.496	1,1
19	Belarus	17.493	10.310.520	61.910	8,2
20	Belgium Dutch 60 %	181.330	6.208.966	178.920	6,2
21	Belgium French 40 %	120.887	4.139.310	119.280	2,2
22	Belize	928	272.945	1.280	1,3
23	Benin	3.499	7.250.033	7.742	2,3
24	Bermuda	..	64.935	2.330	1,1
25	Bhutan	645	2.185.569	2.700	12
26	Bolivia	8.024	8.724.156	20.880	3,4
27	Bosnia and Herzegovina	6.963	4.007.608	24.390	12
28	Botswana	7.388	1.561.973	13.900	1,3
29	Brazil	492.338	184.101.109	1.379.000	5,1
30	British Virgin Islands		22.187	320	1,1
31	Brunei	..	365.251	6.500	12
32	Bulgaria	19.859	7.517.973	57.130	12
33	Burkina Faso	4.182	13.574.820	14.330	2,3
34	Burma		42.720.196	78.800	12
35	Burundi	669	6.231.221	3.830	2,4
36	Cambodia	4.299	13.363.421	22.760	12
37	Camaroon French 50 %	6.225	8.031.839	13.795	2,2
38	Camaroon English 50 %	6.225	8.031.839	13.795	1,2

39	Canada English 59,3 %		494.793	19.277.169	567.916	1,2
40	Canada French 23,2 %		193.578	7.541.827	222.186	2,2
41	Canada other 17,5 %		146.018	5.688.878	167.598	12
42	Cape Verde		831	415.294	600	5,3
43	Cayman Islands	..		43.103	1.270	1,1
44	Central African Republic		1.198	3.742.482	4.584	2,3
45	Chad		2.648	9.538.544	10.860	2,4
46	Chile		72.416	15.823.957	154.600	3,1
47	China		1.409.852	1.298.847.624	6.449.000	11
48	Colombia		77.559	42.310.775	262.500	3,1
49	Comoros		323	651.901	441	2,4
50	Congo, Dem. Rep.		5.600	58.317.930	35.620	2,3
51	Congo, Rep.		3.510	2.998.040	2.186	2,3
52	Cook Islands			212	105	1,3
53	Costa Rica		17.482	3.956.507	35.160	3,1
54	Côte d'Ivoire		13.734	17.327.724	24.510	2,3
55	Croatia		28.322	4.496.869	47.140	12
56	Cuba	..		11.308.764	31.590	3,1
57	Cyprus		11.385	775.927	10.117	12
58	Czech Republic		85.438	10.246.178	160.500	12
59	Denmark		212.404	5.413.392	167.700	12
60	Djibouti		625	4.669	619	2,4
61	Dominica		255	69.278	380	1,3
62	Dominican Republic		15.915	8.833.634	52.160	3,1
63	Ecuador		26.913	13.212.742	45.460	3,1
64	Egypt, Arab Rep.		82.427	76.117.421	294.300	9
65	El Salvador		14.396	6.587.541	30.990	3,1
66	Equatorial Guinea Spanish 50 %		1.447	261.526	635	3,2
67	Equatorial Guinea French 50 %		1.447	261.526	635	2,2
68	Eritrea		734	4.447.307	3.300	12
69	Estonia		8.383	1.341.664	17.370	8,2
70	Ethiopia		6.638	67.851.281	48.470	12
71	Falkland Islands (Islas Malvinas)			2.967	8	1,1
72	Faeroe Islands	..		46.662	1.000	12
73	Fiji		2.251	880.874	5.007	1,3
74	Finland		161.549	5.214.512	141.700	12
75	France		1.747.973	60.424.213	1.654.000	2,1
76	French Guiana			191.309	1.551	2,1
77	French Polynesia	..		266.339	4.580	2,4
78	Gabon		5.605	1.355.246	7.301	2,3
79	Gambia, The		386	1.546.848	2.597	1,3

80	Gaza Strip			1.324.991	768	9
81	Georgia		3.937	4.693.892	12.180	8,2
82	Germany		2.400.655	82.424.609	2.271.000	4,1
83	Ghana		7.659	20.757.032	44.490	1,3
84	Gibraltar			27.833	500	1,1
85	Greece		173.045	10.647.529	212.200	12
86	Greenland	..		56.384	1.100	12
87	Grenada		439	89.357	440	1,3
88	Guadeloupe			444.515	3.513	1,1
89	Guam	..		16.609	3.200	1,3
90	Guatemala		24.730	14.280.596	56.530	3,3
91	Guernsey			65.031	1.300	1,3
92	Guinea		3.626	9.246.462	18.870	2,3
93	Guinea-Bissau		236	1.388.363	1.164	5,3
94	Guyana		742	705.803	2.792	1,3
95	Haiti		2.745	7.656.166	12.180	2,4
96	Honduras		6.978	6.823.568	17.460	1,1
97	Hong Kong, China		158.596	6.855.125	212.200	1,4
98	Hungary		82.805	10.032.375	139.700	12
99	Iceland		10.499	293.966	8.678	12
100	India		598.966	1.065.070.607	3.022.000	1,4
101	Indonesia		208.311	238.452.952	758.100	12
102	Iran, Islamic Rep.		136.833	69.018.924	477.800	12
103	Iraq	..		25.374.691	38.790	9
104	Ireland		148.553	3.969.558	117.000	1,1
105	Israel		103.689	6.199.008	120.600	12
106	Italy		1.465.895	58.057.477	1.552.000	7
107	Jamaica		7.817	2.713.130	10.210	1,1
108	Japan		4.326.444	127.333.002	3.567.000	12
109	Jersey English 50 %			45.251	1.100	1,2
110	Jersey French 50 %			45.251	1.100	2,2
111	Jordan		9.860	5.611.202	23.640	9
112	Kazakhstan		29.749	15.143.704	105.300	8,2
113	Kenya		13.842	32.021.856	33.090	1,4
114	Kiribati		58	100.798	79	1,3
115	Korea, Dem. Rep.	..		22.697.553	22.850	12
116	Korea, Rep.		605.331	48.598.175	855.300	12
117	Kuwait		35.369	2.257.549	39.540	9
118	Kyrgyz Republic		1.737	5.081.429	7.725	8,2
119	Lao PDR		2.036	6.068.117	10.340	12
120	Latvia		9.671	2.306.306	23.770	8,2

121	Lebanon		19.000	3.777.218	17.820	9
122	Lesotho		1.135	1.865.040	5.594	1,3
123	Liberia		442	3.390.635	3.261	1,3
124	Libya		19.131	5.631.585	35.000	9
125	Liechtenstein	..		33.436	825	4,1
126	Lithuania		18.213	3.607.899	40.170	8,2
127	Luxembourg French 50 %		13.114	23.135	12.505	2,2
128	Luxembourg German 50 %		13.114	23.135	12.505	4,2
129	Macao, China		6.765	445.286	9.100	5,4
130	Macedonia, FYR		4.705	2.071.210	13.810	12
131	Madagascar		5.459	17.501.871	13.020	2,4
132	Malawi		1.731	11.906.855	6.845	1,4
133	Malaysia		103.161	23.522.482	207.200	12
134	Maldives		696	33.933	1.250	12
135	Mali		4.326	11.956.788	10.530	1,3
136	Malta		3.870	396.851	7.082	1,3
137	Man, Isle of			74.655	1.600	1,1
138	Marshall Islands		106	57.738	115	1,4
139	Martinique			42.951	6.117	2,3
140	Mauritania		1.128	2.998.563	5.195	9
141	Mauritius French 50 %		2.613	610.241	6.925	2,2
142	Mauritius English 50 %		2.613	610.241	6.925	1,2
143	Mayotte	..		186.026	85	2,3
144	Mexico		626.080	104.959.594	942.200	3,1
145	Micronesia, Fed. Sts.		241	108.155	277	1,3
146	Moldova		1.964	4.446.455	7.792	12
147	Monaco	..		3.227	870	2,1
148	Mongolia		1.188	2.751.314	4.877	12
149	Montserrat			9.245	29	1,1
150	Morocco		44.491	32.209.101	128.300	9
151	Mozambique		4.320	18.811.731	21.230	5,3
152	Namibia		4.658	1.954.033	13.720	1,3
153	Nauru			12.809	60	12
154	Nepal		5.835	27.070.666	38.070	12
155	Netherlands		511.556	16.318.199	461.400	6,1
156	Netherlands Antilles	..		218.126	2.450	6,3
157	New Caledonia	..		213.679	3.158	2,3
158	New Zealand		76.256	3.993.817	85.260	1,1
159	Nicaragua		4.100	5.359.759	11.490	3,1
160	Niger		2.730	11.360.538	9.062	2,3
161	Nigeria		50.202	137.253.133	110.800	1,3

162	Nauru			2.156	76	12
163	Northern Mariana Islands	..		78.252	900	1,3
164	Norway		221.579	4.574.560	171.600	12
165	Oman		20.309	2.903.165	37.500	9
166	Pakistan		68.815	159.196.336	317.700	1,3
167	Palau		132	20.016	174	1,4
168	Panama		12.916	3.000.463	18.620	3,1
169	Papua New Guinea		3.395	5.420.280	11.400	12
170	Paraguay		5.814	6.191.368	28.030	3,4
171	Peru		61.011	27.544.305	146.900	3,4
172	Philippines		80.574	86.241.697	390.700	1,4
173	Poland		209.563	38.626.349	426.700	12
174	Portugal		149.454	10.524.145	182.300	5,1
175	Puerto Rico		67.897	3.897.960	65.280	3,1
176	Qatar		17.466	84.029	17.540	9
177	Reunion			766.153	9.387	2,3
178	Romania		60.358	22.355.551	154.400	12
179	Russian Federation		433.491	143.782.338	1.287.000	8,1
180	Rwanda French 50 %		819	3.977.007	5.055	2,4
181	Rwanda English 50 %		819	3.977.007	5.055	1,4
182	Nauru			7.415	18	1,1
183	St. Kitts and Nevis		370	38.836	339	1,1
184	St. Lucia		693	164.213	866	1,3
185	Saint Pierre and Miquelon			6.995	48	2,1
186	St. Vincent and the Grenadines		371	117.193	339	1,3
187	Samoa		323	177.714	1.000	1,4
188	San Marino	..		28.503	940	7
189	São Tomé and Principe		54	181.565	200	5,1
190	Saudi Arabia		188.479	25.795.938	286.200	9
191	Senegal		6.496	10.852.147	16.930	1,3
192	Serbia and Montenegro		19.176	10.825.900	24.010	12
193	Seychelles French 50 %		360	40.416	313	2,2
194	Seychelles English 50 %		360	40.416	313	1,2
195	Sierra Leone		793	5.883.889	3.057	1,3
196	Singapore		91.342	4.353.893	109.100	1,4
197	Slovak Republic		31.868	5.423.567	72.290	12
198	Slovenia		26.284	2.011.473	36.890	12
199	Solomon Islands		257	523.617	800	1,3
200	Somalia	..		8.304.601	4.361	12
201	South Africa Dutch 50 %		79.943	21.359.265	228.350	1,4
202	South Africa English 50 %		79.943	21.359.265	228.350	6,4

203	Spain		836.100	40.280.780	885.500	3,1
204	Sri Lanka		18.514	19.905.165	73.490	12
205	Sudan		17.793	39.148.162	70.750	9
206	Suriname		952	436.935	1.533	6,4
207	Swaziland		1.845	1.169.241	5.702	1,4
208	Sweden		300.795	8.986.400	238.100	12
209	Switzerland German 63,7 %		197.129	4.746.202	152.753	4,2
210	Switzerland French 19,2 %		59.417	1.430.566	46.042	2,2
211	Switzerland Italian 7,6 %		23.519	566.266	18.225	7,2
212	Switzerland other 9,5%		29.399	707.832	22.781	12
213	Syrian Arab Republic		21.517	18.016.874	58.010	9
214	Taiwan			22.749.838	528.600	11
215	Tajikistan		1.303	7.011.556	6.996	8,2
216	Tanzania		9.872	36.588.225	21.580	1,4
217	Thailand		143.163	64.865.523	475.700	12
218	Togo		1.759	5.556.812	8.232	2,3
219	Tokelau			1.405	2	1,3
220	Tonga		163	110.237	236	1,3
221	Trinidad and Tobago		10.201	1.096.585	10.600	1,3
222	Tunisia		24.282	9.974.722	68.780	9
223	Turkey		237.972	68.893.918	455.300	12
224	Turkmenistan		6.010	4.863.169	27.070	8,2
225				19.956	231	12
226	Uganda		6.198	26.404.543	36.100	1,3
227	Ukraine		49.537	47.732.079	256.500	8,2
228	United Arab Emirates		70.960	2.523.915	57.700	9
229	United Kingdom		1.794.858	60.270.708	1.664.000	1,1
230	United States		10.881.609	293.027.571	10.980.000	1,1
231	Uruguay		11.182	3.399.237	42.940	3,1
232	Uzbekistan		9.949	26.410.416	44.110	8,2
233	Vanuatu French 50 %		142	101.305	282	2,4
234	Vanuatu English 50 %		142	101.305	282	1,4
235	Venezuela, RB		84.793	25.017.387	117.900	3,3
236	Vietnam		39.157	82.689.518	203.900	12
237	Virgin Islands (U.S.)	..		108.775	2.400	1,3
238	Wallis and Futuna			1.588	56	2,3
239	West Bank and Gaza		3.454	2.311.204	1.700	9
240	Yemen, Rep.		10.831	20.024.867	15.220	9
241	Zambia		4.299	10.462.436	8.596	1,3
242	Zimbabwe		8.304	12.671.860	24.030	1,3
	Total		**35.794.327**	**6.375.263.603**	51.508.937	

	World	36.356.240	6.379.157.361

1 Pashtu (official) 35%, Afghan Persian (Dari) 50%, Turkic languages (primarily Uzbek and Turkmen) 11%, 30 minor languages (primarily Balochi and Pashai) 4%, much bilingualism.

2 Albanian (official - Tosk is the official dialect), Greek.

3 Arabic (official), French, Berber dialects.

4 Samoan (closely related to Hawaiian and other Polynesian languages), English .

5 Catalan (official), French, Castilian, Portuguese.

6 Portuguese (official), Bantu and other African languages.

7 English (official).

8 English (official), local dialects.

9 Spanish (official), English, Italian, German, French.

10 Armenian 96%, Russian 2%, other 2%.

11 Dutch (official), Papiamento (a Spanish, Portuguese, Dutch, English dialect), English (widely spoken), Spanish.

12 English, native languages.

13 German (official nationwide), Slovene (official in Carinthia), Croatian (official in Burgenland), Hungarian (official in Burgenland).

14 Azerbaijani (Azeri) 89%, Russian 3%, Armenian 2%, other 6% (1995 est.).

15 English (official), Creole (among Haitian immigrants).

16 Arabic, English, Farsi, Urdu.

17 Bangla (official, also known as Bengali), English.

18 English.

19 Belarusian, Russian, other.

20 Dutch (official) 60%, French (official) 40%, German (official) less than 1%, legally bilingual (Dutch and French).

21 Dutch (official) 60%, French (official) 40%, German (official) less than 1%, legally bilingual (Dutch and French).

22 Dutch (official) 60%, French (official) 40%, German (official) less than 1%, legally bilingual (Dutch and French).

23 French (official), Fon and Yoruba (most common vernaculars in south), tribal languages (at least six major ones in north).

24 English (official), Portuguese.

25 Dzongkha (official), Bhotes speak various Tibetan dialects, Nepalese speak various Nepalese dialects.

26 Spanish (official), Quechua (official), Aymara (official).

27 Bosnian, Croatian, Serbian.

28 English (official), Setswana.

29 Portuguese (official), Spanish, English, French.

30 English (official).

31 Malay (official), English, Chinese.

32 Bulgarian, secondary languages closely correspond to ethnic breakdown.

33 French (official), native African languages belonging to Sudanic family spoken by 90% of the population.

34 Burmese, minority ethnic groups have their own languages.

35 Kirundi (official), French (official), Swahili (along Lake Tanganyika and in the Bujumbura area).

36 Khmer (official) 95%, French, English.

37 24 major African language groups, English (official), French (official).

38 24 major African language groups, English (official), French (official).

39 English 59.3% (official), French 23.2% (official), other 17.5%.

40 English 59.3% (official), French 23.2% (official), other 17.5%.

41

42 Portuguese, Crioulo (a blend of Portuguese and West African words).

43 English.

44 French (official), Sangho (lingua franca and national language), tribal languages.

45 French (official), Arabic (official), Sara (in south), more than 120 different languages and dialects

46 Spanish.

47 Standard Chinese or Mandarin (Putonghua, based on the Beijing dialect), Yue (Cantonese), Wu (Shanghaiese), Minbei (Fuzhou), Minnan (Hokkien-Taiwanese), Xiang, Gan, Hakka dialects, minority languages (see Ethnic groups entry).

48 Spanish.

49 Arabic (official), French (official), Shikomoro (a blend of Swahili and Arabic).

50 French (official), Lingala (a lingua franca trade language), Kingwana (a dialect of Kiswahili or Swahili), Kikongo, Tshiluba.

51 French (official), Lingala and Monokutuba (lingua franca trade languages), many local languages and dialects (of which Kikongo is the most widespread).

52 English (official), Maori.

53 Spanish (official), English.

54 French (official), 60 native dialects with Dioula the most widely spoken.

55 Croatian 96%, other 4% (including Italian, Hungarian, Czech, Slovak, and German).

56 Spanish.

57 Greek, Turkish, English.

58 Czech.

59 Danish, Faroese, Greenlandic (an Inuit dialect), German (small minority).

60 French (official), Arabic (official), Somali, Afar.

61 English (official), French patois.

62 Spanish.

63 Spanish (official), Amerindian languages (especially Quechua).

64 Arabic (official), English and French widely understood by educated classes.

65 Spanish, Nahua (among some Amerindians).

66 Spanish (official), French (official), pidgin English, Fang, Bubi, Ibo.

67 Spanish (official), French (official), pidgin English, Fang, Bubi, Ibo.

68 Afar, Arabic, Tigre and Kunama, Tigrinya, other Cushitic languages.

69 Estonian (official), Russian, Ukrainian, Finnish, other.

70 Amharic, Tigrinya, Oromigna, Guaragigna, Somali, Arabic, other local languages, English (major foreign language taught in schools).

71 English.

72 Faroese (derived from Old Norse), Danish.

73 English (official), Fijian, Hindustani.

74 Finnish 93.4% (official), Swedish 5.9% (official), small Sami- and Russian-speaking minorities.

75 French 100%, rapidly declining regional dialects and languages (Provencal, Breton, Alsatian, Corsican, Catalan, Basque, Flemish).

76 French.

77 French (official), Tahitian (official).

78 French (official), Fang, Myene, Nzebi, Bapounou/Eschira, Bandjabi.

79 English (official), Mandinka, Wolof, Fula, other indigenous vernaculars.

80 Arabic, Hebrew (spoken by Israeli settlers and many Palestinians), English (widely understood).

81 Georgian 71% (official), Russian 9%, Armenian 7%, Azeri 6%, other 7%.

82 German.

83 English (official), African languages (including Akan, Moshi-Dagomba, Ewe, and Ga).

84 English (used in schools and for official purposes), Spanish, Italian, Portuguese.

85 Greek 99% (official), English, French.

86 Greenlandic (East Inuit), Danish, English.

87 English (official), French patois.

88 French (official) 99%, Creole patois.

89 English, Chamorro, Japanese.

90 Spanish 60%, Amerindian languages 40% (23 officially recognized Amerindian languages, including Quiche, Cakchiquel, Kekchi, Mam, Garifuna, and Xinca).

91 English, French, Norman-French dialect spoken in country districts.

92 French (official), each ethnic group has its own language.

93 Portuguese (official), Crioulo, African languages.

94 English, Amerindian dialects, Creole, Hindi, Urdu.

95 French (official), Creole (official).

96 Spanish, Amerindian dialects.

97 Chinese (Cantonese), English; both are official.

98 Hungarian 98.2%, other 1.8%.

99 Icelandic, English, Nordic languages, German widely spoken.

100 English enjoys associate status but is the most important language for national, political, and commercial communication; Hindi is the national language and primary tongue of 30% of the people; there are 14 other official languages: Bengali, Telugu, Marat.

101 Bahasa Indonesia (official, modified form of Malay), English, Dutch, local dialects, the most widely spoken of which is Javanese.

102 Persian and Persian dialects 58%, Turkic and Turkic dialects 26%, Kurdish 9%, Luri 2%, Balochi 1%, Arabic 1%, Turkish 1%, other 2%.

103 Arabic, Kurdish (official in Kurdish regions), Assyrian, Armenian.

104 English is the language generally used, Irish (Gaelic) spoken mainly in areas located along the western seaboard.

105 Hebrew (official), Arabic used officially for Arab minority, English most commonly used foreign language.

106 Italian (official), German (parts of Trentino-Alto Adige region are predominantly German speaking), French (small French-speaking minority in Valle d'Aosta region), Slovene (Slovene-speaking minority in the Trieste-Gorizia area).

107 English, patois English.

108 Japanese.

109 English (official), French (official), Norman-French dialect spoken in country districts.

110 English (official), French (official), Norman-French dialect spoken in country districts.

111 Arabic (official), English widely understood among upper and middle classes.

112 Kazakh (Qazaq, state language) 64.4%, Russian (official, used in everyday business, designated the "language of interethnic communication") 95% (2001 est.).

113 English (official), Kiswahili (official), numerous indigenous languages.

114 I-Kiribati, English (official).

115 Korean.

116 Korean, English widely taught in junior high and high school.

117 Arabic (official), English widely spoken.

118 Kyrgyz - official language, Russian - official language.

119 Lao (official), French, English, and various ethnic languages.

120 Latvian (official), Lithuanian, Russian, other.

121 Arabic (official), French, English, Armenian.

122 Sesotho (southern Sotho), English (official), Zulu, Xhosa.

123 English 20% (official), some 20 ethnic group languages, of which a few can be written and are used in correspondence.

124 Arabic, Italian, English, all are widely understood in the major cities.

125 German (official), Alemannic dialect.

126 Lithuanian (official), Polish, Russian.

127 Luxembourgish (national language), German (administrative language), French (administrative language).

128 Luxembourgish (national language), German (administrative language), French (administrative language).

129 Portuguese, Chinese (Cantonese).

130 Macedonian 68%, Albanian 25%, Turkish 3%, Serbo-Croatian 2%, other 2%.

131 French (official), Malagasy (official).

132 English (official), Chichewa (official), other languages important regionally.

133 Bahasa Melayu (official), English, Chinese dialects (Cantonese, Mandarin, Hokkien, Hakka, Hainan, Foochow), Tamil, Telugu, Malayalam, Panjabi, Thai; note - in addition, in East Malaysia several indigenous languages are spoken, the largest are Iban and Kad.

134 Maldivian Dhivehi (dialect of Sinhala, script derived from Arabic), English spoken by most government officials.

135 French (official), Bambara 80%, numerous African languages.

136 Maltese (official), English (official).

137 English, Manx Gaelic.

138 English (widely spoken as a second language, both English and Marshallese are official languages), two major Marshallese dialects from the Malayo-Polynesian family, Japanese.

139 French, Creole patois.

140 Hassaniya Arabic (official), Pulaar, Soninke, Wolof (official), French.

141 English (official), Creole, French (official), Hindi, Urdu, Hakka, Bhojpuri.

142 English (official), Creole, French (official), Hindi, Urdu, Hakka, Bhojpuri.

143 Mahorian (a Swahili dialect), French (official language) spoken by 35% of the population

144 Spanish, various Mayan, Nahuatl, and other regional indigenous languages.

145 English (official and common language), Trukese, Pohnpeian, Yapese, Kosrean, Ulithian, Woleaian, Nukuoro, Kapingamarangi.

146 Moldovan (official, virtually the same as the Romanian language), Russian, Gagauz (a Turkish dialect).

147 French (official), English, Italian, Monegasque.

148 Khalkha Mongol 90%, Turkic, Russian (1999).

149 English.

150 Arabic (official), Berber dialects, French often the language of business, government, and diplomacy.

151 Portuguese (official), indigenous dialects.

152 English 7% (official), Afrikaans common language of most of the population and about 60% of the white population, German 32%, indigenous languages: Oshivambo, Herero, Nama.

153 Nauruan (official, a distinct Pacific Island language), English widely understood, spoken, and used for most government and commercial purposes.

154 Nepali (official; spoken by 90% of the population), about a dozen other languages and about 30 major dialects; note - many in government and business also speak English (1995).

155 Dutch (official language), Frisian (official language).

156 Dutch (official), Papiamento (a Spanish-Portuguese-Dutch-English dialect) predominates, English widely spoken, Spanish.

157 French (official), 33 Melanesian-Polynesian dialects.

158 English (official), Maori (official).

159 Spanish (official).

160 French (official), Hausa, Djerma.

161 English (official), Hausa, Yoruba, Igbo (Ibo), Fulani.

162 Niuean, a Polynesian language closely related to Tongan and Samoan; English.

163 English, Chamorro, Carolinian.

164 Bokmal Norwegian (official), Nynorsk Norwegian (official).

165 Arabic (official), English, Baluchi, Urdu, Indian dialects.

166 Punjabi 48%, Sindhi 12%, Siraiki (a Punjabi variant) 10%, Pashtu 8%, Urdu (official) 8%, Balochi 3%, Hindko 2%, Brahui 1%, English (official and lingua franca of Pakistani elite and most government ministries), Burushaski, and other 8%.

167 English and Palauan official in all states except Sonsoral (Sonsoralese and English are official), Tobi (Tobi and English are official), and Angaur (Angaur, Japanese, and English are official).

168 Spanish (official), English 14%.

169 Melanesian Pidgin serves as the lingua franca, English spoken by 1%-2%, Motu spoken in Papua region.

170 Spanish (official), Guarani (official).

171 Spanish (official), Quechua (official), Aymara, and a large number of minor Amazonian languages.

172 two official languages - Filipino (based on Tagalog) and English; eight major dialects - Tagalog, Cebuano, Ilocan, Hiligaynon or Ilonggo, Bicol, Waray, Pampango, and Pangasinense.

173 Polish.

174 Portuguese (official), Mirandese (official - but locally used).

175 Spanish, English.

176 Arabic (official), English commonly used as a second language.

177 French (official), Creole widely used.

178 Romanian (official), Hungarian, German.

179 Russian, other.

180 Kinyarwanda (official) universal Bantu vernacular, French (official), English (official), Kiswahili (Swahili) used in commercial centers.

181 Kinyarwanda (official) universal Bantu vernacular, French (official), English (official), Kiswahili (Swahili) used in commercial centers.

182 English.

183 English.

184 English (official), French patois.

185 French (official).

186 English, French patois.

187 Samoan (Polynesian), English.

188 Italian.

189 Portuguese (official).

190 Arabic.

191 French (official), Wolof, Pulaar, Jola, Mandinka.

192 Serbian 95%, Albanian 5%.

193 English (official), French (official), Creole.

194 English (official), French (official), Creole.

195 English (official, regular use limited to literate minority), Mende (principal vernacular in the south), Temne (principal vernacular in the north), Krio (English-based Creole, spoken by the descendants of freed Jamaican slaves who were settled in the Free.

196 Chinese (official), Malay (official and national), Tamil (official), English (official).

197 Slovak (official), Hungarian.

198 Slovenian 92%, Serbo-Croatian 6.2%, other 1.8%.

199 Melanesian pidgin in much of the country is lingua franca; English is official but spoken by only 1%-2% of the population.

200 Somali (official), Arabic, Italian, English.

201 11 official languages, including Afrikaans, English, Ndebele, Pedi, Sotho, Swazi, Tsonga, Tswana, Venda, Xhosa, Zulu.

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203 Castilian Spanish 74%, Catalan 17%, Galician 7%, Basque 2%.

204 Sinhala (official and national language) 74%, Tamil (national language) 18%, other 8%.

205 Arabic (official), Nubian, Ta Bedawie, diverse dialects of Nilotic, Nilo-Hamitic, Sudanic languages, English.

206 Dutch (official), English (widely spoken), Sranang Tongo (Surinamese, sometimes called Taki-Taki, is native language of Creoles and much of the younger population and is lingua franca among others), Hindustani (a dialect of Hindi), Javanese.

207 English (official, government business conducted in English), siSwati (official).

208 Swedish.

209 German (official) 63.7%, French (official) 19.2%, Italian (official) 7.6%, Romansch (official) 0.6%, other 8.9%.

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212 German (official) 63.7%, French (official) 19.2%, Italian (official) 7.6%, Romansch (official) 0.6%, other 8.9%

213 Arabic (official); Kurdish, Armenian, Aramaic, Circassian widely understood; French, English somewhat understood.

214 Mandarin Chinese (official), Taiwanese (Min), Hakka dialects.

215 Tajik (official), Russian widely used in government and business.

216 Kiswahili or Swahili (official), Kiunguju (name for Swahili in Zanzibar), English (official, primary language of commerce, administration, and higher education), Arabic (widely spoken in Zanzibar), many local languages.

217 Thai, English (secondary language of the elite), ethnic and regional dialects.

218 French (official and the language of commerce), Ewe and Mina (the two major African languages in the south), Kabye (sometimes spelled Kabiye) and Dagomba (the two major African languages in the north).

219 Tokelauan (a Polynesian language), English.

220 Tongan, English.

221 English (official), Hindi, French, Spanish, Chinese.

222 Arabic (official and one of the languages of commerce), French (commerce).

223 Turkish (official), Kurdish, Arabic, Armenian, Greek.

224 Turkmen 72%, Russian 12%, Uzbek 9%, other 7%.

225 English (official).

226 English (official national language, taught in grade schools, used in courts of law and by most newspapers and some radio broadcasts), Ganda or Luganda (most widely used of the Niger-Congo languages, preferred for native language publications in the capit.

227 Ukrainian, Russian, Romanian, Polish, Hungarian.

228 Arabic (official), Persian, English, Hindi, Urdu.

229 English, Welsh (about 26% of the population of Wales), Scottish form of Gaelic (about 60,000 in Scotland).

230 English, Spanish (spoken by a sizable minority).

231 Spanish, Portunol, or Brazilero (Portuguese-Spanish mix on the Brazilian frontier).

232 Uzbek 74.3%, Russian 14.2%, Tajik 4.4%, other 7.1%.

233 Three official languages: English, French, pidgin (known as Bislama or Bichelama), plus more than 100 local languages.

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235 Spanish (official), numerous indigenous dialects.

236 Vietnamese (official), English (increasingly favored as a second language), some French, Chinese, and Khmer; mountain area languages (Mon-Khmer and Malayo-Polynesian).

237 English (official), Spanish, Creole.

238 French, Wallisian (indigenous Polynesian language).

239 Arabic, Hebrew (spoken by Israeli settlers and many Palestinians), English (widely understood).

240 Arabic.

241 English (official), major vernaculars - Bemba, Kaonda, Lozi, Lunda, Luvale, Nyanja, Tonga, and about 70 other indigenous languages.

242 English (official), Shona, Sindebele (the language of the Ndebele, sometimes called Ndebele), numerous but minor tribal dialects.