A bibliometric analysis of linguistics in web of science

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ABSTRACT

The present study investigated the bibliometric characteristics of linguistics as represented in Web of Science (WoS), focusing on the number of linguistics publications between 1900 and 2013 in the Social Science Citation Index (SSCI) and between 1975 and 2013 in the Arts and Humanities Citation Index (A&HCI). Results showed that between 1975 and 2013, SSCI covered a total of 54,263 (0.86% of all SSCI) publications in the language linguistics category, 99,502 (1.61% of all SSCI) publications in the linguistics category, and 109,469 (1.81% of all SSCI) publications in the linguistics research area. Additionally, A&HCI covered a total of 187,239 (4.37% of all A&HCI) in the language linguistics category, 64,356 (1.48% of all A&HCI) in the linguistics category, 193,619 (4.52% of all A&HCI) publications in the linguistics research area. As SSCI and A&HCI have expanded over the years, the number of linguistics publications has increased as well. On average, SSCI ranked the language linguistics category no. 62.51, linguistics category no. 35.3, and the linguistics research area no. 21.69; whereas, A&HCI ranked the language linguistics category no. 9.33, linguistics category no. 22.15, and the linguistics research area no. 7.92. Based on these results, we can conclude that linguistics is an important field in both the social sciences and arts and humanities as covered in WoS.

Keywords: Arts and Humanities Citation Index, bibliometric analysis, linguistics, Social Science Citation Index

INTRODUCTION

Citation indices such as Web of Science (WoS) are of paramount importance for storing, accessing, and disseminating information in previous and current scientific research. Publications covered by prominent citation indices have already gained importance for scientific productivity, publication quality and competition across universities and research institutes (inter) nationally. They have also become very important for new graduates in job hunting, for the promotion of faculty members and respectability of researchers.^[1-5] Citation indices also offer bibliometrics of scientific publications across diverse fields of study. Linguistics as the scientific study of language is

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one of such fields covered in the Social Science Citation Index (SSCI) of WoS, which provides information about social science publications since 1900, and the Arts and Humanities Citation Index (A&HCI) of WoS, which provides information about publications in the arts and humanities since 1975. What are the main bibliometric characteristics of linguistics in these citation indices? This study is the first attempt to examine the status of the field of linguistics in WoS by providing year-by-year analyses and comparisons of the number of publications, ratios to overall publications, and rankings in the language linguistics, linguistics categories, and the linguistics research area in SSCI between 1900 and 2013, and in A&HCI between 1975 and 2013.

Linguistics is not a new field of study. The early modern linguists were von Humboldt and Saussure in the 19th century and Bloomfield in the early 20th century. The field began to gain prominence in cognitive science with the works of Noam Chomsky, starting with his dissertation, which argued against the behaviorist view in social sciences and started what is called the cognitive revolution.^[6] Linguistics had a major debate called the Linguistic Wars, in 1960s and 1970s between two camps of Chomskyans.^[7] Today, in addition to Chomskyan linguistics, which is still the leading theoretical approach to language analysis, there are a variety of theoretical approaches such as functional linguistics and cognitive linguistics in the study of natural human languages. Linguistics also intersects with other research areas, resulting in cross disciplinary fields of study such as psycholinguistics (psychology and linguistics), sociolinguistics (sociology and linguistics), neurolinguistics (neuroscience and linguistics), and computational linguistics (computer science and linguistics), among others.

As with many social sciences, arts, and the humanities, linguistics publications are indexed in specialized databases.

Table 1: Number of publications covered in SSCI andA&HCI between 1900 and 2013

	1900-2013	1975-2013
SSCI and A&HCI	11,368,867	9,580,546
SSCI	7,631,256	5,842,935
A&HCI	NA	4,264,304

SSCI=Social Science Citation Index, A&HCI=Arts and Humanities Citation Index, NA=Not available

Table 2: Linguistics publications in SSCI and A&HCI categories between 1975 and 2013

	1975-2013
SSCI-language linguistics (category)	54,263
SSCI-linguistics (category)	99,502
A&HCI-language linguistics (category)	187,239
A&HCI-linguistics (category)	64,356

 $\mbox{SSCI}{=}\mbox{Social Science Citation Index}, A\&\mbox{HCI}{=}\mbox{Arts and Humanities Citation Index}$

For example, PsycINFO and PsycARTICLES by the American Psychological Association are of high importance to psychology, whereas linguistics and Language Behavior Abstracts (LLBA) and MLA International Bibliography by the Modern Language Association are important databases for linguistics publications. Perhaps, more importantly, linguistics publications are also indexed in SSCI and A&HCI in WoS.

The present study investigates the bibliometric characteristics of linguistics in WoS due to the following reasons. WoS covers a variety of studies and thus offers a more general and comparative view of publications in specific fields. WoS's coverage seems to be more important than field-specific indices. SSCI indexes timely published journals, which have referee systems and higher impact factors than those not in SSCI.^[8]

The present study aims to fulfill the need for thorough bibliometric analysis of linguistics publications in WoS in order to explore the outputs of this field in scientific databases. Previously, the bibliometrics of linguistics publications has not been studied in detail. There are a few exceptions to this. One study examined bibliometric indicators from social history, general linguistics, general literature, Dutch literature and Dutch language, experimental psychology, anthropology, and public administration in the Netherlands, and argued that bibliometrics are important indicators in humanities and social sciences.^[9] Another study investigated publications and citations in general linguistics and general literature in A&HCI from a set



Figure 1: Number of publications covered in Social Science Citation Index and Arts and Humanities Citation Index since 1975

of Linguistics Departments in the Netherlands, Italy, and the US and a set of Literature Departments in the



Figure 2: Number of linguistics publications covered in Social Science Citation Index and Arts and Humanities Citation Index categories year by year since 1975

Netherlands, Germany, and the US.^[10] They argued that the research performance of these departments can be successfully assessed using bibliometric data. Yet another study analyze journals in Teachers of English to Speakers of Other Languages (TESOL) and Applied Linguistics. Surprisingly, it found that 300 of the TESOL members who participated in her study considered "relevance to context" rather than bibliometrics as the most important indicator of best journals in TESOL and applied linguistics.^[11]

A few studies also investigated citation patterns in linguistics publications. One of them questioned whether citation patterns in linguistics publications indexed in LLBA of ProQuest are similar to those in social sciences or humanities or natural sciences.^[12] They argued that linguistics citation patterns are, in fact, similar to those in social sciences. They found that 93.5% of cited sources were written in English, although the studies in LLBA were on a variety of languages. They also found that most of the citing and cited sources (58.3%) were journal articles and books, and articles in books (32.3%). Similarly, another study compared the publication outputs of language and linguistics research.^[13] It found two different publication and citation patterns: Language and linguistics publications versus literature publications. Publications targeting the general public are important in literature but not in language and linguistics. Studying languages other than English are



Figure 3: Ratio of linguistics publications to overall publications in each database between 1975 and 2013

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Linear tendency
y=49.26x-96833
R ² =0.26132
y=89.577x-176064
R ² =0.50877
y=48.293x-91493
R ² =0.32892
y=75.754x-149403
R ² =0.6047

Table 3: Means, ranges, and linear tendencies of linguistics publications in SSCI and A&HCI categories between 1975 and 2013

SSCI=Social Science Citation Index, A&HCI=Arts and Humanities Citation Index

Table 4: Means and ranges of ratio of linguistics publications to overall publications in SSCI and A&HCI categories between 1975 and 2013

Category	Mean	Minimum (year)	Maximum (year)	Linear tendency
SSCI-language linguistics	0.86	0.36 (2000)	1.72 (2009 and 2010)	y=0.0059x-10.991
				R ² =0.02972
SSCI-linguistics	1.61	1.13 (1995 and 1996)	2.51 (2010)	y=0.0186x-35.398
				R ² =0.30482
A&HCI-language linguistics	4.37	3.34 (1977)	5.87 (2013)	y=0.0308x-57.057
				R ² =0.31959
A&HCI-linguistics	1.48	0.55 (1977)	4.33 (2013)	y=0.0667x-131.47
				R ² =0.60178

SSCI=Social Science Citation Index, A&HCI=Arts and Humanities Citation Index

Table 5: Category rankings in top 100 between 1975and 2013

Ranking	Category	Number of publications
1	History	777,333
2	Economics	478,234
3	Humanities Multidisciplinary	474,120
4	Psychiatry	426,150
5	Political science	411,976
6	Literature reviews	401,077
7	Literature	360,407
8	Music	312,208
9	Public Environmental Occupational Health	288,149
10	Information science library science	280,470
11	Psychology Multidisciplinary	279,543
12	Art	278,907
13	Education educational research	266,239
14	Religion	265,870
15	Psychology	243,285
16	Sociology	239,515
17	Philosophy	225,466
18	Psychiatry SSCI	199,539
19	Language and linguistics	198,316
38	Linguistics	117,691

important in literature but not in language and linguistics. Yet another study is conducted on a bibliometric analysis of the field of computational linguistics, focusing on citation patterns such as the networks of paper citations, author citations, and author collaborations in publications by the Association for Computational Linguistics.^[14]

The current study differs from previous studies in many respects. First, it contributes to the field of bibliometrics by highlighting the outputs of the field of linguistics as a whole in WoS. None of the previous studies have investigated linguistics publications to that extent. Second, the present study analyzes outputs of the linguistics publications from the start date of SSCI (1900-2013) and A&HCI (1975-2013) together. In this way, it provides a detailed picture of the linguistics outputs as represented in WoS. Third, the present study targets linguistic publications in both SSCI and A&HCI. This is very important because linguistic publications are indexed in both databases. Fourth, the present study not only provides information about the overall outputs of linguistics publications, but also presents detailed year-by-year analysis to observe the changes in the outputs over time. Finally, the current study also examines the linguistics publications to all publications ratios and rankings of the linguistics field among the top 100 fields in SSCI and A&HCI.

METHODS

In order to gather data on linguistics publications, WoS was accessed at http://apps.webofknowledge.com/several times between January 1, 2014 and January 27, 2014 via Purdue

Category	Mean	Minimum (year)	Maximum (year)	Linear tendency
SSCI-language linguistics	62.51	91 in 2000	38 in 2011	y=0.3518x-639.02 R ² =0.05374
SSCI-linguistics	35.30	51 in 1995	22 in 2013	y=0.0585x-81.345 R²=0.0078
A&HCI-language linguistics	9.33	11 in 1979	5 in 2013	y=-0.0215x+52.12 R ² =0.05882
A&HCI-linguistics	22.15	35 in 1977 and 1978	10 in 2013	y=-0.4399x+899.27 R²=0.648

Table 6: Means and ranges of rankings of linguistics related categories in all of the SSCI and A&HCI categories between 1975 and 2013

SSCI=Social Science Citation Index, A&HCI=Arts and Humanities Citation Index

Table 7: Means and ranges of rankings of number of publications in linguistics research area of SSCI and A&HCI between 1975 and 2013

Category	Mean	Minimum (year)	Maximum (year)	Linear tendency
SSCI-linguistics	2806.92	1851 (1975)	6238 (2011)	y=74.596x-145938
				R ² =0.40565
A&HCI-linguistics	4964.59	2961 (1975)	6969 (2010)	y=50.137x-95008
				R ² =0.33152

SSCI=Social Science Citation Index, A&HCI=Arts and Humanities Citation Index

Table 8: Means and ranges of ratios of publications in linguistics research area to all research areas of SSCI and A&HCI between 1975 and 2013

Category	Mean	Minimum (year)	Maximum (year)	Linear tendency
SSCI-linguistics	1.81	1.32 (1996)	2.53 (2009 and 2010)	y=0.0055x-9.0984 R ² =0.0323
A&HCI-linguistics	4.52	3.47 (1977)	6.14 (2013)	y=0.0323x-59.795 B ² =0.32136

SSCI=Social Science Citation Index, A&HCI=Arts and Humanities Citation Index



Figure 4: Changes in rankings of linguistics related categories in all of the Social Science Citation Index and Arts and Humanities Citation Index categories between 1975 and 2013

University Libraries. Two databases, SSCI and A&HCI, were selected because linguistics publications are covered in those

databases under the "language linguistics" and 'linguistics' categories as well as the 'Linguistics' research area of WoS.

Arik: Linguistics research in web of science



Figure 5: Number of linguistics publications covered in Linguistics research area of Social Science Citation Index and Arts and Humanities Citation Index since 1975



Figure 6: Changes in the ratio of linguistics publications to overall publications in Linguistics research area of Social Science Citation Index and Arts and Humanities Citation Index since 1975

SSCI covers publications from 1900 on whereas A&HCI cover publications from 1975 to present.

Data were collected in the following way. First, after selecting SSCI and A&HCI, publication years were set to 1900–2013 for SSCI and 1975–2013 for A&HCI to see the overall number of publications in both databases. Second, the same search was conducted by selecting linguistics and language linguistics as WoS categories to get overall the number of linguistic publications in both SSCI and A&HCI. The results for all available search categories in WoS (number of publications, categories, document types, research areas, authors, group authors, editors, source titles, book series, conference titles, publication years, organizations, funding agencies, languages and countries and territories) were recorded. Third, searches focusing on number of publications, categories, and research areas were conducted year by year starting from 1975 to 2013.





Table 9: Research area rankings in top 100 between 1975 and 2013

Ranking	Category	Number of publications
1	Literature	1,168,211
2	Psychology	1,104,933
3	Business economics	871,292
4	History	777,333
5	Government law	600,673
6	Arts Humanities other topics	578,111
7	Psychiatry	426,150
8	Education educational research	322,703
9	Social sciences other topics	322,188
10	Music	312,208
11	Public Environmental Occupational Health	288,149
12	Information science library science	280,470
13	Art	278,907
14	Religion	265,870
15	Linguistics	254,349

Table 10: Means and ranges of rankings of Linguistics research area in all of the SSCI and A&HCI research areas between 1975 and 2013

Category	Mean	Minimum (year)	Maximum (year)	Linear tendency
SSCI-	21.69	29	16 (2013)	y=0.0374x-52.982
linguistics		(1995 and 2000)		R ² =0.01085
A&HCI-	7.92	9	6 (2013)	y=-0.0231x+53.938
linguistics		(1976-1979)		R ² =0.20602

SSCI=Social Science Citation Index, A&HCI=Arts and Humanities Citation Index

Finally, the same search was repeated by selecting linguistics as a research area. Where necessary, information about

the range and mean of the data and linear trend lines are provided. Note that since the data were collected in January 2014, some of the scientific publications from 2013 may not have yet been recorded in SSCI or A&HCI. Therefore, the number of publications in 2013 may be lower than those in the previous years at the time of the data collection.

RESULTS

Overall Number of Publications

As shown in Table 1, between 1900 and 2013, there were a total of 11,368,867 publications covered in SSCI and A&HCI. Of them, 9,580,546 items (84.27% of all publications) were published between 1975 and 2013. SSCI covered 7,631,256 items (67.12%) whereas A&HCI covered 4,264,304 items (37.50%). There were also cross-listed publications.

The number of publications indexed in SSCI and A&HCI has changed over the years. A year by year analysis from 1975 to 2013 indicated that the increase in SSCI publications (min = 101,517 in 1975, max = 261,077in 2012, M = 149,818.84, y = 3005.7x - 6E + 06 $R^2 = 0.68331$) was more than the increase in A&HCI publications (min = 65,143 in 1975, max = 118,116 in $1995, M = 109,378.58, y = 374.83x - 638031 R^2 = 0.12453$). It seems that SSCI coverage has rapidly increased in recent years [Figure 1].

Publications in Linguistics and Language Linguistics Categories

The SSCI and A&HCI databases have two categories for linguistics publications: Linguistics and language linguistics. Between 1900 and 2013, a total of 69,668 publications were listed in language linguistics, and a total of 125,708 publications were listed in linguistics in SSCI. An analysis of the number of publications in these categories between 1975 and 2013 showed that in SSCI, linguistics publications were more numerous than language and linguistics publications. In A&HCI, it was the opposite: 187,239 publications in language linguistics while 64,356 in linguistics. Table 2 summarizes these findings.

Closer examination of the number of publications per year [Figure 2] shows that between 1975 and 2005, there was a slight decrease in the number of publications covered in the SSCI-language linguistics category ($y = -23.348x + 47383 R^2 = 0.80768$); the others increased. Starting from 2006, there was a strong increase in the number of publications, which peaked in 2011 for each category. Table 3 summarizes the range and means of the number of publications per category.

The number of linguistics publications was also compared to the overall number of publications covered in SSCI and A&HCI. The linguistics publications to total publications ratios have increased very slightly. The language linguistics category of A&HCI was the highest (M = 4.37), whereas language linguistics of SSCI was the lowest (M = 0.86) [Table 4]. Figure 3 illustrates year-by-year changes.

Linguistics as a field is also ranked by SSCI and A&HCI according to the number of publications with respect to other fields. Overall, considering the number of publications between 1975 and 2013, language linguistics (198,316) is ranked no. 19 whereas linguistics (117,691) is ranked no. 38 in the top 100 [Table 5].

A year by year analysis showed that compared to one another, language linguistics in A&HCI was ranked the highest (M = 9.33) and language linguistics in SSCI was ranked the lowest (M = 62.51) [Table 6]. Figure 4 illustrates fluctuations in the rankings year by year.

Publications in the Linguistics Research Area

A similar analysis was conducted to investigate the scholarly outputs of linguistics publications listed in the Linguistics research area in SSCI and A&HCI. There were a total of 109,469 publications in this area in SSCI compared to 193,619 in A&HCI. Per year, on average, 2,806.92 publications were classified as linguistics in SSCI compared to the 4,964.59 in A&HCI [Table 7]. Between 1975 and 2005, there was a slight decrease in the number of linguistics publications in SSCI ($y = -5.0024x + 12162 R^2 = 0.05241$) while there was a slight increase in A&HCI ($y = 27.25x - 49549 R^2 = 0.09971$). After 2006, linguistics publications in both indices increased dramatically (SSCI: $Y = 440.76x - 880581 R^2 = 0.66513$; A&HCI: $Y = 184.93x - 365545 R^2 = 0.21422$). Figure 5 shows the changes year by year.

The ratio of linguistics publications to all publications was 4.52% in A&HCI versus the 1.81% in SSCI [Table 8]. There was a slight increase in these ratios year by year [Figure 6].

Linguistics as a research area is also ranked in SSCI and A&HCI according to the number of publications with

respect to the other research fields. Overall, considering the number of publications between 1975 and 2013, linguistics (117,691) is ranked as 15th in the top 100 [Table 9].

A year by year analysis showed that comparatively, in A&HCI linguistics was ranked no. 7.92 versus 21.69 in SSCI on average [Table 10 and Figure 7]. Fluctuations in SSCI rankings were greater than in A&HCI, which appears to be almost unchanged with a slight increase in recent years.

CONCLUSION

This study investigated the outputs of linguistics, the scientific study of language, in SSCI between 1900 and 2013 and A&HCI between 1975 and 2013 in WoS. The results showed that linguistics is classified in the language linguistics and linguistics categories in SSCI and A&HCI, while it is classified only in linguistics as a research area. This is not surprising because many disciplines in the social sciences and humanities have several categories in WoS (e.g., psychology represented in 11 categories in SSCI).^[21] As the number of publications in SSCI and A&HCI increased, linguistics publications increased, a trend also observed in other fields such as psychology.^[21] The results also showed that SSCI covers publications in the linguistics category more than language linguistics category compared to A&HCI. Moreover, as one of the prominent fields of social sciences and arts and humanities, linguistics was ranked no. 7.92 in A&HCI and 21.69 in SSCI on average. Future research will investigate the outputs of linguistics publications in several different countries to compare them in terms of their scientific contributions to linguistics as indexed in SSCI and A&HCI.

To tackle the limitations of bibliometric analyses of social sciences and humanities solely on WoS,^[15] future research will also investigate linguistics publications covered in linguistics-specific fields such as LLBA, citation patterns including books and book chapters,^[16-19] authorship patterns including acknowledgments^[20] (Sula, 2012), and the language barrier, publications written in languages other than English outside the WoS coverage.^[22]

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