

## THE LANGUAGE BARRIER IN THE HUMANITIES: MEASURES OF LANGUAGE SELF-CITATION AND SELF-DERIVATION - THE CASE OF BIBLICAL STUDIES

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### Abstract

This study checks the language of cited references in research articles published in six different languages in the field of biblical studies in 1950 and 1980.

For each group of source articles published in the same language, measures of language self-citation and 'linguistic isolation' were applied and their rates calculated. The findings indicate the existence of a language barrier in all groups checked, with considerable differences regarding the extent of this barrier.

Contrary to former findings in the sciences and the social sciences, English language scholars were found in this study to be relatively heavy users of foreign language research, while the opposite was true for the German ones. French, Italian and Spanish scholars revealed preference towards publications in French and German, with much lower use of English language ones.

### INTRODUCTION

The language barrier problem in science and technology, and to a lesser extent in the social sciences, has already been discussed in the literature. All writers agree on the overwhelming importance of English in the worldwide transfer of scientific information, comprising between 40 to 80 percent of the total international communication in the sciences, depending on the discipline (1-5).

However, significantly increasing vast amounts of primary scientific material, especially in the applied and technical sciences, are being published in many other languages, mainly Russian, German, French and Japanese (1, 5-7). Actually, some argue that the best scientific research of non-English speakers is published in English anyway (4, 8), but this view is still highly disputed (1, 9).

Studies conducted recently in science and technology by Hanson (10), Wood (5), Ellen (11), Morgan (12), the Sheffield group (13) and others, indicate that English-speaking scientists and research workers make very little use of foreign language material (mainly French and German), amounting to approximately 8 to 15 percent of the material they read or cite.

In the social sciences the situation is even worse. Although about one half of the world social sciences research literature is published in foreign languages (4-7), all recent studies done, found the use of foreign language material, by English or American scholars, to be very low. Its rate ranges from zero to 12 percent (mean - 4%, mode - 1%, median - 3%) for more than twenty different studies done in various fields and years (13-20).

Concerning the humanities, the studies done, as shown in detail later, do not paint an even picture, with the rate of foreign language material varying from 0.8% up to 67%! Such a great divergency between various fields deserves a further look into the language barrier problem in the humanities. Moreover, almost all studies, including those in the sciences and the social sciences

mentioned above, were conducted from the Anglo-Saxon outlook, limiting the scope of the study to English - published sources or to English - speaking scientists and research workers. The reason might be simply the natural preference of a researcher to study his own domain, and/or the assumption that since English has become the lingua franca of the scientific world today, the main question for research is, therefore, which are the languages used by English-speaking-writing scientists and scholars. This assumption, however, does not hold for all subject fields, especially in the humanities, as shown later.

The purposes of the present study were:

1. to estimate by means of citation analysis the extent of the language barrier existing in a specific humanities field like biblical studies, not only among English-writing scholars, but among non-English ones as well;
2. to assess the changes over a period of time regarding this barrier;
3. to compare the findings to former ones in other subject fields;
4. to apply measures of 'language self-citation' and 'language self-derivation' which will help estimate the degree of the language barrier existing in a certain field. The latter measure should give an indication regarding the relative use of a certain language in a certain field by authors publishing in various languages.

#### Methodology

Two stratified samples of research articles in the area of biblical studies were randomly selected from the appropriate volumes of the index *Elenchus Bibliographicus Biblicus*, well known for its full international coverage, using the 'systematic sampling' method (21, 22). The 'target years' were 1950 and 1980, each of which contributed six equal-size sub-samples of 40 articles.

Each such sub-sample was limited to articles written in one of the following languages: English, German, French, Italian, Spanish and Hebrew. In a former study these six languages were found to comprise about 90% of the publications indexed annually by *Elenchus* (23).

Each stratified sample was limited to scholarly articles published in biblical studies during that target-year. Uncritical and unscholarly articles, which did not use the generally-accepted research tools, research methods and research literature of the field, were omitted. Also omitted from the samples were: book reviews, reprints or translations of earlier publications, articles in encyclopedias, dictionaries and lexicons, and review or bibliographical articles. Following former citation studies in other fields (24, 25) it was also decided to reject from the samples articles shorter than four pages or including less than ten references.

'Biblical studies' was defined as the discipline which is devoted to the critical scholarly study of the Bible and its history, background, languages, translations, transmission, theology, etc. For the purpose of this study, the term 'Bible' denotes: the Old Testament, the New Testament, and the Apocrypha of both. Following the 'Multistage Cluster Sampling' technique (21, 22), a quota sample of about 15 references was systematically selected from the references contained in each of the articles of the two stratified samples mentioned above. The language of each reference was recorded, as well as the language of the citing article and additional data. Naturally, references to the biblical text itself were ignored altogether, since they were considered irrelevant to our analysis. As seen in tables 1 and 2 below, even though the sub-samples were equal in size of source articles included (40 in each), they differ slightly in the number of references yielded by each sub-sample, fluctuating to around 600.

#### Measured Used

Analysis of the languages in which the cited references are written usually aims at revealing the languages upon which the research in the investigated field depends, as well as the relative use of each.

Providing that the sample of source articles (or monographs) is not confined to a certain single language, but rather comprises several sub-samples of source articles written in the various languages used in the field, it is possible, of course, to figure a rate of 'language self-citation' for each language group of source articles separately.

The measure of 'language self-citation' can be simply defined as the proportion of references made by authors in a specific scientific or scholarly field, which are written in the same language as the citing source. 'Language self-citation' is analogous to 'journal self-citation' and 'subject self-citation' (16, 26, 27), and its rate seems an indication of the degree to which researchers in a specific subject field draw upon the literature published in their own language.

A low rate of language self-citation indicates a considerable use of and dependence on the literature in other languages. On the other hand, a high rate indicates a considerable self-sufficiency, and independency of foreign languages literature. Generally speaking, one may say that the nearer the language self-citation rate in a certain field is to 100%, the less dependent are its users on foreign language material.

Using this measure by itself, however, is not enough and might give a distorted picture, since it does not give any clear indication as to either the quantity of information in foreign languages thus lost by the researchers publishing in a certain language, or its importance. We can easily imagine two different subject fields, both in which the language self-citation rate of English researchers is, say, 95%. However, in field A the research literature in English comprises 95% of the total word research output of that field, while in field B it comprises only 25% of the total output. Thus, ignoring momentarily the 'importance factor', one may correctly conclude that the situation in field B points to a much greater loss of information on the part of English publishing researchers.

The 'importance' of material existing in foreign languages is very difficult to assess and is highly disputed, as indicated above (1, 4, 8, 9). The 'quantity problem', however, is much easier to solve providing one has data regarding the approximate proportion of total published research shared by each language in a specific subject field. The actual language self-citation rate should be related to an expected rate, which is based on the assumption that, by and large, with no language barriers existing, scholars would cite publications in a specific language according to its share in the total research output of that field.

Thus, the refined measure, or what we might call the 'linguistic isolation' coefficient, for researchers who publish in a certain language in a specific field, should be:

$$\frac{\text{actual language X self-citation rate}}{\text{expected language X self-citation rate}}$$

when the expected rate is expressed by the proportion of language X in the world total published research output in that field.

A coefficient which equals 1 means a 'balanced' situation in which the authors in that field use publications in their own language proportionately to its share in the world output. The higher the coefficient above 1, the higher the degree of 'linguistic isolation' and disuse of a larger body of foreign language material. The smaller it is below 1, the higher the extent of use of foreign language literature.

At this stage an important methodological reservation is appropriate. The actual language self-citation rate in the above-mentioned formula should theoretically be related to the proportion of that language in the total research output cumulated hitherto in that subject field, rather than to its proportion in the research output of a specific target year. Unfortunately, since the cumulated proportion is much harder to figure, the target year proportion could serve ineluctably as an approximated surrogation. Looking at Tables 1 and 2, we should bear in mind, however, that this approximation will be more accurate in the sciences due to their high rate of obsolescence, and less accurate in the humanities due to their relatively slow obsolescence rate (28).

Another measure proposed here is 'language self-derivation' rate. Earle and Vickery used in 1969 the measure of 'subject self-derivation', followed by the DISISS group (29). This measure, used only in the context of subject analysis, was defined as the proportion of citations a subject field receives from itself.

It is being suggested here that this measure also be applied to the language analysis, defining it as the proportion of references in a certain language made by its own authors, as compared to the total number of references in this language made by all authors in the field. In calculating 'language self-citation' rate we ask: which languages do English authors cite?, while in calculating 'language self-derivation' rate we ask: which other language-authors cite English publications? The self-derivation rate is an indication of the extent to which publications in a specific language contribute to researchers in other languages, i.e. to what extent are these specific language publications being used by those who publish in other languages?, who are the main users?, etc. The nearer this rate is to 100%, the less other language-authors depend upon publications in this specific language. Thus, for each subject field one may make a distinction between low-used languages (with a relatively high rate of self-derivation), and widely-used languages (with a relatively low rate of self derivation). When can we expect significant differences between self-citation rate and self-derivation rate of a certain language?

Large differences are very likely to occur in two cases:

- (a) a language which is heavily cited by its own authors as well as authors in other languages. Consequently, it will get a high rate of self-citation but a low rate of self-derivation (see the case of German below);
- (b) a language which is cited sparsely by its own writers, who are its main users. Consequently, it will get a low rate of self-citation, but a high rate of self-derivation (see the case of Spanish below). This measure of self-derivation may be used, of course, only in a study which checks references in source articles sampled proportionately from all (or at least most) languages in which research in a certain field is published world-wide. This was not the case in our study, unfortunately, since reliability considerations have dictated equal size sub-samples, in which the various languages were not represented according to their proportion in the world-wide research output of biblical studies.

#### Findings and Discussion

The data gathered were sorted and summarized as presented in Tables 1 to 3. In order to verify the above findings, the raw data were analyzed also from a different angle which did not use the 'pool of references' approach, but rather considered each source article as a separate case. Actually, the frequency distribution of cited languages was calculated for each of the 480 articles separately, in order to establish for each one the proportion of references it had in its own language, against that of all other languages combined. These proportions were later averaged for each group of source articles published in the same language. The results shown in Table 3, confirm the findings presented in Tables 1 and 2, concerning both language and self-citation rates and 'linguistic isolation' coefficients.

Tables 1 and 2 indicate that:

- a) Simply speaking, concerning the current situation (1980) a clear distinction could be made between two groups: comprising on the one hand the authors who publish in English, German and Hebrew, with more than two-thirds of their references in their own mother-tongue (67% to 82%). On the other hand are the Italian, French and Spanish authors with two-thirds or more of their references to languages other than their mother-tongue (the French - 65%, the Italian - 69%, and the Spanish - 85!). Regarding the latter group, one may assume that the fact that about 90% of the total world research output in the field is not in their own mother-tongue, forces these authors to overcome the language barrier, and to use extensively, material in foreign languages. This would not explain, however, the Hebrew case.
- b) By looking back at Table 1 (1950), we may conclude that the mother-tongue bias among the first group (English, German and Hebrew) became apparently stronger during the 30 years from 1950 to 1980. The same happened also to the French, in the second group (3.5% increase), while the Italian authors reduced this bias considerably.

Table 1: Language Preference of Authors in Biblical Studies - 1950

Language of Citing Author	Language of Cited Reference (in %)								Size of Sub-sample		Estimated Proportion (a) of that Language in Total Output of Field (in %)	'Linguistic Isolation' Coefficient
	English	German	French	Italian, Latin, Greek	Spanish	Hebrew	Others	Total	References	Source Articles		
English	<u>62.3</u>	14.2	3.8	14.4	0	3.1	2.1	100%	604	40	36.8	$\frac{62.3}{36.8} = 1.7$
German	6.6	<u>70.4</u>	3.6	13.5	0.2	3.8	1.9	100%	609	40	27.1	$\frac{70.4}{27.1} = 2.6$
French	14.5	29.6	<u>31.2</u>	21.0	0.2	2.1	1.4	100%	604	40	12.0	$\frac{31.2}{12.0} = 2.6$
Italian	9.7	28.0	16.3	<u>41.0</u>	0	4.9	0	100%	607	40	7.2 (9.2) (d)	$\frac{41.0}{7.2} = 5.7$ (4.5) (d)
Spanish	13.0	26.1	27.4	14.8	<u>16.1</u>	2.3	0.2	100%	601	40	8.4	$\frac{16.1}{8.4} = 1.9$
Hebrew	12.2	13.8	1.7	3.5	0	<u>67.3</u>	1.5	100%	598	40	2.0	$\frac{67.3}{2.0} = 33.6$
Total No. of References	714	1104	507	655	99	501	43		3623	240 (c)	93.5% (b)	

(a) Estimate based on 500 items randomly sampled from Elenchus.

(b) Percentages do not sum up to 100% due to existence of publications in other than these six languages

(c) Due to a smaller output in 1950, a few monographs were added to sub-samples of French, Italian, Spanish and Hebrew, relying on our former findings which revealed no significant difference in citation patterns between articles and monographs in biblical studies (23, 27).

(d) Figure in parenthesis represents combined proportion for Italian, Latin and Greek.

Table 2: Language Preference of Authors in biblical Studies - 1980

Language of Citing Author	Language of Cited Reference (in %)								Size of Sub-sample		Estimated Proportion (a) of that Language in Total Output of Field (in %)	'Linguistic Isolation' Coefficient
	English	German	French	Italian, Latin, Greek	Spanish	Hebrew	Others	Total	References	Source Articles		
English	<u>67.4</u>	15.3	3.6	4.6	0.2	7.2	1.7	100%	610	40	33.3	$\frac{67.4}{33.3} = 2.0$
German	8.5	<u>81.7</u>	5.0	3.7	0	0.5	0.7	100%	602	40	20.8	$\frac{81.7}{20.8} = 3.9$
French	17.4	35.9	<u>34.7</u>	10.8	0	0.6	0.6	100%	609	40	11.9	$\frac{34.7}{11.9} = 2.9$
Italian	13.5	21.6	22.7	<u>30.8</u>	0	10.8	0.5	100%	607	40	8.9 (10.7) (c)	$\frac{30.8}{8.9} = 3.5$ (2.9) (c)
Spanish	16.2	23.6	25.5	15.4	<u>14.7</u>	3.9	0.7	100%	595	40	9.5	$\frac{14.7}{9.5} = 1.5$
Hebrew	13.5	9.6	1.0	2.9	0	<u>72.1</u>	1.0	100%	603	40	4.2	$\frac{72.1}{4.2} = 17.2$
Total No. of References	827	1134	559	412	88	575	31		3626	240	88.6% (b)	

(a) Estimate based on 500 items randomly sampled from Elenchus

(b) Percentages do not sum up to 100% due to existence of publications in other than these six languages.

(c) Figure in parenthesis represents combined proportion for Italian, Latin and Greek.

Table 3: Language Preference of Authors in Biblical Studies - Average Percentages

Language of Citing Author	<u>1950</u>			<u>1980</u>			No. of Articles Sampled Each Target Year
	Average Percentage of References in:		'Linguistic Isolation' Coefficient for 1950	Average Percentage of References in:		'Linguistic Isolation' Coefficient for 1980	
	Own Language	All Other Lan- guages Combined		Own Language	All Other Lan- guages Combined		
English	61.4	38.6	<u>1.7</u>	68.4	31.7	<u>2.1</u>	40
German	71.2	28.8	<u>2.6</u>	81.6	18.4	<u>3.9</u>	40
French	33.0	67.0	<u>2.7</u>	36.2	63.8	<u>3.0</u>	40
Italian	40.5	59.5	<u>5.6</u> ( <u>4.4</u> ) (a)	32.1	67.9	<u>3.6</u> ( <u>3.0</u> ) (a)	40
Spanish	16.9	83.1	<u>2.0</u>	15.8	84.2	<u>1.7</u>	40
Hebrew	65.8	34.2	<u>32.9</u>	70.8	29.2	<u>16.9</u>	40

(a) Corrected coefficient taking into consideration the combined proportion of Italian, Latin and Greek (see Tables 1 -2).

- c) Using, however, our above-mentioned 'linguistic isolation' coefficient one may get a fuller picture. Both in 1950 and 1980, authors in all six languages checked show some degree of 'linguistic isolation', which means that they cite and probably use, publications in their own language (i.e. the language of the citing article), more than that expected according to the proportion of that language in the total world-wide research output published currently in biblical studies. For all six languages checked, the difference between observed and expected frequencies (in 1950 as well as in 1980) was found to be significant in a Chi-square test on  $\alpha = 0.01$  level.

There exist, however, considerable differences between the various language groups concerning the degree of 'isolation'. The most 'isolated' are the authors publishing in Hebrew whose use of their own language in 1980 was 17 times more than its share in the total output. It should be noted that this figure represents a considerable improvement, compared to 1950 when the ratio was more than 33. But this improvement did not result from greater use of foreign languages, but rather from a two-fold increase (from 2% to 4.2%) in the proportion of Hebrew publications in the total output of the field. This case demonstrates the need to use both measures (the language self-citation and the linguistic isolation coefficient) in order to obtain a more complete picture of changes concerned with the language barrier.

The least 'isolated' authors in 1980 are the Spanish whose use of their own language only slightly exceeds its proportion world-wide. In fact, the Spanish use each of the other main languages (French, German and English) more than their own mother-tongue. A comparison to 1950 indicates even a slight improvement towards more use of foreign languages.

Behind the Hebrew authors by a wide margin the German language researchers occupy in 1980 the second place in the heavy use they make of publications in their own language. Their coefficient approaches 4 (vs. 2.6 in 1950), and the comparison to 1950 indicates that its increase has resulted from changes in both directions: an increase in the self-citation rate coupled with a decrease in the proportion of German language publications in the total output.

Third come Italian writers with a ratio of 3.5 in 1980, which indicates an improvement as compared to 5.7 in 1950. Next are the French with 2.9 in 1980 vs. 2.6 thirty years before, which might indicate a slight tendency towards stronger isolation. Similarly, English language authors, who were the least isolated in 1950 (only 1.7 ratio), stepped down to second place in 1980, with their language self-citation rate exceeding their share in the total output only two-fold.

- d) Mutual use of languages. As a matter of fact, it is possible to construct a coefficient matrix, by calculating for each language-group of citing authors the proportion of the use they make in a certain language, related to that language proportion in the total world output. Thus, for example, the 1980 coefficient of use of German publications by English writers would be:

$$\frac{15.3}{20.8} = 0.74,$$

while the coefficient for English-language publications used by German writers would be only:

$$\frac{8.5}{33.3} = 0.25.$$

Due to space limitations we will not give the whole matrix, but rather limit our discussion to the most remarkable cases of unbalanced use (coefficients given in parentheses). It seems that in 1950, English writers cited German and French publications much less than these languages share in the total output (0.52 and 0.32 respectively). In 1980, however, the gap concerning German publications is smaller (0.74).

Regarding researchers who publish in German, the gap is much larger. Their use of English language publications amounted in 1950 to only one-sixth (6.6% vs. 36.8%) and in 1980 to about one-fourth (8.5% vs. 33.3%) of the English language share in the total output. Their use of French follows a similar pattern.

Strikingly, the three other continental languages authors (French, Italian and Spanish) reveal a common pattern: they use publications in English much less than the latter's proportion in the total output (with some increase from 1950 to 1980).

They use German-language publications according to their world-wide proportion or even more, and they use French-language publications about twice or more than their world-wide proportion! Despite the fact that in the total research output, publications in English outnumber those in German about 3 to 2, the use of German and French language publications by these continental authors is much higher. One cannot escape the impression that citation patterns of these continental authors indicate clear preference of German and French to the English language.

At least two possible factors might be suggested to explain this preference:

1) the language barrier, i.e. the Continental authors are more fluent in German and French than in English.

2) the religious barrier, i.e. Catholic biblical scholars (= French, Italian, Spanish) tend to rely on, and cite, research done by other Catholic scholars more than research done by scholars from other denominations. This might also explain their heavy use of French material amid a lower use of the German one. This explanation falls into line with Whalen's findings regarding theological dissertations writers in the United States. Whalen found, in 1960, remarkable differences between Protestant and Catholic writers concerning the language of the cited references. While 80% of the Protestant references were to English language publications, 3% to French and none to Latin, the Catholics gave only 26% to English ones, 26% to French and 38% to Latin! (30)

The same explanation might account also for the very high rates of language self-citation and 'linguistic isolation' found among authors who publish in Hebrew.

Our data did not allow clear and definite conclusion in regard to this point and further research is needed. One should note, however, the remarkable absolute lack of use of Spanish material (comprising about 10% of total output) by French - and Italian-language researchers, despite the common religious affiliation. It might indicate that, at least in the Spanish language case, the religious factor was not strong enough to overcome the language barrier.

Remarkable also are the rates of publications in Hebrew cited by English, Italian and Spanish authors, often exceeding the Hebrew proportion in the total output. An in-depth check reveals that most of these references are either to classical sources (rather than to modern biblical research in Hebrew), or made by Jewish scholars who publish in English, but refer to publications in Hebrew as well.

- e) A comparison to former studies. Comparative findings for humanities fields could be found mainly concerning the citation behavior of English writing authors, and they are presented in Table 4.

Table 4 indicates that, relatively to other fields, English language authors in the field of biblical studies use foreign language literature to a considerable extent (i.e. around one-third of their references). The similarity to the figure found for the humanities as a whole in the Sheffield study (38.3%) is remarkable (13). Allardyce (41) also found in 1975 a very close figure for lendings in the humanities by the British Library Lending Division (BLLD).

Concerning use of foreign language literature by French scientists, Louttit (42) found in 1952 in physics and chemistry a heavy citing (about 70%) of foreign language research, mainly in English (50%, 37% respectively) and German (15%, 28%). Michel (1) presents similar figures regarding French scientists who published their primary research in English in 1981: 55% in physics (31% in 1976), and 45% in chemistry (16% in 1976), with the rest in French. In

Table 4: Language Distribution of Cited References in English Language Publications in Various Humanities Fields (including History)

Subject Field	% of References to Publications in		Total
	English	Foreign Languages	
U.S. History (Alston - 1952) (31)	99.2	0.8	100
American Literature (Gleaves - 1960) (32)	97.4	2.6	100
American Studies (Bolles - 1975) (25)	97.1	2.9	100
U.S. History (McAnally - 1938) (24)	96.4	3.6	100
Library Science (Barnard - 1955-56) (33)	94.5	5.5	100
Speech (Broadus - 1953) (34)	92.0	8.0	100
English History (Jones a.o. - 1968-69) (35)	92.3	7.7	100
English Literature & Philology (Heinzkill - 1972-74) (36)	91.0	9.0	100
Theology (Whalen - 1960) (30)	78.1	21.9	100
Biblical Studies (Yitzhaki - 1980)	67.4	32.6	100
Biblical Studies (Yitzhaki - 1950)	62.3	37.7	100
Humanities (Sheffield study - 1969) (13)	61.7	38.3	100
Music (Vaughan - 1953-58) (37)	57.3	42.7	100
Theology (Heussman - 1965)(a) (38)	52.6	47.4	100
Philology (Tucker - 1956-57) (39)	45.5	54.5	100
Fine Arts (Simonton - 1948-57) (40)	44.9	55.1	100
	32.7	67.3	100

(a) Sample of source articles included few non-English items also.

engineering, biology and earth sciences, the proportions of English for 1981 were lower (29%, 25% and 16% respectively), but they also have increased considerably compared to 1976. It is likely to assume that the rate of citing foreign language research is usually higher than the rate of publishing in that foreign language.

As regards psychology - Louttit (42) found that about 35% of the references of French language authors in 1952 were to foreign language publications (mainly: English - 26%, German - 7%). Regarding fine arts, Simonton (40) found in French journals (published in 1948-57), 56% references to foreign languages (mainly: English - 21%, German - 18%).

Thus our data indicate that the citation rate of foreign language material by French biblical scholars (about two-thirds) is among the highest found, relatively to the French pattern in other fields checked.

Concerning German language authors: Louttit's and Simonton's studies (42, 40) compared with ours, indicate a very low use of foreign language material in psychology (9%), much higher use in physics and chemistry (42%, 36%), with the humanities in the middle with moderate rates of 24% for fine arts, and 29% (1950) - 18% (1980) for biblical studies.

Regarding Italian language researchers the comparison indicates a high rate of use of foreign language material in both psychology (75%) and biblical studies (60%-70%), vs. somewhat lower use in fine arts (47.5%). Spanish use of foreign language material is even higher in biblical studies (85%), same as the Italian in psychology (75%), but considerably lower in fine arts (30%), approaching the rate found among German language scholars in that field.

#### Possible Explanations

A high rate of language self-citation revealed in a citation analysis may result, of course, from a relative lack of research literature in foreign languages. However, if figures show that a large body of literature in foreign languages does exist in that specific field, then one might think of other possible explanations, all of which are associated, directly or indirectly, with the language barrier:

1. A lack of knowledge, or fluency, of foreign languages.
2. Unavailability or inaccessibility of the foreign language material.
3. A tendency to give the local reader references in his own mother-tongue in order to make things easier for him.
4. A use of 'second-hand' foreign-language material, i.e. a researcher citing his own language publications which had made use of foreign-language material.
5. A use of translated material. In most fields there is, as is well known, some amount of important publications of foreign research which were translated into the local language. In biblical studies it usually concerns monographs, series of commentaries, etc.

The last two kinds of use would not usually be counted in a citation analysis as citations to foreign language material, but they are in fact such. It seems that further research is needed to ascertain which of the above-mentioned factors do play a significant role in the field of biblical studies, and what are their relative weights.

#### Conclusions

Contrary to former findings in various disciplines in the sciences and the social sciences, which present English publishing authors and English speakers as the worst offenders for excluding references to, or use of, foreign languages, our findings regarding the field of biblical studies indicate that, except for the Spanish, the English-publishing scholars have been the least linguistically isolated, while the German ones are indicated to be the most linguistically isolated, surpassed only by the Hebrew ones. Moreover, European scholars (French, Italian, and Spanish) who in former studies show a wide use of English publications (1, 17, 40, 42), reveal here heavy use of the main continental languages (French and German), against a relatively much lower use of publications in English.

Using biblical studies as a case in point, one may assume that the pattern in the humanities, as revealed in citation analysis, might be entirely different from that in the sciences and the social sciences, as far as the language barrier is concerned.

It is difficult to determine conclusively to what extent the pattern revealed in biblical studies is typical of other subject fields in the humanities. Further research will be needed, both concentrating on each field separately, and checking not only patterns of English publishing authors but also those of authors in other languages dominant in that field.

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