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Koen Jaspaert & Sjaak Kroon

The relationship between global language proficiency tests and language loss

1. Introduction

This article reports on a pilot study carried out in the context of a large scale sociolinguistic research project into processes of language shift and language loss in Turkish and Italian immigrants in the Netherlands and Flanders, the Dutch speaking part of Belgium¹. A number of methodological issues regarding the measurement of language loss will be discussed.

2. The operationalisation of language loss

An important problem in especially primary language loss research is the operationalisation of the concept language loss itself. The central question in this respect is what kind of data should be collected in order to draw conclusions on the extent to which an individual has been 'suffering' language loss.

In research projects such as our own, in which the use of spontaneous data is excluded on practical grounds (due to the large number of informants), the above problem narrows down to the question of how language loss can best be tested. Language loss research needs to make use of tests that are in essence language proficiency tests: they relate to the command of morphological categories, syntactic structures, lexicon, etc. Making decisions on the basis of the results on these tests about the existence or non-existence of language loss is a matter of interpretation. Language proficiency tests, administered to Dutch people in The Netherlands would lead to conclusions about the degree of language proficiency of these informants, and not to conclusions about language loss. In the case of e.g. Italians residing in the Netherlands, the results of tests measuring proficiency in Italian are interpreted in terms of language loss. The observed variation owes its language loss interpretation to its coincidence with the social fact immigration, which caused a rupture between the forementioned group and the Italian speech community to which they adhere. The linguistic evolution of the immigrant group is no longer concurrent with the evolution in the 'home' community, as a consequence of which there will occur differences in language behaviour, potentially leading to communication problems between the immigrant and the home groups².

Language proficiency tests used in language loss research need to meet two main requirements: they have to be reliable as language proficiency tests and they have to be valid measurements of language loss. In their demand for reliability, these tests do not differ from other language proficiency tests. The implications of the validity demand, however, are specifically related to the language loss interpretations of these tests. We will discuss them in some more detail.

1 The choice of a point of reference

Language proficiency tests can never be used directly as measures of language loss. Language loss is the difference between language proficiency observed at a certain point in time, and a certain degree of language proficiency that serves as a base line measure, as a point of reference. The choice of such a point of reference is decisive for the scope of the

language loss interpretation that is given to language proficiency data. We have discussed this issue extensively elsewhere (Jaspaert, Kroon & Van Hout 1986), and will, therefore, not elaborate on it here.

2 Interfering factors

Language proficiency tests may show a good deal of variation that is in no way relatable to language loss, even when the social conditions for the loss interpretation are fulfilled. Some of the sources of variation are typical of research in which language tests are used. Especially in combination with certain points of reference such factors can lead to misleading results. Metalinguistic knowledge and test skills, for instance, may cause an individual to be attributed a greater language proficiency than he can show in unguided language production.

As far as measuring language proficiency is concerned, a certain influence of especially metalinguistic knowledge may not be unacceptable or even undesirable. After all, the existence of (positive) influence of metalinguistic knowledge on language proficiency is generally accepted (and put into practice in, for instance, grammar teaching). The relationship between meta-linguistic knowledge and language proficiency becomes a validity problem, however, when a language loss interpretation of the data is envisaged.

When working with a theoretical point of reference - i.e. a point of reference that is not inferred from actual test results, but from an estimate of the former language proficiency of the informants - metalinguistic knowledge and test skills will not influence the point of reference and the proficiency measure in the same way. This unequal influence will result in a lower language loss rate for those informants having extensive metalinguistic knowledge and/or test skills. Imagine, for instance, that while using 100% proficiency as a point of reference, these factors would have a strong effect on the test results. This would have as a consequence that informants with a high level of schooling, the typical group in which metalinguistic knowledge and test skills may be assumed, would automatically be attributed a higher level of proficiency, and thus also a lower degree of language loss than less educated people, although the real language loss situation may be the inverse. An effect along this line was found in two pilot studies of our project with Turkish and Italian immigrants. In both cases the test items under investigation formed an implicational scale; the social correlates of these scales, however, showed that the informant rank order that resulted from it depended more on the ability to handle linguistic categories and tests than on degrees of attrition of language proficiency.

This problem can be dealt with by choosing a point of reference relative to the degree of metalinguistic knowledge and/or test skills each informant has - e.g. by measuring these factors independently and using these measures as a weight coefficient for the point of reference measure, or by introducing in the research design a control group in which a similar effect of these factors can be expected. In controlling the effects of factors such as metalinguistic knowledge and test skills in this way, one should take care that the effect itself is not too large. Otherwise the variation in the language loss measure, resulting from a subtraction of the observed language proficiency from the point of reference, will be seriously reduced.

3 The lack of information on language-structural aspects of the loss process

In order to measure the degree of language loss adequately, it is important that the language proficiency tests that are used contain the linguistic elements that are most susceptible to loss. It is, however, far from

evident which elements are likely loss candidates: research on primary language loss has scarcely proceeded beyond formulating hypotheses on, and giving salient examples of structural aspects of language loss (cf. e.g. Andersen 1982, Sharwood Smith 1983, Gonzo and Saltarelli 1983, Campbell 1980, Tosi 1984). There is an almost total lack of reliable empirical data in this respect. As a result language loss research runs the risk of working with tests that can hardly show variation due to language loss. Depending on the point of reference that is chosen, the variation that does occur may seem to be due to language loss and thus lead to an illegitimate interpretation. The implicational scales from the pilot studies mentioned earlier are striking examples in this respect.

To avoid missing language loss altogether and, consequently, misinterpreting the variation present, we constructed a fairly extensive test battery, including very diverse tasks and items. As long as structural language loss research does not provide more insight into the way the language loss process proceeds, this seems to be the safest way to measure the degree of language loss. The negative side of this way of working is that a considerable investment of time is asked from the informants.

3. The language loss tests

In view of the considerations mentioned above we constructed five language proficiency tests to investigate language loss with Italians living in The Netherlands: a correction test, an editing test, a lexicon test and two comprehension tests. We will give a short description of each³.

The correction test consisted of seven sentences incorporating 21 errors. Both interference errors and errors relating to the complexity of Italian as such were included (cf. the different hypotheses formulated in Andersen 1982). An example sentence gave an indication of what had to be done.

The editing test consisted of a 189 word text taken from an Italian popular magazine. In random places in the text 36 words from another text in the same magazine were inserted. The informants were asked to strike out the superfluous words⁴.

The lexicon test was a vocabulary test of 25 items. The words were chosen from the IBM word frequency list of Italian (Bartolini, Tagliavini & Zampolli 1971). The items were randomly selected from all words with a frequency of 3 (the lowest frequency class that is incorporated in the list), that were not inflected or declined forms of more frequent words. The informants were asked to either translate or describe the words under investigation.

Comprehension 1 consisted of 16 sentences, each referring to one photograph. The informants were asked to decide for every sentence whether it was, in view of the photograph, "true" or "false".

In comprehension 2 the informants were asked to decide to which of 15 photographs a certain sentence applied. The test contained 12 items.

In both comprehension tests we tried to keep interference stemming from visual details down to a minimum. In other words, the test concentrated on a good understanding of lexical, morphological and syntactic aspects of the sentences.

The correction and editing tests were administered as written tests, the others as oral ones.

The order in which the tests are presented here reflects a declining appeal to metalinguistic knowledge and test skills. Moreover, the specific test skills that were needed differ from test to test. The correction and editing tests, for example, appealed to the ability to find and correct linguistic errors in a written text, whereas in the comprehension tests the informants needed to be able to combine oral stimuli with visual

information.

The tests were administered to 30 informants of Italian origin, all living in the city of Nijmegen, by a bilingual testing assistant⁵. The language of instruction depended on the informants; 26 chose Italian.

In the following we will use the Nijmegen data to comment upon the reliability of the tests, upon the relationships between the tests and between the tests and a number of independent variables.

4. Reliability

For every test a reliability analysis was carried out. The results are shown in table 1.

	n items	n reliable items	Cronbach's Alpha	scale mean
correction	19	14	.85	8.7
editing	36	34	.96	19.6
lexicon	21	19	.89	15.7
comprehension 1	15/10	10/8	.56/.69	11.6/7.6
comprehension 2	8/6	6/5	.61/.67	6.9/5.0

Table 1: Reliability data of the language loss tests

A short explanation of the table:

- column 1 contains the number of items that show variation;
- column 2 contains the number of reliable items; an item is considered reliable if its removal leads to a decreasing Alpha; this criterium coincides more or less with an item-total correlation of .40;
- Cronbach's Alpha in column 3 is a measure of reliability in an additive model: it shows the extent to which items can be considered indicators of the same characteristic;
- scale mean (column 4) represents the mean score of all informants on all test items in column 1.

A first analysis with respect to Comprehension 1 and 2 made clear that a number of items did not show any relationship - or even a negative one - with the rest of the test. Therefore the analysis was carried out once again, leaving out these totally unreliable items. Hence the two rows of figures in table 1 for these tests.

Generally speaking table 1 shows that the tests have a fairly high reliability. Only the comprehension tests are somewhat disappointing: apparently some items measure completely different things from the overall characteristic the test measures. The intercorrelations between items that behave in a different way are very low, especially in Comprehension 1. In Comprehension 2 the fall-out is mainly due to the fact that informants score too high on the test (see the scale means in table 1). So, the rather poor reliability does not point towards a multidimensional solution. The other tests also show a rather strong unidimensionality. This means that, if intervening factors occur, they do not manifest themselves as a separate dimension. If metalinguistic proficiency, for example, plays a role, then it does not manifest itself as a dimension independent of language proficiency.

5. Intra-test correlations

An overview of the relationships between the different tests is presented in table 2.

The high correlation between Editing and Correction indicates that both tests measure the same characteristic. Lexicon and Comprehension 1, too,

	correction	editing	lexicon	compr.1	compr.2
correction		.84 *	.71 *	.60 *	.35 *
editing			.62 *	.57 *	.23
lexicon				.48 *	.45 *
comprehension 1					-.21
comprehension 2					

Table 2: Correlation coefficients between tests (Pearson's R)

show a rather high correlation with Editing and Correction. These correlations are indicative of the fact that the results of the four tests contain a common core of variation. It is not very likely that this core should be interpreted as testing proficiency: the proficiencies needed in Editing and Correction may well overlap, the ones needed in Lexicon and Comprehension 1 differ thoroughly from those needed in Editing and Correction and from each other.

The lack of correlation between Comprehension 1 and Comprehension 2 is surprising. These two tests were intended as just two variations on one theme both of which we wanted to test. Now it turns out that informants who score high on Editing, Correction and Comprehension 1 make as many mistakes on relevant items of Comprehension 2 as informants with low scores. However, the conclusion that Comprehension 2 is simply a poor test, may, in view of its correlation with Lexicon, be premature. The variation in the response pattern of Comprehension 2 does not seem exclusively due to a sort of perceptive skill. If that were the case, Comprehension 2 might correlate with Comprehension 1, and possibly also with Correction and Editing, but not with Lexicon.

In short, the correlations point in the direction of at least two dimensions in our results that may not simply be explainable in terms of intervening factors. We will come back to this multidimensional structure in section 7.

6. Correlations between dependent and independent variables

Table 3 gives and statistically describes the independent variables discussed in this section. Table 4 presents an overview of the relationships between the test results and these variables.

Apart from the remark that all independent variables are based on self-report and self-evaluation data, we will not discuss the operationalization of these variables here. The variables level of education, proficiency in other languages and social background are seen as indicators of interfering factors such as metalinguistic knowledge and test skills, the variables length of stay, degree of contact with Italians and nationality of partner as variables that are directly connected with the interpretation of the research results as indicators of language loss. The variable proficiency in Dutch is ambiguous with respect to this division.

Variable	Mean	Std Dev	Minimum	Maximum
social background	1.69	.76	1.00	4.00
age	43.43	8.41	17.00	54.00
stay Netherlands	19.67	6.89	5.00	35.00
education	2.00	1.36	0.0	4.00
proficiency Dutch	3.27	.74	2.00	5.00
contact Italians	3.97	.81	2.00	5.00
stay Italy	23.77	7.71	0.0	38.00
nationality partner	1.58	.50	1.00	2.00
proficiency other languages	.55	.51	0.0	1.00

Table 3: Descriptive statistics for independent variables (above line ordinal/interval variables, below line nominal variables)

	correction	editing	lexicon	compr.1	compr.2
social background	.17	.12	.14	.27	-.21
age	-.29	-.28	.09	.00	-.17
stay Netherlands	-.49 *	-.29	-.35 *	.01	-.45 *
education	.72 *	.74 *	.52 *	.53 *	.17
proficiency Dutch	.08	.14	-.24	.23	-.18
contact Italians	-.01	.12	-.20	.24	-.21
stay Italy	.12	-.05	.41 *	-.01	.22
nationality partner	.37	.33	.13	.49 *	.26
proficiency other languages	.38 *	.26	.32	.43 *	.35

Table 4: Correlation coefficients between dependent and independent variables (above line Pearson's R; below line eta's)

Level of education shows high correlations with Editing and Correction, and rather high correlations with Lexicon and Comprehension 1. These correlations largely confirm our hypothesis about the diminishing importance of metalinguistic knowledge and test skills in the tests (see section 3). In this context the significant correlation between proficiency in other languages and Correction can be mentioned, although the correlations between this variable and the other tests can less easily be interpreted in this way. The significant correlation between proficiency in other languages and Comprehension 1, for example, is striking. Perhaps some form of test skill is showing here. Comprehension 1, just as Comprehension 2 and Lexicon, are tasks that resemble the tasks that language learners in guided language acquisition have to carry out.

Length of stay in The Netherlands shows fairly high correlations with all tests but Comprehension 1. From the variables that were considered indicators of the interpretation of variation in terms of language loss, length of stay in The Netherlands is the only one that shows the expected effect. Contact with Italians does not show any significant correlation and nationality of partner even shows a significant correlation with Comprehension 1 contradictory to the hypothesis (and also fairly high contradictory correlations with Editing and Correction): informants with a Dutch partner do better on the tests than informants with a partner of

Italian origin. The variable length of stay in Italy is mainly important for Lexicon.

Generally speaking level of education and length of stay in The Netherlands, two main factors in the discussion about the interpretability of test results in terms of language loss, appear to be the most important factors, with patterns of influence that correspond to our expectations. As far as the other variables are concerned, it is difficult to give a meaningful and straightforward interpretation. The opaqueness of the correlation patterns with these factors may very well have something to do with the intercorrelations between independent variables and the small number of informants we worked with.

In order to obtain a better insight into the patterns of influence we factor-analysed the independent variables. This analysis resulted in two factors (explained variance 61.7%) that could be interpreted as the informant's position between two communities and the informant's social position with length of stay in The Netherlands and level of education respectively as the main variables. This factorial approach appears to be a promising tool for the detection of variation in the tests caused by other factors than language loss. The first factor is directly relatable to the presented language loss interpretation, whereas the second factor points much more towards the presence of other skills and proficiencies. The correlations of these factors with the test results corroborate very well the interpretation in terms of language loss and intervening factors we have presented so far. We will not elaborate on these analyses here.

7. Conclusions and perspectives

The tests that were developed seem to be reliable instruments to measure differences in language proficiency with Italian immigrants in The Netherlands⁶. Most bothersome in this respect are the two comprehension tests.

The correlations between the different tests showed that the characteristics that are measured by the tests, resemble each other greatly. Moreover, the correlations seemed to indicate that the test results can be reduced to a limited number of dimensions.

The correlations with the independent variables, finally, indicated that length of stay in The Netherlands and level of education are the most important independent variables.

The data that were gathered and the results that were obtained suggest that the tests that were developed can be used to measure language loss with Italian immigrants in The Netherlands. In section 2 we discussed the possibility that the variation measured was a reflection of variation in metalinguistic knowledge and test skills rather than variation in language proficiency. The correlations with level of education show that this possibility should be taken seriously, especially as far as Editing and Correction are concerned. However, this influence seems to depend on test skills rather than on metalinguistic knowledge. This can be inferred, among other things, from the fact that the test items that show the highest correlations with the total test results turn out to be exactly those that should not produce substantial problems from a metalinguistic point of view. Items in which, for example, a whole sentence structure has to be considered in order to be able to evaluate the (in)correctness of a word (Correction) or its superfluity (Editing) are less typical of the test as a whole than items like double articles or prepositions (Editing) or literal translations of Dutch (Correction). Since these results point towards test skills as the main intervening factor, an effort should be made to reduce the test difficulty, in a technical sense, of the editing and correction tests. This could be done by leaving out one of the two tests because their

intercorrelation is rather high. This would also mean a considerable reduction in the time investment asked from the informants. Test skill demands could also be reduced by shortening the editing test, by spreading its items more and by providing examples. During the administration of the tests it became clear that such adaptations and changes would have a considerable facilitating effect on the test in a technical sense. As far as the other tests are concerned skills other than language proficiency seem to play a less important role. Perhaps a reservation should be made for Comprehension 1. Before using this test as a language loss test, an explanation will have to be found for the large number of unreliable items (among eight variables that were not removed, there were still four with an item-total correlation far below .40). Contrary to those in Comprehension 2 the large number of unreliable items in Comprehension 1 cannot be explained by their high scores. Comprehension 1 also shows a rather odd correlation pattern with the independent variables. In this respect it is also remarkable that most of the unreliable items needed to be called "true". It may very well be that perceptual skills and the informant's disposition to search for visual details incongruent with the text play an important role here. In a test such as Comprehension 1 it may always be possible to find one reason or another, related to some detail in the photograph, to call "true" utterances "false".

The correlations with the independent variables, especially with length of stay in The Netherlands and Italy, make it possible to interpret the variation that was found in terms of declining language proficiency under the influence of migration and the coinciding process of loss of intracultural contacts, in terms of language loss in other words. The fact that the results obtained also show some variation that needs to be attributed to other sources is not a serious problem. As has been pointed out before, this variation, provided that it stays within reasonable bounds, can be controlled by using certain points of reference. Making the point of reference dependent on the level of education would already do away with most of the unwanted variation discussed in this paper. In other words, we have strong indications that via the tests a measure (or measures) for language loss can be developed.

It is important, however, not to work any longer with five different measures for what in essence is the same phenomenon, but to combine relevant information from these measures into a more limited number of dimensions. When discussing the intra-test correlations we already pointed out that this seems possible. By way of an epilogue we present an instance of such a reduction by means of a multidimensional scale analysis. This analysis results in three dimensions ($R^2 = .96$) which show exactly the correlation pattern with the tests that was expected (see table 5).

	correction	editing	lexicon	compr.1	compr.2
dimension 1	-.91 *	-.97 *	-.76 *	-.61 *	-.34 *
dimension 2	-.04	.13	-.37 *	.38 *	-.57 *
dimension 3	.07	.02	-.09	.13	-.05

Table 5: Correlation coefficients between scale dimensions and dependent variables (Pearson's R)

As to the correlations with the independent variables a pattern occurs that can easily be linked with the results of the factor analysis discussed in section 6 (see table 6).

	social backgr.	age	stay Neth.	educ- ation	prof. Dutch	cont. Ital.	stay Italy	nat. part.	prof. lang.
d 1	-.15	.24	.33*	-.74*	-.09	-.03	-.03	.32	.30
d 2	.41*	-.19	.27	.22	.43*	.33*	-.45*	.33	.19
d 3	-.20	-.43*	-.08	.17	.07	.15	-.39*	.36	.08

Table 6: Correlation coefficients between scale dimensions and independent variables (to the left of the line Pearson's R; to the right eta's)

These results also strenghten our confidence in the validity as language loss measures of the tests that were constructed. Of course, the fact remains that, in order to reach a definite conclusion in this matter, the data presented here will have to be tied to an adequate point of reference.

Notes

1. The project is being carried out at the Department of Language and Literature of the University of Brabant. It is financed by the Netherlands Organisation for the Advancement of Pure Research (ZWO), project number 300-165-020, the University of Brabant and the Belgian Fund for Fundamental Collective Research (FKFO). An extensive description of the project can be found in Jaspert & Kroon (1986).
2. Incidentally, the above view on language loss as a form of language change occurring in a certain social context that serves as a necessary as well as a sufficient condition for the loss interpretation, is not adhered to by all researchers in the field (cf. e.g. the various contributions in Weltens, De Bot & Van Els 1986).
3. The tests were constructed in cooperation with S. van Volsem, Department of Romance Philology, University of Leuven.
4. Editing tests turn out to be at least as reliable and valid as the more popular cloze-tests (cfr. e.g. Mullen 1979). Editing scores relate very well to the acceptability scores on cloze-tests, but they are much easier to compute, which in view of the large sample in our project (800 informants) is a very serious advantage.
5. Names and addressess of potential informants were provided by Kees de Bot, Institute of Applied Linguistics, University of Nijmegen; the data were gathered by Catia Cucchiardini.
6. The prudent tone of this statement is due to the limitations of our sample.

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