Optimal language regimes for the European Union

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Abstract

Like other linguistically diverse institutions, the European Union promotes conflicting values as it chooses official languages. Increased activism and the admission of new states threaten a language-policy crisis. One approach to a solution is to analyze more carefully than before the universe of possible language regimes for institutions like the EU and the justifications for deeming any alternative "optimal." We can define a language regime as a set of official languages and a set of rules permitting complete mutual comprehension in a "deliberation" among representatives of language groups. If only the groups' languages and one synthetic language are relevant, if the representatives are monolingual, if translators are bilingual, and if other simplifications are assumed, there are almost five times as many potentially optimal language regimes as language groups (e.g. with nine groups, 40). We can partition the language regimes into ten classes, distinguished by their official languages and whether they translate directly, via intermediate group languages, or via the synthetic language.

The duration and urgency of the deliberation, the capacity of translation facilities, the importance of language equality, the distribution of group sizes, and the relative cost of learning the synthetic language are some conditions that determine which language regime is optimal. The prevailing conditions in the EU create a clear choice between two families of language regimes. One family satisfies the professed norm of equal language treatment by making either none or all of the groups' languages official. The other family, by making only the largest languages official, systematizes the common EU practice of sacrificing language equality for cost reduction. A victory for one normative position would favor a corresponding language regime, but a continued daily normative struggle would tend to produce complex variation in language regimes across EU agencies.

The problem

Linguistically diverse organizations have difficulty choosing "official" languages in which to do business. In governments, this choice is typically (quasi-)constitutional, analogously to choices among representation systems and boundaries. Like those, the choice of official languages appears to affect the distribution of power and the efficacy of policymaking and to evoke prolonged conflict (O'Barr and O'Barr 1976; Weinstein 1983). Apparently incompatible purposes are invoked as criteria for the choice of official languages, such as efficiency, fairness, diversity, and liberty (Pool 1991a). Efficiency seems to require a single widely known official language, but this treats the native speakers of other languages unfairly. It also induces minorities to transmit (perhaps only) the official language to their children, eroding diversity. Protecting diversity apparently requires coercion (e.g. obligatory minority-language schooling), impeding liberty. New solutions, such as automatic translation, artificial languages, or linguistic decentralization, involve costs, complications, and divergent interests, rendering them difficult to adopt or of doubtful efficacy. Governments tend to choose languages for their own and constituents' use incrementally and to consider these choices seriously, if ever, only after the problem of official languages has become a "crisis" (e.g. Das Gupta 1970; King 1977). Even then, governments typically evaluate the alternatives in an "ad hoc, haphazard, and emotionally driven" way that often appears more like paralysis than like decision making (Cooper 1989: 41; Laitin 1977).

The case of the European Union

European political integration has produced a new multilingual political system with a complex problem of official languages. Multistate governmental organizations in Western Europe have grown in power and cohesion since World War II. The European Union (or "EU"), defined mainly by the Treaties of Rome and the Treaty on European Union, contains a parliament, courts, executive bodies, regulatory agencies, and many committees. The EU draws its personnel from, and exercises governmental powers over, member states and persons within member states. These states and persons customarily use many different legal, political, and commercial languages, giving the EU a linguistically diverse staff and a linguistically diverse constituency. Language choice is naturally a recurrent question in both internal operations and official actions.

As most commonly understood (an understanding that I challenge in this work), the question how many official languages the EU should have appears difficult because the answer that seems politically best seems economically worst, while the answer that seems economically best seems politically worst. Politically, it seems clear that there should be many official languages. The EU has direct jurisdiction over citizens of its member states. The EU makes decisions that individuals are required to comply with, as if made by their own national states. If the EU wants its decisions to be considered legitimate and to be obeyed, its personnel must resemble (linguistically, as in other ways) the citizens that they regulate, and the EU must communicate its decisions to citizens in their own languages (Coulmas 1991b: 3–4; Born 1992). Official status in the EU is also likely to promote the vitality of small languages, which in some cases appears to be damaged by the economic integration that the EU is promoting (Grin 1993). Economically, however, it seems clear that there should be only one official language. This permits rapid and clear communication at low cost.

Superficially, the EU purports to have chosen a language policy closer to the politically optimal extreme than most governmental organizations have done (Coulmas 1991b: 5, 8–17). There are, for most purposes, nine "official and working" languages (Danish, Dutch, English, French, German, Greek, Italian, Portuguese, and Spanish). The EU also promotes minority languages (e.g. via the European Bureau for Lesser Used Languages), economic freedom against linguistic restrictions by member states (De Witte 1991: 166–170), the study of EU languages (e.g. the "LINGUA" program), multilingual terminology, and language processing technology (Danzin 1992). Still other EU policies, for example on harmonization of standards, terminology, migration, information, advertising, education, and culture, make contributions to the maintenance of linguistic diversity.

In reality, however, the EU exhibits a continual struggle between a policy that confers equal status on multiple official languages and a policy that selects one language for sole official use. The struggle produces various practices at various times and in various agencies. Often one language dominates, sometimes a few languages share privileges, typically the absolute equality of all official languages is true for only restricted symbolic purposes, and yet sometimes semiofficial status is conferred on languages beyond the overtly official ones. The lack of clarity results partly from the decentralization of EU official language policymaking (Coulmas 1991a, 1991b: 4–5). The Treaties of Rome confer authority (if exercised unanimously) on the Council, but it has delegated some of its powers in this domain. EU officials often consent to forego using their

countries' languages in internal business or assign persons to positions to reduce translation needs (Coulmas 1991a: 32; Haberland, personal communication; Haberland and Henriksen 1991). The Commission has curtailed interpretation where practical (Van Hoof-Haferkamp 1991: 67). The Court of Justice uses French for its internal deliberations, while for proceedings it has permitted the use of Irish (Koch 1991: 155–156). The Council, likewise, has authorized some Irish documentation. The European Parliament, particularly sensitive to the demand for linguistic accessibility (e.g. Doc. 1-306/82), has begun to give official status to Catalan (Coulmas 1991b: 32). Administrative agencies dealing with business constituents have often discriminated severely against disfavored official languages, evoking sometimes successful protests (*Süddeutsche Zeitung* 1992; *Independent* 1992). In general, thousands of local, temporary decisions determine when people speak in, write in, and translate into each language. The results vary by agency, age of officials, status of speakers and languages, and whether communication is internal or external (Coulmas 1991b: 29; Gehnen 1991; Haselhuber 1991).

With the EU becoming more active and considering the admission of additional member states, the struggle over official languages has begun to resemble a crisis over official languages. Observers have described the EU's choice of official languages as "potentially explosive" (Coulmas 1991b: 6) and as having potentially calamitous effects. Among these effects are the corruption (Born 1992; Haberland and Henriksen 1991) or death (Pavlidou 1991: 286) of languages; the collapse of translation services (Haarmann 1991: 20; Roche 1991: 144); damaging costs, delays, and misunderstandings in multilingual operations (e.g. Cwik et al. 1991; *Reuter Library Report* 1992); unfair discrimination among official languages in frequency of use, speed of translation, and deference conferred, as well as even greater discrimination against the many local languages with no official status (Ammon 1991: 81–83; Barrera i Vidal 1991; Born 1992; Coulmas 1991a: 34; Haberland and Henriksen 1991); and pressures against free choice by individuals among official languages (Roche 1991). With the costs attributable to EU official multilingualism already estimated at 26 percent to 58 percent of agencies' administrative budgets (Cwik et al. 1991: A6–9), further cost increases related to additional official languages accompanying new members would arouse understandable anxiety.

The responses to these concerns vary from demands for urgent reforms to despairing forecasts of inevitable linguistic chaos. Among the reforms that have been proposed are the officialization of one or a few official languages of member countries, an artificial (Esperanto, Glosa) or classical (Latin) language, or all languages (including Welsh, Basque, etc.)

used in the EU; relying on automatic translation; engaging in pragmatic compromises (Cwik et al. 1991; Fettes 1991; Frank and Behrmann 1977; Haarmann 1974: 166, 1991: 10–13; *Le Monde* 1990; Roche 1991); and increasing the delegation of authority to member states.

Alternative solution strategies

This complex, heterogeneous, and evolving situation gives us two contrasting strategies to choose between in seeking to discover an optimal policy on official languages for the European Union.

Strategy 1 is to emphasize feasibility. This strategy impels us to understand well the decision-making mechanisms and interests in the EU. With that knowledge, we can omit from consideration solutions that EU institutions would not foreseeably adopt. We can also design realistic paths from the status quo to our proposed alternatives, recognizing that there is no benefit in advocating a policy that would be popular and successful once adopted, if under all foreseeable conditions a coalition would arise with the power and motivation to prevent its adoption.

Strategy 2 is to emphasize justification. This strategy focuses us on the task of explaining our solution criteria and proving that they are or are not satisfied by particular solutions. This strategy also motivates a search for neglected alternatives that might be shown optimal despite the prior lack of interest in them. Strategy 2 is relatively attractive when the scholar claims analytical or generic expertise and disclaims esoteric familiarity with the political forces in the EU, and when there is reason to believe that evidence influences decisions.

Both strategies are reasonable and potentially valuable, but an attempt to pursue both at once would be of questionable wisdom. This study follows strategy 2. I begin by defining a "language regime" and describing some criteria under which language regimes might be considered reasonable for the European Union. These criteria make it possible to claim that all reasonable language regimes are analyzed. They can then be compared according to criteria of goodness, for the purpose of discovering the language regime that is optimal. I shall show that various plausible criteria of goodness produce conflicting conclusions as to the optimal language regime. Thus, there is a good reason to clarify the values that we want the language regime to serve. Moreover, interest groups in the EU that differ in values can be expected to support different language regimes.

A universe of EU language regimes

Let a *language regime* be a set of official languages and a set of rules governing their use. With this definition, it is immediately clear that the official languages of an institution do not completely define its language regime. Two institutions with different official languages must have different language regimes, but two institutions with the same official languages need not have the same language regime. Nor do the rules governing the use of official languages completely define a language regime. For example, two institutions that both require all official communication to take place in a single official language still have different language regimes if their official languages differ. Likewise, if either the official languages or the rules change, the language regime changes.

Suppose Iceland joins the EU and Icelandic becomes an official and working language of the EU. Has the language regime of the EU changed? Yes, because the set of official languages has changed. The rule governing the composition of that set (e.g. each member state may designate one official language) may have remained constant, and the rules governing use (e.g. members of the European Parliament may speak in any official language, and all speeches will be translated into all the other official languages) may remain constant, but in our sense the language regime has changed.

Suppose the EU responds to complaints of linguistic discrimination in contracting by halting its agencies' common practice of issuing requests for bids in English before (or even without) issuing them in other official languages. The official languages would remain constant, but the rules governing their use would have changed, so the language regime would have changed.

In principle, there is no limit to the set of possible rules for the use of official languages, and the limit to the set of official languages themselves is large. If we assume that there are 3,000 languages in the world and that at least one of these must be official, then the number that represents the number of possible sets of official languages contains more than 900 digits. Therefore, we obviously cannot enumerate or individually examine all the possible language regimes. If we wish to examine a universe of language regimes, it must be a limited universe, constrained by particular criteria.

To motivate some restrictions on the universe of language regimes, consider Figure 1, an imaginary table around which representatives of several language groups of different sizes gather to conduct a deliberation. The size of a language group can be thought of as proportional to the number of persons in the group, their total income, the amount of

communication that takes place in the language, or some other plausible measure. In this case, the sizes of the language groups in Figure 1 happen to be approximately proportional to the numbers of native speakers in the EU of the EU's nine official languages in the early 1990s, in alphabetical order (1 = Danish, 2 = Dutch, 3 = English, 4 = French, 5 = German, 6 = Greek, 7 = Italian, 8 = Portuguese, 9 = Spanish). But the argument that follows doesn't depend on there being nine language groups represented or on these relative group sizes.

Let us make some assumptions about the representatives and their deliberation. The representatives are, by assumption, monolingual native speakers of their respective languages, which are all different and mutually incomprehensible. The number of representatives of any language group is proportional to the size of the group. To avoid uninteresting mathematical complications, we can assume that no group has the same size as any other group. In the long run, each representative speaks the same amount. The deliberation is public among the representatives: at any time one and only one representative speaks, all other representatives listen, and all listeners must understand what each speaker says.

In this context, it is reasonable to restrict the universe of language regimes so as to exclude those that don't permit the required total comprehension. With this kind of restriction in mind, let us assume that any language regime we want to consider
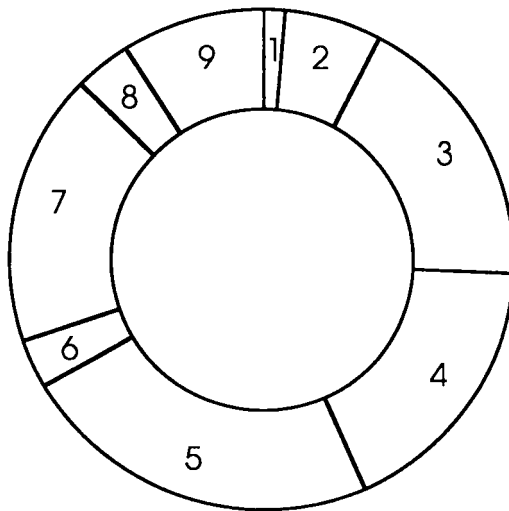

Figure 1. *Imaginary deliberation*

1. specifies a set of one or more *official languages* drawn from a set of *relevant languages*, consisting of the groups' languages and one synthetic language (which we shall number 0);

2. requires all representatives when speaking to choose among the official languages;

3. provides for translation of all speeches from their original languages into all the other official languages;

4. requires all representatives to be competent to understand speeches when speeches are available in all the official languages.

It then follows that each representative whose native language isn't an official language can, by learning any official language, participate fully as both speaker and listener in the deliberation as required by the language regime.

With the above restrictions, language regimes with a given set of official languages can differ only in how they "provide for translation." Let us call the entity administering the language regime the *administration*. Let us assume that the administration has the power to buy translation services in a market but not to alter the market's properties. For example, it must accept a fixed supply of translators, a fixed rate of productivity in translation work, and fixed rates and methods of translator compensation. Within such market conditions, the administration can buy translations from any language into any language. Since the administration must, by assumption, translate every speech into every official language other than its original language, the only choices are of *translation path*. For example, if a translation from language 2 into language 7 is required, the administration can buy direct translation from the former into the latter or, instead, from 2 into 4 and from 4 into 3 and from 3 into 7, or over any other indirect path. The paths available from any official language into any other official language are limited only by the supply of translators.

In translation markets, particular kinds of translation tend to be abundant and all others scarce or unavailable. EU agencies, for example, have found it difficult to find translators from Danish into Portuguese and would presumably find translators from Danish into Azerbaijani even scarcer. Translators usually are proficient in translating into their best-known languages, typically their native languages, and translating into these from three or fewer other languages. Translators of synthetic languages, however, can translate into as well as from them, because they typically have no native speakers and therefore no esoteric norms. As we begin our analysis, let us make some simplifying assumptions about the properties of the translation market:

1. There is a supply of translators from every relevant language into every other relevant language.

2. Every translator is competent to translate between two and only two languages.

3. Every translator who is competent to translate between language 0 and any other language is competent to translate bidirectionally. Every other translator is competent to translate only unidirectionally.

The foregoing assumptions reflect some real tendencies, while neglecting particular complexities, thereby producing an idealized, tractable problem. One neglected complexity is the difference between oral and written communication. This study uses the terms "speak," "listen," and "translate" because of their familiarity, but with no intent to restrict them to an oral or written medium (cf. "freedom of speech").

If a language regime could contain any arbitrary set of rules specifying translation paths, there would still, despite the above restrictions, be an infinite universe of language regimes. For example, a language regime could specify, as one of its rules, that every even-numbered sentence in every Italian speech whose first sentence has an odd number of syllables shall be translated into Spanish via Danish and Dutch. A rule could even specify that French speeches be translated into German, then from German into English, then from English back into German, and then from the second German translation into Spanish. Thus, translation paths within a finite set of languages could still be arbitrarily long, and the above restrictions don't even limit the size of the set of admissible intermediate languages. Moreover, a language regime could contain rules specifying translation paths even when it also specified only one official language and therefore eliminated the need for translation. Finally, a language regime could require all speeches not in a particular group's language to be translated indirectly via that language, while still not making that language official, thus forcing the group's representatives to learn a nonnative language despite the availability of all speeches in its native language. Let us restrict the alternatives open to language regimes so as to eliminate such nonsensical (and obviously wasteful) possibilities. Let us define a *simple translation-path rule* as a rule that either (1) requires all translations to be direct or (2) specifies exactly one of the official languages as an *intermediate language* and requires all translations from or into that language to be direct and all other translations to be indirect via that language. Let us then assume that translation-path rules are always "simple."

Another plausible restriction is to prohibit the specification of any group language as an official language unless all larger group languages are also official. A motivation for this restriction is that the number of

representatives required to learn any nonnative language decreases as the total of the sizes of the official languages increases. Thus, all else being equal, a language regime that officializes a larger language instead of a smaller language will reduce the total learning cost.

In the case of the EU, this restriction would imply a prohibition on making English official unless German is also official, if we define language size by number of native speakers in the EU. For anyone who finds such an application unrealistic, it is a simple matter to redefine size, for example in terms of the current number of native plus nonnative speakers. Of course, making a language official can motivate changes in language learning and thus in the distributions of both native and nonnative speakers of languages. Therefore, one can imagine this or some other restriction producing behavior that changes the implication of the restriction itself. Such dynamic effects are omitted from this analysis but deserve subsequent attention.

Let us further restrict the choice of intermediate languages to language 0 and the largest group language. If translation prices were invariant with respect to group languages, this restriction would not reduce the cost of translation, but it would also not increase that cost.

In reality, the costs of learning, translating from, and translating into larger languages tend to be lower than for smaller languages. This strengthens the motivations for the additional restrictions just described.

These further restrictions are discriminatory, but the discrimination can in principle be limited to discrimination among languages. Discrimination among representatives due to the restriction on official languages can be compensated with transfer payments from those whose languages are made official (and who therefore are spared the need to learn a nonnative language) to those whose languages are not. Discrimination among representatives due to the restriction on intermediate languages is not so obvious, but it could be asserted. Those whose language is an intermediate language would possibly benefit from the relatively high earnings of translators belonging to their group, resulting from the greater demand for their services. Such representatives would also possibly benefit from never needing to wait longer than the time for one translation before a speech is available to them, or from the greater fidelity to the original that their version of a speech would have than a version produced with indirect translation. If such discrimination exists, it can be compensated in the same manner as discrimination due to the restriction on official languages. Furthermore, these two restrictions do not require discrimination; they only permit it.

A final reasonable restriction is that the language regime may not make language 0 official if all other languages are official, unless language 0 is

an intermediate language. If all group languages were official, the only value in language 0 would be as an intermediate language, so it would be unreasonable to make it official, requiring translation into it, unless it were serving as the translation path.

With the above restrictions, we substantially constrain the universe of language regimes. The universe now consists of every language regime that satisfies all of the following conditions:

1. It specifies at least one official language, drawn from the set of relevant languages, and at most one intermediate language, drawn from the set of official languages.

2. If it specifies any group language as official, it specifies every larger group language as official.

3. If it specifies an intermediate language, the intermediate language is language 0 or the largest group language.

4. If it specifies an intermediate language, it specifies at least three official languages.

5. If it specifies all relevant languages as official, it specifies language 0 as an intermediate language.

Thus restricted, the universe of language regimes is finite, and the task of enumerating its members is feasible. If the number of groups is g, then the number of relevant languages (including language 0) is $g+1$. If language 0 is official, any number of the group languages from 0 to g can also be official. Thus, there are $g+1$ possible sets of official languages that include language 0 (language 0 alone, language 0 plus the largest group language, language 0 plus the largest 2 group languages, ..., language 0 plus the largest g [i.e. all] group languages). If language 0 is unofficial, any number of the group languages from 1 to g can be official. Thus, there are g possible sets of official languages that exclude language 0 (the largest group language, the largest 2 group languages, ..., the largest g [i.e. all] group languages). Therefore, there are $2g+1$ possible sets of official languages. Where $g=9$, for example, there are 19 possible sets of official languages.

Of the possible sets of official languages, there are always four that consist of fewer than three languages. These are the following:

(1)   Language 0
(2)   The largest group language
(3)   Language 0 and the largest group language
(4)   The two largest group languages

For each such set, there is only one possible language regime, because there are no choices to make about intermediate languages. Therefore,

there are four possible language regimes with fewer than three official languages. Of these, two include and two exclude language 0.

Of the $g+1$ possible sets of official languages that include language 0, all but two (thus, $g-1$) consist of three or more languages. For each such set, the regime may specify language 0 as the intermediate language. For each such set except the set of all languages, the regime may specify the largest group language or no language as the intermediate language. Therefore, the number of possible language regimes that make at least three languages official, including language 0, is the sum of three quantities: (1) $g-1$ regimes with language 0 intermediate, (2) $g-2$ regimes with the largest group language intermediate, and (3) $g-2$ regimes with no language intermediate. This sum is $3(g-1)-2=3g-5$.

Of the g possible sets of official languages that exclude language 0, all but two (thus, $g-2$) consist of three or more languages. For each such set, the regime may specify no intermediate language or the largest group language as the intermediate language. (It may not specify language 0 as intermediate, since language 0 is not official). Therefore, there are $2(g-2)=2g-4$ possible language regimes that make at least three languages official and do not make language 0 official.

Consequently, the set of possible language regimes is all those with fewer than three languages (4), all those with three or more languages including language 0 ($3g-5$), and all those with three or more languages excluding language 0 ($2g-4$). The total number of regimes in that set is

$$4+3g-5+2g-4=5g-5=5(g-1).$$

For the example illustrated in Figure 1, this number is 40. As the number of language groups becomes large, the number of possible language regimes approaches five times the number of language groups.

Determining the optimal language regime

With all the above restrictions, the universe of language regimes still contains many more than are usually considered serious candidates. It is tempting to hope that some general rule dooms most of these language regimes a priori. But these are the language regimes that have survived several restrictions intended to exclude unreasonable solutions. For each of these survivors, it will not be difficult to find conditions under which it is optimal.

To facilitate this exploration, we can partition the universe of language regimes into relatively homogeneous classes, as in Table 1. We shall find each of these ten classes to contain the optimal language regime under

Table 1.   *Classes of language regimes*

Class	Language 0 official?	Largest group language official?	Two or more languages official?	All group languages official?	Intermediate language	Number of EU regimes
A	yes	no	no	no		1
B	no	yes	no	no		1
C	yes	yes	yes	no		8
D	yes	yes	yes	no	language 0	7
E	yes	yes	yes	no	largest	7
F	no	yes	yes	no		7
G	no	yes	yes	no	largest	6
H	yes	yes	yes	yes	language 0	1
I	no	yes	yes	yes		1
J	no	yes	yes	yes	largest	1
Total						40

some combination of conditions. Consider the following questions, whose answers define some conditions:

1. Is the duration of the deliberation long?
2. Is the deliberation about an emergency?
3. Are the translation facilities restricted?
4. Must all group languages be treated equally?
5. Is the distribution of group sizes very nonuniform?
6. Is the cost of learning the synthetic language much lower than the cost of learning any nonnative group language?

1.   *Duration of the deliberation.*   If the deliberation is sufficiently long-lasting and the representatives' turnover is sufficiently low, the relative cost of language learning is low compared with the cost of translation. An initial investment in competence among all representatives in a shared language generates great returns. Conversely, the amount of material to be translated, if translation is used, is great, making translation unattractive. The same effect occurs if speeches during the deliberation are densely distributed over time. Other conditions producing this effect include high market prices for translation services, low values of representatives' time, and high language-learning aptitudes of representatives. A sufficient magnitude of any one or more of these conditions can make translation an inferior solution, compared with language learning. The optimal language regime is then one that requires no translation. The two language regimes in classes A and B are the only candidates. Conversely, under the opposite conditions (e.g. a brief deliberation among high-income executives who

spend much of the time eating and sleeping instead of speaking) makes the optimal language regime one that requires no language learning. Then the three language regimes in classes H, I, and J are the only candidates.

2. *Urgency of the deliberation.*   If the deliberation is about an emergency, any solution that delays the deliberation is disadvantageous. Indirect translation delays the deliberation, because it consumes twice the time of direct translation. Another condition producing the same result is a sufficiently high value of the time of the representatives. With indirect translation, simultaneous translation is impossible, and some representatives must wait for comprehensible versions of some speeches. This requires all representatives to wait until all have understood the last speech, before the next speech can begin. Thus, "urgency" would tend to be particularly great in oral deliberations, but not in written exchanges. When these conditions prevail, the optimal language regime is one that specifies no intermediate language. The 18 language regimes in classes A, B, C, F, and I are the only candidates. Under the opposite conditions (no urgency, low value of representatives' time), indirect translation does not necessarily become mandatory in the optimal language regime, but it ceases to be unacceptable.

3. *Capacity of translation facilities.*   If the space and channel capacity available for translators are restricted, these facilities impose a constraint on the optimal language regime. With sufficiently restricted facilities, the cost of facilities expansion makes any solution that exceeds the existing capacity unattractive. Other conditions producing the same effect are high travel costs to bring translators to the site of the deliberation and the existence of a salaried translation staff that has no work to do much of the time. When such conditions are sufficiently intense, the optimal language regime is one that minimizes, or reduces below some limit, the number of translators. Suppose that the set of official languages has already been specified, and now the only remaining choice is about the intermediate language. Under sufficiently extreme conditions of this kind, the optimal language regime specifies language 0 as the intermediate language. If all group languages are official, the language regime in Class H is the only candidate. If three or more languages but not all group languages are official, the applicable language regime in class D is the only candidate. Under the opposite conditions (unlimited facilities, minimal travel costs), language 0 is not ruled out as the intermediate language, but it ceases to be required. To illustrate this effect for the EU,

Table 2 shows how language 0 as the intermediate language minimizes the number of required translators.

Table 2. *Numbers of required translators with direct and indirect translation*

Number of official official languages	Number of translators when intermediate language is:		
	0	largest	none
2	2	n/a	2
3	3	4	6
4	4	6	12
5	5	8	20
6	6	10	30
7	7	12	42
8	8	14	56
9	9	16	72

4. *Equality of language treatment.* If the equal treatment of all languages is mandatory (whether legally, politically, morally, or for any other reason), then the optimal language regime makes either all group languages or no group language official. Moreover, if it makes all group languages official, it does not make the largest group language the intermediate language. Then the three language regimes in classes A, H, and I are the only candidates. Under the opposite conditions (no norm of equal treatment), these conclusions cease to follow.

5. *Distribution of group sizes.* If the group sizes are distributed sufficiently nonuniformly, it is disadvantageous to require the representatives of large groups to learn other languages, but it is disadvantageous not to require the representatives of small groups to learn other languages. The same effect arises if, for reasons other than size, the cost for representatives to learn other groups' languages varies greatly with language. Then the optimal language regime makes the languages of the large groups official but not the languages of the small groups. The 36 language regimes in classes B, C, D, E, F, and G are the only candidates. Under the opposite condition (all groups approximately the same size, no substantial differences in cost of learning nonnative group languages), this conclusion ceases to follow.

6. *Synthetic language learning cost.* If language 0 can be learned at a sufficiently small cost relative to the costs of learning nonnative group languages, then the optimal language regime, if it requires any language learning among the representatives, permits them to learn language 0.

Suppose that a decision has already been made that fewer than all group languages will be official. Then the optimal language regime includes language 0 among the official languages. If there is only one official language, it is language 0, making the language regime in class A the only candidate. If there are two or more official languages, then the 22 language regimes in classes C, D, and E are the only candidates. Under the opposite condition (language 0 costs sufficiently much to learn, relative to group languages), the optimal language regime does not make language 0 official except when it also makes language 0 the intermediate language. Then all language regimes except the 16 in classes A, C, and E are candidates.

On the basis of the above reasoning, we can determine which combinations of conditions will foreseeably make particular classes of language regimes optimal. The following scenarios are examples:

– Class A. Long deliberation, mandatory norm of equal language treatment.

– Class B. Long deliberation, synthetic language not substantially less costly to learn than group language.

– Class C. Urgent deliberation, very nonuniform group sizes, very low cost to learn synthetic language.

– Class D. Restricted translation facilities, very nonuniform group sizes, very low cost to learn synthetic language.

– Class E. Less but partly restricted translation facilities, some but not great urgency of deliberation, very nonuniform group sizes, very low cost to learn synthetic language.

– Class F. Urgent deliberation, nonuniform group sizes with more than one large group.

– Class G. Somewhat but not greatly restricted translation facilities, nonuniform group sizes with more than one large group.

– Class H. Brief deliberation, restricted translation facilities.

– Class I. Brief and urgent deliberation.

– Class J. Brief deliberation, somewhat but not greatly restricted translation facilities.

Conclusion

What conditions prevail in the European Union, and what do those conditions imply for its choice of an optimal language regime? I infer from descriptive remarks in various studies a consensual, or at least frequent, belief in the following conditions, relative to the world's typical deliberations:

1. Long duration, but high value of representatives' time.
2. Low urgency, but high value of representatives' time.
3. High capacity of translation facilities.
4. Strong norm of equal language treatment.
5. Very nonuniform group size distribution, and very nonuniform distribution of group-language learning costs.
6. Moderately low synthetic learning cost.

Condition 1 reflects best the career administrative and judicial service, less well the political administration, and least well the European Parliament. The elements of condition 2 likewise differ appreciably in fidelity from one agency to another.

Condition 5 reflects the fact (otherwise not incorporated into the assumptions of this analysis) that representatives usually arrive at EU deliberations with already-acquired high competence in particular nonnative group languages (usually in English, French, and German, in order of decreasing frequency) and much greater motivation to increase their competence in some group languages than in others.

Condition 6 mixes two ingredients: (1) the very low intrinsic learning cost of well-designed synthetic languages (Pool 1991b: 83) and (2) the low motivation among EU elites for learning a synthetic language.

If we assume that no language regime can be optimal for the EU if it violates the strong norm of equal language treatment in condition 4, then according to the above analysis the only language regimes that may be optimal are those in classes A, H, and I. Condition 1 is a mixture of forces favoring A and favoring H and I, so it is inconclusive. Condition 2 is likewise a mixture of forces favoring H and I and not favoring them. Condition 3 imposes no constraint. Condition 5 excludes all of the language regimes allowed by condition 4. Condition 6 moderately favors A.

The major conflict of conditions thus occurs between conditions 4 and 5. Condition 4 says, adopt only a language regime that treats all the groups' languages equally. Condition 5 says, adopt a language regime that takes advantage of the dominance of particular groups' languages by making those languages official and requiring the representatives of smaller groups to learn one of them.

There are two reasonable ways in which this conflict can be resolved. One is to treat the norm of equality as absolute and sacrifice the savings that could be obtained from relegating the smallest languages to unofficial status. Under this approach, one would adopt a language regime in class A, H, or I. The other way is to moderate the norm of equal language treatment into a norm of equal speaker treatment, making only the largest languages official and instituting transfer payments from their

speakers to the speakers of other languages to compensate them for their differential learning costs. Under this approach, one would adopt a language regime in class B, C, D, E, F, or G.

When asked whether or not the equal treatment of languages should be redefined or sacrificed for the sake of cost reduction, EU elites typically respond "no." When allowed to make this exchange in daily life, they often act in ways that imply "yes." This conflict between words and deeds may reflect a recognition of the crucial role this normative choice plays in determining the optimal language regime for the EU.

If the norm of equal language treatment is ratified and entrenched, we can expect to see a language regime with features suggested by classes A, H, and I. In these language regimes, all groups' languages have the same status. In class A, no group language is official; all representatives learn language 0, the synthetic language, and use it as their exclusive medium of deliberation, without any translation. In class H, all groups' languages are official, no representative needs to learn another language, and every speech is translated first into language 0 and then from language 0 into every other official language except the one in which it was given. In class I, all groups' languages are official, no representative needs to learn another language, and every speech is translated directly from its original language into every other official language.

If the norm of equal language treatment is redefined or sacrificed for cost minimization, we can expect to see a language regime with features suggested by classes B, C, D, E, F, and G. In all these classes, at least one of the groups' languages is official, but at least one is unofficial. Representatives of groups whose languages are unofficial must learn and use one of the official languages. The administration translates every speech into all the official languages other than its original language. The six classes in this group differ in three ways: (1) how many of the groups' languages are made official, (2) consequently whether any translation takes place, (3) whether language 0 is one of the languages that the speakers of unofficial languages may learn (in C, D, and E, it is; in B, F, and G, it is not), and (4) whether translation (if any) is performed directly (as in C and F), indirectly via the largest language (as in E and G), or indirectly via language 0 (as in D).

Were a decision made to let cost minimization dictate the solution, it would be reasonable to expect the administration to estimate the cost determinants and describe the policy alternatives with increased care. Data would replace the simplifying assumptions used here about the deliberation, the translation market, etc. The relative costs of variants of the 36 language regimes in classes B, C, D, E, F, and G would be estimated.

If, however, the equal treatment of languages and the minimization of cost are recognized as competing values, neither dominating the other, we can expect a more complex result. Then the particular conditions of the various EU agencies would tend to tip the scales in favor of language regimes in the A/H/I family or the B/C/D/E/F/G family. The European Parliament might adopt an A/H/I solution, most likely H or I so as to let newly elected members participate without any language learning and to preserve a record of the deliberation in each constituency's domestic official language. An agency that collects water-pollution data for use of a Commission directorate might adopt a B/C/D/E/F/G solution, most likely B, so as to avoid the cost and delay of translation when the cost of any language learning the staff requires to become competent in a shared language is relatively low. Even within an agency, language regimes could optimally vary among departments, offices, or even conversations (cf. Colomer, this issue).

Although this analysis provides no basis for a prescription of the optimal EU language regime, it does give reasons for considering 40 different language regimes potentially optimal for an institution that recognizes nine languages. How many such alternatives the EU evaluates will be one measure of how seriously it seeks to optimize its language regime.

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