The Language Auction:
A Nondiscriminatory Method of
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Abstract

When plurilingual polities select official languages, it is often presumed that the disadvantages suffered by other languages' speakers are necessary and therefore justified. This necessity presumption has recently been theoretically challenged and has been disproven under limited conditions. It has been shown in principle that an interrogation-based decision rule can, by asking 2 questions, induce 2 self-interested language groups to disclose information that will always produce an efficient and nondiscriminatory policy selecting 1 or 2 official languages.

We now describe another interrogation-based decision rule, taking the form of an auction mechanism, that has the same ability to discover an efficient and nondiscriminatory policy selecting official languages, but this rule is not restricted to 2 languages and 2 groups.

The results provide additional theoretical evidence that efficiency and the subjectivity of linguistic preferences cannot excuse discrimination against language minorities.

Language as a Human Right

There are 2 classes of human rights: the *free* and the *costly*. Free human rights are those whose denial redistributes resources but does not increase the sum of resources. Costly human rights are those whose denial redistributes resources and **does**—under some conditions—increase the sum of resources. In other words, respecting free human rights costs nothing; respecting costly human rights may cost something.

As commonly understood, the rights to racial and religious nondiscrimination are free: when these rights are denied, resources are redistributed but their sum is not increased. Indeed, it is often claimed the sum of resources is **de**creased by such discrimination. The discriminating groups gain and the discrimination victims lose, but the sum of the latter's losses exceeeds the sum of the former's gains, because of inefficiencies such as multiple facilities and arbitrary assignment of persons to work roles.

The right to due process of law and the right of the physically handicapped to equal use of public facilities are generally understood as costly. Denying them redistributes resources from defendants and the handicapped to everyone else, and under some conditions—e.g., when rights to exhaustive appeals or universal access are limited—the gain to everyone else exceeds the loss to those who lose.

Linguistic human rights are usually thought of as costly, not free. A typical account runs like this. A society contains speakers of various languages, some numerous and others few. If a government were to respect the right of every person to use that person's language in all activities where languages are used, the cost of that right would exceed the gains to its beneficiaries in the cases of languages with few speakers. For example, if every law were translated into and published in a language with 3 speakers, the cost of the translation and publication would exceed the gain to those 3 persons.

A common belief about costly human rights is that it is legitimate to respect them to some extent and to deny them beyond that extent. Typically, the point at which the legitimacy of denial is asserted is the point at which the cost of respecting the right begins to exceed the gains to those who gain from that respect.

This belief can be illustrated in the case of linguistic human rights by theoretical pronouncements and practical policies that impose limits on the extent of recognition. Kloss (1966, 7) says government operations "will soon be overtaxed, tangled, and inefficient if transacted in more than three languages." Avrorin (1975, 205), Dešeriev (1977, 259), and Guboglo (1979, 193) claim education in all students' languages would be "unnatural", "inefficient", "impossible", "impractical", and contrary to "common sense". Van Dyke (1976, 5–6) says governments must differentiate between large and small languages because they have "no other practical choice", and the idea "that claims for equal treatment in terms of language need to be balanced off against costs is a

principle that all accept." De Witte (1989, 97) says "a single user cannot demand an additional official language, but a group consisting of about half the population can legitimately do so." Canadian law provides for bilingual government services only where there is a "significant demand" (Canada, Commissioner of Official Languages 1989, 34). United States law requires states to provide voting instructions only in languages of poorly educated groups constituting at least 5% of a state or local population (42 U.S.C. § 1973aa-1a). Rubin (1984, 162) reports that California regulators, similarly, have required emergency telephone operator service in Spanish and Chinese only where their speakers constitute more than 5% of the population, and that even Spanish-language activists have demanded such service only for "cities where there are sufficient Spanish telephone users." United States judges have required public schools to use a language of 1,800 children, while saying they might not do so "when, in another case, we are concerned with a very few youngsters, or with just a single child" (*Lau v. Nichols* 1974, 572).

This pattern of interpretation of costly human rights tends to excuse discrimination, including linguistic discrimination. If respecting costly human rights beyond some extent costs more than the gains thereby acquired, then it is apparently reasonable to respect these rights up to that extent and no further. Discrimination is thereby reduced but not eliminated. The discrimination that remains appears to be justified by necessity: the need to save resources. When so justified, Van Dyke (1976) argues that one should give it another name, such as "differentiation", rather than "discrimination".

Is Linguistic Discrimination Inevitable?

This common interpretation of costly human rights, including linguistic human rights, suffers from a fallacy. It tacitly presumes that there is no way to undo the discrimination (or differentiation) left in existence by the incomplete respect of any right. But there are ways to undo discrimination. One theoretical basis for undoing discrimination is the assumption that discrimination is an unjust distribution of total resources, not an unjust distribution of particular resources. Without this assumption, the only way to undo an unjust distribution of resource A is to redistribute resource A. But, with this assumption, it is possible to undo an unjust distribution of resource A by redistributing resource B.

Reformulating this argument, we might say that the victims of discrimination suffer from both *special discrimination* and *general discrimination*. To undo all special discrimination, one must eliminate **all** discrimination. To undo all general discrimination, one need not eliminate all discrimination; instead, one can manipulate discriminatory actions in such a way that the victims of discrimination of one kind are beneficiaries of discrimination of some other kind. In other words, the balancing of special discrimination can undo general discrimination.

A version of this argument applied to linguistic rights distinguishes among

3 kinds of linguistic equality: (1) the *identical treatment of languages*, (2) the *equal treatment of languages*, and (3) the *equal treatment of speakers* (Pool 1987). The identical treatment of languages prevents—within the domain of language—all special discrimination and therefore any general discrimination. The equal treatment of languages benefits some languages in some ways and other languages in other ways, presumably conferring analogous benefits on the speakers of those languages. By balancing the benefits—e.g., posting traffic signs in language *A* and printing money in language *B*, one can treat all languages, and hence all persons, equally, practicing special but not general discrimination. The equal treatment of speakers may fail to treat languages equally, but if so then it compensates for discrimination against any language with nonlinguistic discrimination in favor of the speakers of that language, thereby again practicing special but preventing general discrimination (cf. Kelman 1971, 46).

As long as we insist only on the elimination of general discrimination, and not on the elimination of special discrimination, it is possible to adopt efficient policies—policies that maximize the sum of all resources—while also avoiding discrimination. When efficient policies result in general discrimination, other forms of discrimination can be used to compensate. The simplest form of such compensatory discrimination is the transfer of resources from those who initially suffer as victims of general discrimination to those who are its beneficiaries. In brief, the winners pay the losers.

This principle is well-known and is widely applied to the condemnation of private property for public use, but ironically it is rarely applied to rights that are generally regarded as more fundamental than the right to own private property. Perhaps it is intuitive that people can be compensated monetarily for the loss of land and buildings, but counterintuitive that people can be compensated monetarily for the loss of personal liberty, loss of the right to vote, or loss of the right to use their languages in public life.

We do not argue that people can be compensated monetarily for loss of linguistic (and other) human rights. When they cannot, they may insist on the equal treatment of languages or, in the extreme, the identical treatment of languages. For such cases, an appropriate theoretical treatment of the discrimination problem is required. We shall not attempt such a treatment here. Instead, we shall confine ourselves to the analysis of the discrimination problem when nonlinguistic compensation for linguistic discrimination is accepted as legitimate. In such cases, as we have explicated, any general discrimination that results from an efficient policy can be undone with a transfer of resources, and this compensation, since it merely transfers resources from person to person, leaves the policy efficient. In that sense, linguistic discrimination is **not** inevitable, even when efficiency is required.

Making Nondiscrimination Practical

Among the practical problems facing any attempt to compensate the victims

of discrimination is the determination of the proper amount of compensation. This problem affects not only the decision about compensation, but also the decision about the policy that produces the discrimination. In order to know which policy is efficient, one must know the gains and costs which it and other possible policies would produce. In principle, one might be able to determine the total gains and costs without knowing how they are distributed among persons, but typically one assesses the individual gains and costs, determining the aggregate gains and costs by summing those of the affected persons. Thus, ignorance of individual gains and costs would typically not only prevent one from correctly compensating the victims of discrimination but also obscure the efficient policy itself.

There are several barriers to ascertaining the gains and costs that potential policies would produce, and we shall confine ourselves here to the deception barrier. Deception may arise when affected persons disclose the gains and costs that policies would confer on them. If you are asked what some policy would cost you or benefit you, and if your answer will be used to determine whether the policy is efficient and, if it is adopted, how much compensation you should receive or pay in order to undo all general discrimination, what will you answer? Assuming that you know the true answer (a problem that we ignore here), you may find it in your interest to lie. For example, if you believe that the policy will be adopted for any answer you give within some range then you can maximize your resources by giving an answer at the extreme victimization end of that range. In other words, your interest is served when you exaggerate the damage that the policy would do to you, provided that you don't exaggerate the damage so much as to cause the policy to be abandoned for some other policy.

Under some conditions the decision-maker can determine the gains and costs without consulting those affected; the gains and costs are objectively measurable. Then the deception barrier does not exist. But under other conditions the decision-maker can't measure the gains and costs, or can't demonstrate publicly that particular gains and costs are the true ones. Under those conditions, the affected persons can attempt deception, and even if the true gains and costs are universally known privately they may not be admitted publicly. Then there is a deception barrier. Each person can claim not to have been adequately compensated, and there is no objective means to verify such claims.

To overcome the deception barrier, one can design mechanisms that will outwit would-be deceivers. In a successful mechanism, the decision is based on answers given by the persons who will be affected by the decision, but the decision rule is designed so that answers which maximize the self-interests of those who give them generate the kind of decision that the mechanism designer wants to make. In our case, a successful mechanism generates a policy that is efficient and transfers resources among the affected persons so as to undo general discrimination, despite each person's assumed desire to practice whatever deception would maximize that person's resources.

Making Official Languages Nondiscriminatory

The widely perceived conflict between efficiency and equality in the choice of official languages, discussed above, leads us to ask whether any mechanism exists for the efficient selection of official languages and the undoing of the proper compensation of those who lose. When this problem is formalized in certain plausible ways, we find a positive answer.

The first attempt to design a mechanism for this purpose was that of Pool (1991). This was the so-called "Suspicious Own-Price-Soliciting (SOPS) Language Regime". This mechanism was shown to work under certain conditions. In brief, it works where there are 2 homogeneous language groups and the only languages being considered for official status are their languages. Each group would suffer some cost (an "adoption cost") if it were required to adopt the other group's language as the official language, and each group knows not only its own but also the other group's cost. Along with the cost suffered by a group if its language is not official, there is a gain: the government is spared the cost of translating between the 2 official languages if there is only 1 official language. This translation cost is assumed to be publicly known and objectively measurable. If the translation cost exceeds the lesser of the possible adoption costs, then the efficient policy is to officialize only 1 language—that which imposes the lesser adoption cost. Otherwise, the efficient policy officializes both languages. In the former case, the policy must also specify how much the group whose language is officialized pays the other group. In the latter case, the policy must specify how much the two groups are taxed to pay for the translation.

Pool (1991) showed that by suspiciously asking the groups to disclose their own costs the government can treat the answers as if they were true and rely on them in defining the official language policy. The groups are asked for their costs in either sequence; we can call the groups "group 1" and "group 2" according to the order in which they are asked. But the government does not unconditionally believe the answers; it remains "suspicious". Suspicion is activated if group 2's answer discloses a cost that is smaller than group 1's answer, and if group 1's answer discloses a cost smaller than or equal to the known translation cost. When this happens, the government disbelieves group 1's answer and asks group 1 again. In fact, however, this suspicious element in the mechanism deters group 1 from exaggerating its cost, and because the deterrence is effective it is never necessary to ask group 1 again. Thus, this mechanism asks each group for its own cost, gets believable answers, and uses them to produce a policy, which is always efficient and always nondiscriminatory.

We can now extend the result found in Pool (1991) by offering a mechanism that works more generally. In particular, our new mechanism will relax the restriction on the number of languages under consideration and the number of groups in the polity. In order to implement an efficient, nondiscriminatory official language policy with any number of languages and any number of

groups, we shall adapt a mechanism described by Moulin (1981, 196–198). This is the "auctioning the leadership mechanism". Although the mechanism as Moulin defined it can be applied here (details are available from us), we choose to make the operation of the mechanism more intuitive by converting it from a simultaneous and secret procedure to a sequential and public one. When applied to the choice of official languages, we shall call our mechanism the *language auction*. In the case of 2 languages and 2 groups, the language auction involves more steps than the SOPS mechanism, but it applies without any size restrictions.

The language auction can be applied to groups or individuals. For the greatest generality, we assume here that it applies to groups of any *size* (number of persons) greater than 0, such that there can be several groups with the same language.

There are $2m$ steps in the language auction, where m is the number of groups. In steps 1 to m, the groups are ordered arbitrarily and labeled "group 1" through "group m", and then in that order each group is asked for a *bid*. The groups are bidding on the right to make a *proposal* for the official language policy. Each bid is announced when made, before the next bid is solicited. The group whose bid is greatest becomes the *leader*. If 2 or more bids are tied for the greatest bid, the largest-numbered (i.e. latest-bidding) group among those that made those bids becomes the leader. In step $m + 1$, the leader makes a proposal for the official language policy. The proposal specifies the set of official languages and the amount to be paid by or to each group. The only constraint on the latter is that the total surplus generated by the payments must equal the total cost of translating among all the languages that are made official by the proposal. Thus, if the proposal makes only 1 language official, thereby eliminating any translation cost, the payments by groups must have the same sum as the payments to groups. In steps $m + 2$ to $2m$, all groups except the leader, in any order, publicly reply "yes" or "no" to the proposal. But, if any group replies "no", the remaining steps are aborted.

The decision rule attached to the language auction is simple. If all replies to the proposal are "yes", the proposal is adopted. If any group replies "no", the *panlinguistic default* is adopted. The panlinguistic default is a policy that makes **every** group's language official and charges each group for the cost of translation in proportion to the group's size. Furthermore, regardless of whether the proposal or the panlinguistic default is adopted, the leader must also pay the amount of its bid to the government, which distributes it among all groups in proportion to their sizes.

In the groups' bids, in the leader's proposal, and in the nonleader groups' replies to the proposal, each group is assumed to act so as to maximize its own resources. We also make 2 assumptions about how groups break ties when they are indifferent among alternatives. Tie-breaking assumption 1: If 2 or more bids are equally resource-maximizing for a group, the group chooses the largest of those bids. Tie-breaking assumption 2: If the proposal and the panlinguistic default would be equal in the resources that they would confer on

a group, that group replies "yes". These tie-breaking assumptions are motivated by realistic considerations: the risk of collusion or bidding mistakes by subsequent bidders and sympathy with the aspirations of other groups for resource maximization. We shall not explicate these motivations further here. Without these assumptions, the analysis would be more complicated, but the predicted distribution of resources would be only infinitesimally different.

The effect of each possible official language policy on each group's resources, and the just-described choice rules followed by the groups, are assumed to be common knowledge among all groups.

Let us explore how the language auction works, in order to satisfy ourselves that it always produces an efficient and nondiscriminatory official language policy.

Some group, which we can call group i, becomes the leader and makes a proposal. In order to maximize its resources, the leader will propose a policy that gives each other group the same resources that it would get from the panlinguistic default. This will induce the other groups to give unanimous acceptance to the proposal, while conserving for the leader the entire surplus in resources generated by its proposal when compared with the panlinguistic default. Therefore, it will also be in the leader's interest to make that surplus as great as possible. The way to do this is to provide in the proposal for the adoption of the efficient set of official languages. The proposal will then be adopted, and the total resources accruing to the leader will be the same as those it would have obtained under the panlinguistic default, plus an amount equal to the surplus. From these resources, the leader will be required to pay the amount of its bid. The leader will, however, get some of this payment back. Specifically, the leader's share of its bid that it gets back is its size as a proportion of the whole population. If the population is s, and if the size of any group j is s_j, then the leader will get back $\frac{s_i}{s}$ of its bid. Thus, if we arbitrarily define the panlinguistic default as giving everyone resources of 0, if the surplus generated by the efficient set of official languages compared with the panlinguistic default is Δ, and if the leader's bid is λ_i, its resources will sum to $\Delta - \lambda_i + \frac{s_i}{s}\lambda_i$. Every group j other than the leader gets its size-proportional share of the leader's bid and nothing else, namely $\frac{s_j}{s}\lambda_i$.

Knowing this, suppose **you are group m**, i.e. the last group to bid. Let us designate the greatest previous bid as λ. If your bid λ_m at least matches λ, you become the leader. In that case, as shown above, you get $\Delta - \lambda_m + \frac{s_m}{s}\lambda_m$, which can be rewritten $\Delta - (1 - \frac{s_m}{s})\lambda_m$. If your bid is less than λ, you don't become the leader and, as shown above, you get $\frac{s_m}{s}\lambda$. Since $(1 - \frac{s_m}{s})$ is positive, your resources as leader decrease as your bid λ_m increases. Thus, if you choose to bid enough to become the leader, you will choose to bid only barely enough to become the leader. In other words, if you choose to become the leader you will do so by exactly matching the greatest previous bid, making $\lambda_m = \lambda$ and giving you resources of $\Delta - \lambda + \frac{s_m}{s}\lambda$. Conversely, if you choose not to become the leader, your resources will be independent of λ_m, leaving you indifferent among all possible bids less than λ. Consequently, you will bid an amount less than λ.

You will, then, either match the greatest previous bid or not match it. You will match the bid if

(1) $\Delta - \lambda + \dfrac{s_m}{s}\lambda \geq \dfrac{s_m}{s}\lambda$, or equivalently $\lambda \leq \Delta$,

and you will not match it if

(2) $\Delta - \lambda + \dfrac{s_m}{s}\lambda < \dfrac{s_m}{s}\lambda$, or equivalently $\lambda > \Delta$.

Suppose now that **you are some group j (other than group m)**. We shall first show that you never become the leader. We do this, in turn, by showing that you never bid more than Δ. Imagine that some other group before you had bid more than Δ. Then λ (the greatest previous bid) would be greater than Δ. If you would become the leader by at least matching λ, then by matching λ you would get $\Delta - \lambda + \dfrac{s_j}{s}\lambda$, and by exceeding λ you would get even less. If you bid less than λ you would not become the leader, and you would get at least $\dfrac{s_j}{s}\lambda$. But with $\lambda > \Delta$ the maximum amount $(\Delta - \lambda + \dfrac{s_j}{s}\lambda)$ you would get by matching or exceeding λ would be less than the minimum amount $(\dfrac{s_j}{s}\lambda)$ you would get by not matching λ. So, you would not match it.

From the foregoing result about group m we know that under these conditions group $m-1$ would indeed become the leader by at least matching λ if λ were greater than Δ. Thus, if λ were greater than Δ group $m-1$ would not match λ. The same reasoning then applies to group $m-2$, group $m-3$, and so on, back to group 2. No group after group 1 would match a maximum bid greater than Δ. Consequently, group 1 knows that it will become the leader and get $\Delta - (1 - \dfrac{s_1}{s})\lambda_1$ if its bid λ_1 is greater than Δ, and the winning bid will be Δ with group 1 getting $\dfrac{s_1}{s}\Delta$ if its bid λ_1 is equal to Δ. Comparing these 2 formulas, we see that group 1 necessarily gets more by bidding Δ than by bidding any amount greater than Δ. Therefore, group 1 will not bid more than Δ, and it follows that **no** group will bid more than Δ. This implies that inequality 2 will never be true. Thus, group m will always match the greatest previous bid. This, finally, implies that group m will always be the leader.

Having shown that you will never become the leader if you are not group m, we can derive a rule to predict your bid. Your motive is easy to determine. With group m the inevitable leader, you know you will get $\dfrac{s_j}{s}\lambda_m$. You want the most possible resources, so you want group m's bid λ_m to be as great as possible, and the greatest feasible value for λ_m is Δ. If you are group $m-1$, you therefore bid Δ yourself if the greatest previous bid is less than Δ; if the greatest previous bid is equal to Δ you likewise bid Δ, since any bid of Δ or less gives you the same resources. Thus, group $m-1$ always bids Δ and always gets $\dfrac{s_j}{s}\Delta$. Knowing this, every group prior to group $m-1$ is indifferent among all possible bids of Δ or less, since no bid in this range will alter the outcome in which group m is the leader with a bid of Δ and every group j (including group

m itself) gets $\frac{s_j}{s}\Delta$. Thus, not only groups m and $m-1$ but all groups bid Δ. The outcome is an efficient set of official languages and a set of payments that shares among all groups, in proportion to their sizes, the surplus generated by that set of languages. The set of official languages may discriminate among the groups, but the winning (and unanimously adopted) proposal includes compensation payments undoing that discrimination.

Discussion

We have described here a method for choosing a set of official languages and defining the compensation that its speakers should pay to the speakers of the languages that are not officialized. Proving theoretically that this method works does not, however, imply that it is in fact efficient to officialize fewer than all the languages used in a polity. In principle, no matter how many languages exist it is possible that the efficient policy would officialize them all. As Pool (1991, 503) points out, "it is wrong to claim … that having many official languages is necessarily inefficient. As more native languages are made official, translation costs rise but adoption costs fall. … The tendency to regard multiple official languages as inefficient may … reflect a state-centered neglect of costs incurred by individuals in adapting to language policies."

To what, then, might we owe this hypothesized neglect of citizen costs? One interpretation is that the neglect is a self-interested one. Costs are noticed when they are one's own, and neglected when they belong to others.

In this light, the language auction would be a revolutionary change in the procedures used to define official language policies. It would not merely be a more accurate instrument for the estimation of costs and gains. It would drastically change the set of agents who do the estimation. Under typical language policymaking, the authorities estimate the costs and gains of all. The authorities make languages official or unofficial on the basis of **their** beliefs about **citizens'** costs. Under the language auction, every citizen has a veto over the deofficialization of any language. Before a language may be denied official status, everyone must agree, and any compensation that anyone demands for relinquishing that status must be awarded by consent of everyone else. Unless universal agreement is achieved, the panlinguistic default is adopted: a policy that officializes every citizen's language and shares the cost of translation among all the languages on an equal per-capita basis. The panlinguistic default has the virtue of forcing no one to adopt an alien official language and thus forcing no one to estimate anyone's adoption cost. It is, thus, deception-proof.

Less obviously, the language auction, too, is deception-proof, provided that all citizens act under it so as to maximize their own resources. The language auction gives no one the opportunity to "hold the polity hostage" for an unfairly excessive compensation. If I bid enough to become the leader and I then make an exploitative proposal, it will not be unanimously accepted, and the panlinguistic default will be adopted instead. I shall be required anyway to

pay my bid to the polity. I could in that way possibly deprive the polity of resources, but I would not be willing to do so, because I, too, would be deprived. Conversely, if you become the leader and propose the efficient set of official languages with nondiscriminatory compensations, it will not be in my interest to say "no" to your proposal.

Of course, a mechanism that works when every citizen is rational does not work when at least 1 citizen is irrational. The language auction is deception-proof, but not insanity-proof. When we consider the amendments that might be desirable to convert this purely theoretical mechanism to a practical one that populations would be willing to adopt, deviations from self-interested behavior and from socially tolerated definitions of self-interest would need to be considered. Bizarre results would probably be far more frequent if each citizen participated in the auction as an individual than if whole language groups did so through representatives, smoothing individual eccentricities.

Likewise, a mechanism that works when everyone knows everyone's costs does not work when this information is incomplete. Mechanisms that will discover or approximate an efficient and nondiscriminatory official language policy when cost information is private remain to be explored.

The research agenda contains other intriguing questions as well (see Pool 1991, 512). These include the possible deterrent effect of compensation on assimilation, the incentive to misrepresent language-group membership, and the opportunity to achieve greater efficiency through linguistic federalization and specialized or partial official statuses for languages.

References

Avrorin, V. A. 1975. *Problemy izučenija funkcional'noj storony jazyka* [Problems in the study of the functional aspect of language]. Leningrad: Nauka.

Canada. Commissioner of Official Languages. 1989. *Annual Report, 1988*. Ottawa: Minister of Supply and Services Canada.

De Witte, Bruno. 1989. "Droits fondamentaux et protection de la diversité linguistique" [Fundamental rights and the protection of linguistic diversity]. In *Langue et droit* [Language and law], ed. Paul Pupier and José Woehrling. Montréal: Wilson and Lafleur, pp. 85–101.

Dešeriev, Ju. D. 1977. *Social'naja lingvistika* [Sociolinguistics]. Moscow: Nauka.

Guboglo, M. N. 1979. "Jazyk edinstva i edinstvo jazykov" [Language of unity and unity of languages]. In *Aktual'nye problemy nacional'nyx otnošenij v svete novoj konstitucii SSSR* [Current problems of nationality relations in light of the new constitution of the USSR], ed. Ju. V. Bromlej et al. Moscow: Institut istorii SSSR AN SSSR, pp. 187–202.

Kelman, Herbert C. 1971. "Language as an Aid and Barrier to Involvement in the National System". Ch. 2. In *Can Language Be Planned?*, ed. Joan Rubin

and Björn H. Jernudd. Honolulu: University of Hawaii Press, pp. 21–51.

Kloss, Heinz. 1966. "Types of Multilingual Communities: A Discussion of Ten Variables". In *Explorations in Sociolinguistics*, ed. Stanley Lieberson. Bloomington, IN: Indiana University, pp. 7–17.

Lau v. Nichols. 1974. 414 U.S. 563-72.

Moulin, Hervé. 1981. "Implementing Just and Efficient Decision-Making". *Journal of Public Economics* 16:193–213.

Pool, Jonathan. 1987. "Thinking about Linguistic Discrimination". *Language Problems and Language Planning* 11:3–21.

Pool, Jonathan. 1991. "The Official Language Problem". *American Political Science Review* 85:495–514.

Rubin, Joan. 1984. "Planning for Language Change in the United States: The Case of Monolingual Spanish Speakers". Ch. 8. In *Language and Power*, ed. Cheris Kramarae, Muriel Schulz, and William M. O'Barr. Newbury Park, CA: Sage, pp. 154–75.

Van Dyke, Vernon. 1976. "Human Rights without Distinction as to Language". *International Studies Quarterly* 20:3–38.