

## Research Trends in Grammatical Arabic in the Arabic Language: A Bibliometric Review (1981–2023)

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### **Abstract**

*Bibliometric analysis will be used to examine the landscape of prior research relevant to Grammatical Arabic in Arabic from 1981 to 2023. Data were extracted from a Scopus database comprising 111 publications and improved. According to bibliometric analysis, 2022 is the year with the most article published, with 8 articles. With 35 citations, the citation trend for Grammatical Arabic in Arabic happened in 2005. With 10 publications and 5 collaboration linkages with other nations, the State of Israel became a country that published articles linked to Grammatical Arabic in Arabic. Eight of the 51 journals that publish research on this topic have been published in Q1 journals. The focus of research related to Grammatical Arabic in Arabic 1) Arabic language; 2) Natural Language Processing Systems 3) Sibawayhi.*

**Keywords:** Arabic Language, Bibliometric, Grammatical Arabic, Research Trends.

### **1. Introduction**

In Arabic, the term "*Qawaid Al-Nahwiyyah*" is used to refer to Grammatical Arabic. The merging of the two words indicates that the topic discussed is about the principles and rules related to Arabic grammar. "*Nahwu*" is an Arabic term that refers to syntax and can be translated as "Grammar" in English or "*tata bahasa*" in Indonesian (Setyawan, 2015).

Etymologically, *qawaid* refers to a basis, guideline, principle (Nasional, 2008), or regulation (Munawwir, 2007). Louis al-Ma'luf (1986) explains that *qawaid* is a standard law that is compiled in a binding manner, while al Jurjani (2004) defines it as a general premise that covers all its species concluding that *qawaid* is a universal paradigm found from Arabic sayings. Therefore, *qawaid* refers to the rules or rules in constructing Arabic sentences, with many branches included in the science of *qawaid*, such as the science of *nahwu*.

*Nahwu*, as the science of Arabic, discusses grammar and rules for using words in a sentence that has a clear meaning. Shaykh As Shonhajy *rahimahullah*, in the book *Matan al-Jurumiyah* (1982), revealed that the Arabic language consists of a series of words that are well arranged to form precise and meaningful sentences: While in the book of *Mulakhos Qawaidul Lughah* (1988), *nahwu* is a science that is studied to understand the functions of words in sentences, the final law of words, and how to use *i'tab*. *Nahwu* also functions as a controlling device to prevent errors in Arabic.

From the opinions of these two *fakar nahwu*, it is concluded that the science of *nahwu* is about the study of sentences, the parts of the sentence sequence, the influence of each according to the state of the other words in the sentence, also about the part of the sentence relationship with other parts by connecting it. To use Arabic properly and correctly, it is important to understand Grammatical Arabic or *Qawaid Al-Nahwiyyah*. His mastery has an impact on his ability to hear, speak, read, and write Arabic correctly and fluently (Rasyidi, 2020).

As a result, *nahwu* is a key lesson to ensure that language users can correctly express themselves and understand language expressions, both orally and in writing. Therefore, when learning Arabic, students must not only know the *nahwu* principles but also be able to apply them when reading and writing Arabic texts. Thus, understanding *nahwu* norms is a means to an end rather than an end in itself while learning Arabic (Kholifatul. U, 2019).

According to Al-Zarkashi (2006), learning "*nahwu*" is instrumental in helping one understand the vocabulary and meaning of a sentence in Arabic. Along with that, Elgibali (2013) also stated that understanding Grammatical Arabic can help a person understand the structure of Arabic sentences better so as to facilitate understanding the meaning of the sentence as a whole. There are many benefits to studying Grammatical Arabic, such as making it easier for one to understand classical and modern Arabic literature, communicating with Arab society more effectively, and understanding the meaning of poetry, prose, and other Arabic literature that has a complex and meaningful language within, in line with Suleiman's opinion (2013).

According to Rushdi Ahmad Tha'imah, Muhammad Shalahuddin Mujawir, the necessity of teaching or learning *qawa'id an-nahwu* is for three reasons. First, *qawa'id an-nahwu* was a part of the Arabic culture, which ensured the language's uniqueness. Second, *qawa'id* evolved into a model for determining the accuracy of Arabic usage. Third, learning *qawa'id an-nahwu* helps us understand sentence form and meaning. To put it another way, understanding *qawa'id* is essential for comprehending Arabic as a whole. (Aisyah, 2016)

There are several *nahwu* subjects that are very important and need to be considered by Arabic language learners (Ni'mah, 2015), including the use of the verb فعل in all its forms, the subject of the sentence or الفاعل, the substitute of the subject of the sentence or نائب الفاعل, the concept of subject and predicate, namely المبتدأ والخبر, conjunction أن and أخواتها, verb concepts كان and أخواتها, the direct object of the sentence or المفعول به, the indirect object of a sentence or المفعول فيه, time caption or الحال, supposition sentence or الإستسناء, explanation or التمييز, *isim majrur* associated with certain letters, *isim* explained or المضاف اليه, preposition or حروف الجر, conjunction or حروف العطف, letter marking object or حروف النصب, letter marking subject or حروف الجزم, question word or اسماء الاستفهام, noun forms, such as individual, plural, and singular or الأفراد و التسنية والجمع, as well as adjective or النعت.

Research in the field of Grammatical Arabic continues to grow as people's interest in learning Arabic increases. One emerging research trend is applying technology in learning the Arabic language (Arrabtah & Nusour, 2014), The use of technology in learning Grammatical Arabic can facilitate the learning process, increase motivation and interest in learning, and improve student learning outcomes. In line with the research of Moukrim et al.,(2021) It has pioneered a new method for detecting and repairing syntactic mistakes in Arabic text. This method is based on building sentences with a dependency model, and its rules are derived from logical representations of Arabic grammar using ontologies.

In contrast to Halabi et al.'s research (2022), It built a new Arabic dependency treebank based on traditional Arabic grammar theory and Arabic characteristics to test its effect on statistics parser accuracy. I3rab, Treebank's intended Arab dependency, varies in two major ways. TreeBank claims to have significant utility as a linguistic resource that contains sentence syntactic structure, POS tags, and morphological aspects in a language. Treebank is widely used in the creation of statistical parsers. Although the accuracy of the natural language statistical parser has improved for languages such as English, it remains poor for Arabic.

Research themes related to Grammatical Arabic in Arabic can also be analyzed with bibliometrics. Bibliometric analysis is a technique that allows to provide a macroscopic picture of a large amount of academic literature (van Nunen et al., 2018). Bibliometric tools can be used to evaluate the performance and research patterns of authors, journals, countries, and institutions, as well as detect and quantify patterns of collaboration among them (Li & Zhao, 2015).

On this basis, researchers felt the need to undertake bibliometric analysis connected to Grammatical Arabic in Arabic utilizing the Scopus database to uncover more research on

Grammatical Arabic. The goal of this research is to determine the trend of producing articles about Grammatical Arabic in Arabic between 1981 and 2023.

The purpose of this study is to characterize the research landscape in Arabic connected to Grammatical Arabic from 1981 to 2023. Some of the research questions addressed include citation trends in Grammatical Arabic in Arabic, the geographical distribution of publications and patterns of cooperation between countries in Grammatical Arabic in Arabic research, distribution of journal rankings based on quartile values in Grammatical Arabic in Arabic research, and research focuses of concern in the field of Grammatical Arabic in Arabic.

## **2. Research Methodology**

### **2.1. Method**

Researchers used the Scopus database to view data linked to "Grammatical Arabic in Arabic" because of its extensive interdisciplinary coverage. Figure 1 depicts numerous methods used in this scopus data collecting to improve the data that has been collected. The initial phase is identification, which is followed by the data screening process, feasibility, and ultimately the inclusion step (Moher, 2009).

The identification method begins with the researcher entering the term ("*Grammatical Arabic*") into the Scopus database search. The researchers discovered and collected publication information for 111 papers. The second step is to begin the screening procedure through screening. At this level, researchers choose to publish studies in English in journals. According to the findings of the screening, 51 articles were obtained in agreement with the criteria. Based on the screening procedure, researchers gathered data that met the criteria for further VosViewer-assisted analysis, thus the data obtained is not used in the next stage.

This study's data was collected on 4 May 2023, during the inclusion stage. Grammatical Arabic publication trends were investigated using descriptive analysis from the Scopus database and bibliometric analysis. From 1981 to 2023, the number of publications linked to Grammatical Arabic will be graphically represented using Microsoft Excel Software.

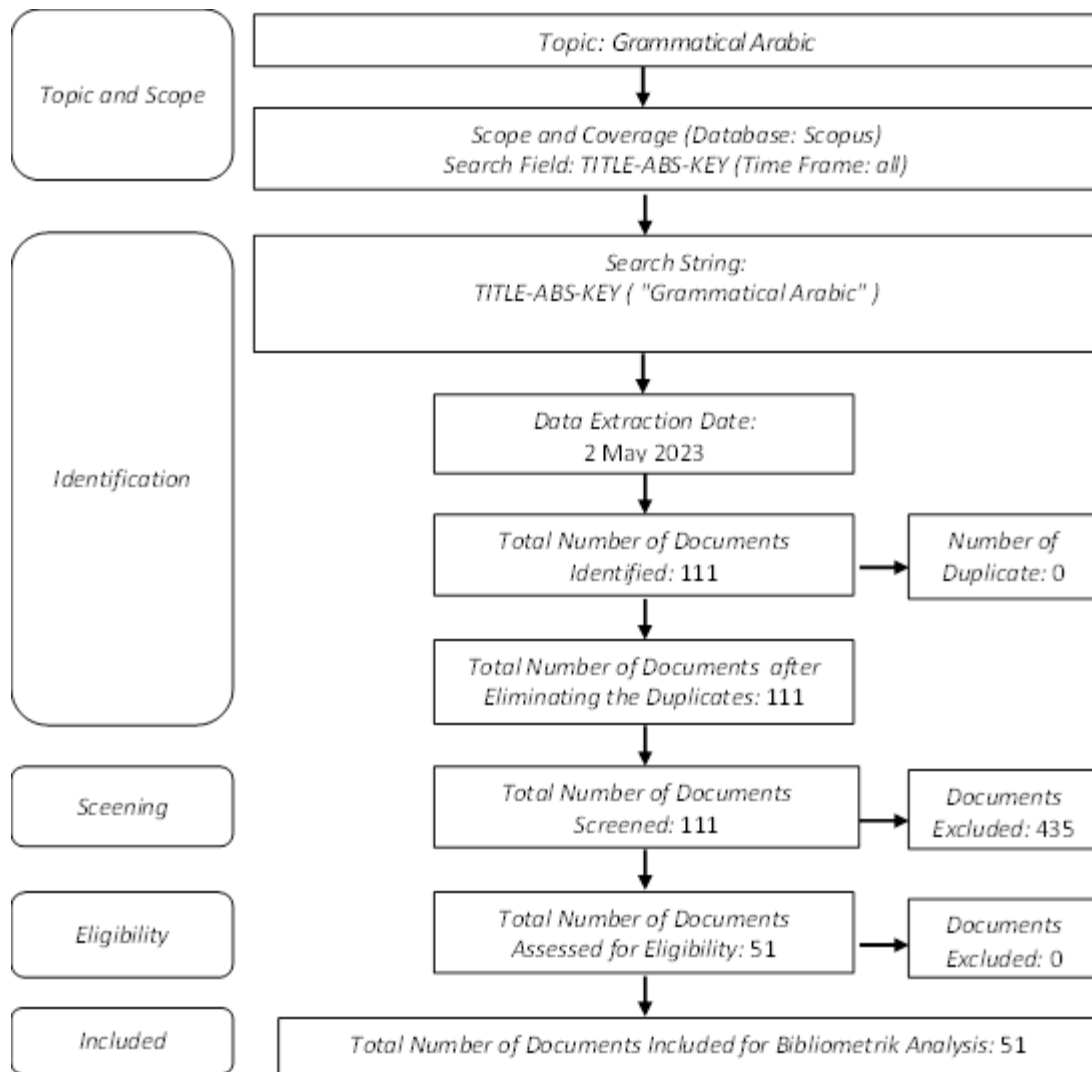


Figure 1. Data Collection Process

## 2.2. Data Analysis Methods

Publication trends and citation trends related to Grammatical Arabic in Arabic are viewed by the year starting from 1981 to 2023. The number of publications and the average citation each year will be calculated and displayed using the help of Microsoft Excel software. To calculate the h-index and g-index of each publication, PoP software will be used.

To display the geographical distribution of the data that has been collected, researchers use the help of Microsoft Excel software. In addition, researchers used the VOSviewer application to see cooperation between countries. Researchers use Microsoft Excel software to display journal rankings based on quartiles. The data that has been obtained from the 51 Scopus databases will be categorized based on (Q1), (Q2), (Q3), and (Q4). This shows that the data that has been collected from as many as 51 publications have been published in the ranking of the journals mentioned above.

### 3. Result

#### 3.1. Research Results

Publications related to Grammatical Arabic in Arabic have gone through several stages in data collection. Through the data collection process, 51 publications were obtained from 1981 to 2023 that were by the criteria, the next stage of which will be descriptive bibliometric analysis. Publication trends, citation trends, country and journal distribution as well as research focus will be discussed further.

#### 3.2. Publication Trends

Publication trends related to mathematical literacy skills in mathematics learning from 1981 to 2023 will be shown in Figure 2. A total of 51 publications that have been grouped by year of publication will be displayed in table form as shown in Figure 2 below:

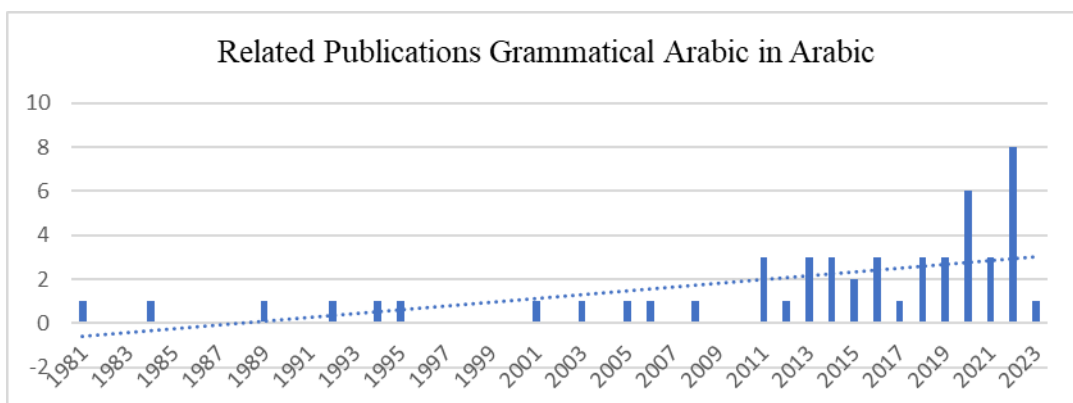


Figure 2. Number of Publications from 1981 to 2023

From the picture above, it can be seen that in 2022 there have been 8 documents, and articles related to Grammatical Arabic in Arabic were first published in 1981 in the Scopus database. However, for several years there were no publications related to this research, for example, from 1996 to 2000 no research was conducted in this field.

#### 3.3. Quote Trends

The citation trends related to Grammatical Arabic in Arabic from 1981 to 2023 will be addressed in Table 1. A total of 51 publications that have been collected will be seen in the total publications each year group based on the value of NCP, TC, C/P, C/CP, h-index, and g-index which will be displayed in Table 1 below:

Tabel 1. *Citation Analysis of Publications*

Year	T	NCP	TC	C/P	C/CP	h	g
2023	1	1	1	1	1	1	1
2022	8	3	10	1,25	3,33	2	3
2021	3	1	7	2,33	7	1	2
2020	6	4	7	1,17	1,75	2	2
2019	3	1	2	0,67	2	1	1
2018	3	1	1	0,33	1	1	1
2017	1	1	1	1,00	1	1	1
2016	3	2	5	1,67	2,5	2	2
2015	2	2	6	3,00	3	1	2
2014	3	3	5	1,67	1,67	1	2
2013	3	3	14	4,67	4,67	3	3
2012	1	1	5	5,00	5	1	1
2011	3	3	12	4,00	4	3	3
2010	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-
2008	1	1	4	4,00	4	1	1
2007	-	-	-	-	-	-	-
2006	1	1	4	4,00	4	1	1
2005	1	1	35	35,00	35	1	1
2004	-	-	-	-	-	-	-
2003	1	1	3	3,00	3	1	1
2002	-	-	-	-	-	-	-
2001	1	1	7	7,00	7	1	1
2000	-	-	-	-	-	-	-
1999	-	-	-	-	-	-	-
1998	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-
1995	1	1	3	3,00	3	1	1
1994	1	1	11	11,00	11	1	1
1993	-	-	-	-	-	-	-
1992	1	-	-	-	-	-	-
1991	-	-	-	-	-	-	-
1990	-	-	-	-	-	-	-
1989	1	1	1	1,00	1	1	1
1988	-	-	-	-	-	-	-
1987	-	-	-	-	-	-	-
1986	-	-	-	-	-	-	-
1985	-	-	-	-	-	-	-
1984	1	1	5	5,00	5	1	1
1983	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-
1981	1	1	6	6,00	6	1	1

*Notes. TP=total of publication, NCP=number of cited publication, TC=total citations, C/P=average citations per publication, C/CP=average citations per cited pblication, h=h-index, g=g-index*

Based on Table 1 above, it can be seen that the highest number of cited publications (NCP) was found in 2020, which has an NCP value of 4. The highest number of citations from 1981 to 2023 was in 2005, which was 35 citations. Although 2022 had the highest number of publications, which was 8 publications, 2005 still had a greater research impact. It can also be seen in Table 1 that several years do not have citations or even have no publications, namely from 1996 to 2000.

In addition, the highest h-index and g-index values were found in 2011 and 2013 which had h-index and g-index values of 3 respectively. In other words, publications in 2011 and 2013 also had a great impact related to this study. The number of publications that have been cited in 2011 and 2013 is 12 and 14 with a total number of citations of 12 and 14, meaning that at least the average citation per publication is 3 times.

### 3.4. Geographical Distribution and Relations Between Countries

#### a. Geographic Distribution

Figure 3 below is the geographical distribution of the country of origin of the most publications related to Grammatical Arabic in Arabic out of a total of 18 countries that publish related to Grammatical Arabic. Geographically, the distribution of the country of origin of the publication can be seen in the following figure.

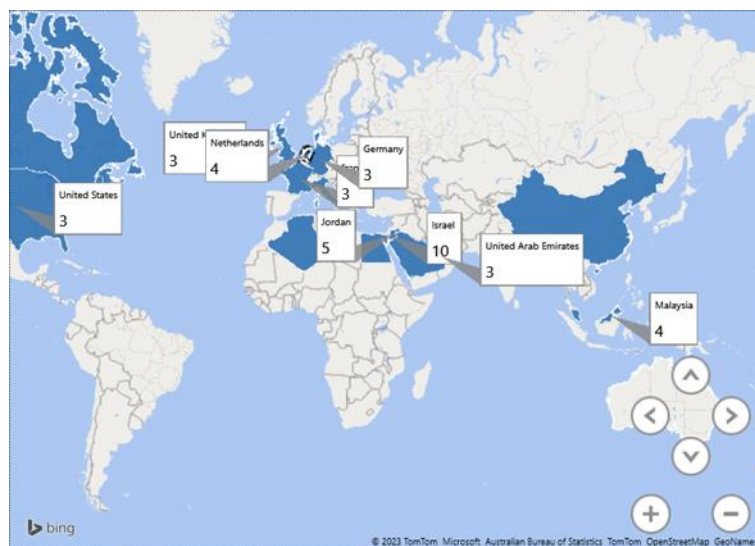


Figure 3. Geographical Distribution of Publications

Based on Figure 3 above, it can be seen that the state of Israel is the most influential country related to Grammatical Arabic research in Arabic. It can be seen that the state of Israel has published as many as 10 documents related to this field. One of the studies that have been done by Mendel (Mendel, 2016), revealed that during the British mandate, Reali was the leading school for Arabic studies in the Jewish education system and that it maintained this status and became the leading school for Arabic studies in the Israeli education system when other Jewish schools did not teach it at all or decided to stop teaching it. Several teachers and students from this school have also gone on to become important characters at the Institute of Oriental Studies at the Hebrew University of Jerusalem, the country's first and only higher education institution dedicated to the study of the Arabic language and culture.



The second country that has a very big influence in this study is Jordan, which has published as many as 5 documents related to Grammatical Arabic in Arabic, and which is in the third most influential country in this study is the Netherlands and Malaysia which have published as many as 4 documents.

#### b. Country Collaboration Relations

Figure 4 depicts the trend of country collaboration. Researchers did not use a defined criterion to examine these interstate linkages. As illustrated in Figure 4 below, 11 countries have cooperating relationships in grammatical Arabic studies.



Figure 4. Geographical Distribution of Publications

In Figure 4 above it can be seen that the countries of Israel, Jordan, the United States, the United Arab Emirates, and the United Kingdom have a large circle diameter compared to other countries. This shows that these countries have a high level of cooperative relations with other countries. Based on the VOSviewer display, it can be seen that the state of Israel, has cooperative relations with 5 countries while the country of Jordan has cooperation relations with 3 countries and the United Arab Emirates has cooperative relations with 4 countries related to Grammatical Arabic in Arabic.

#### 3.5. Journal Ranging Distribution

The distribution of journal rankings is seen from the quartile value (Q) of journals related to Grammatical Arabic in Arabic. To rank journals based on quartile value (Q) see the Scimagojr website. The distribution of journal rankings can be seen in the following figure.

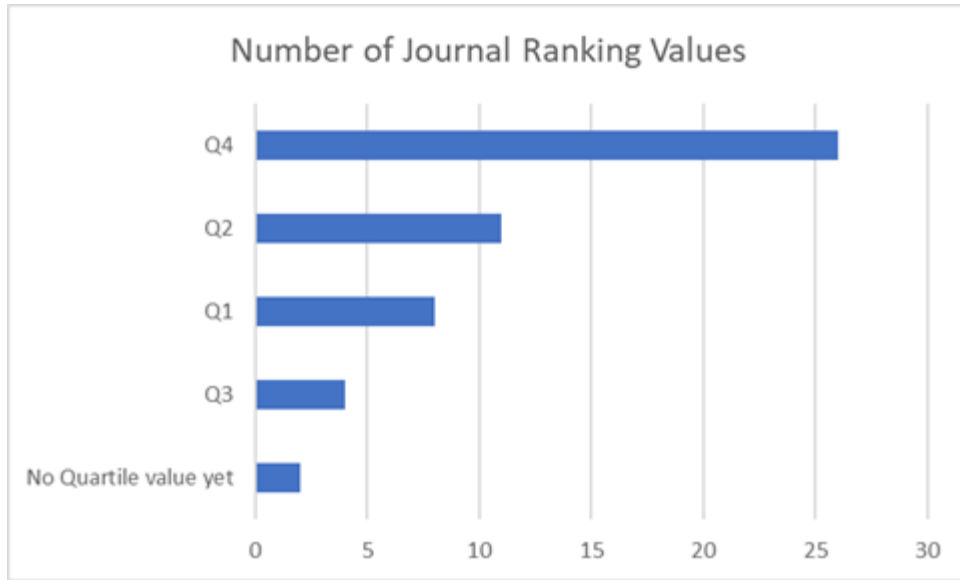


Figure 5. Ranking based on Journal Quartile value

Based on Figure 5 above, it can be seen that publications in journals related to Grammatical Arabic in Arabic are most ranked in Q4 journals as many as 26 journals. As for the second place, there are publications in the Q2 journal ranking of 11. In addition, other publications are in the Q1 and Q3 journal rankings of 8 and 4 respectively. However, there are still 3 journals that do not have quartile values, this means that writing related to Grammatical Arabic in Arabic must be improved again so that they can be published in journals that already have higher quartile values.

### 3.6. Research Focus

Researchers do not set a threshold at this stage, namely keywords that enter at least 1 in each publication. In this case, all entered keywords will be displayed with the help of VOSviewer. The displayed keywords are 47 in number as shown in the following figure 6.

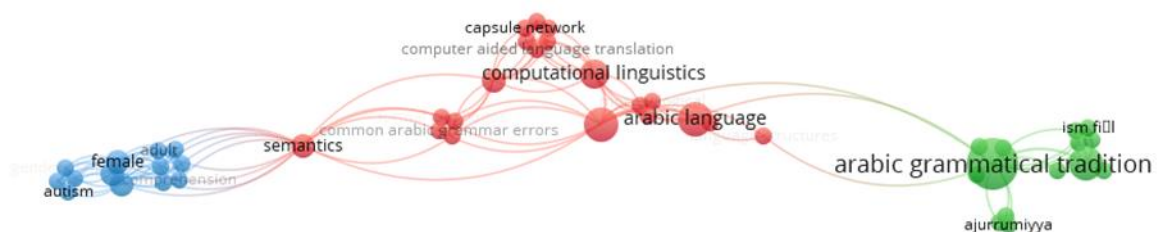


Figure 6. Ranking based on Journal Quartile value

The number of clusters given in Figure 6 above indicates the study's emphasis. There are three distinct clusters, which represent study clusters related to Grammatical Arabic in Arabic. The three clusters include green, which is the largest, followed by red and blue. The three clusters indicate that the research is organized into three major parts.

1. The first cluster (in red) consists of 20 items. From the 20 items in this cluster, it can be seen that the keywords that have the largest diameter are Arabic language and natural language processing systems, meaning that these keywords along with Grammatical Arabic in Arabic are the focus of the first study.
2. In the second cluster (green color), in cluster 2 there are 14 items with the word *Sibawayhi* which has the largest diameter in the cluster, meaning that the keyword is the focus of the first research along with Grammatical Arabic in Arabic.

The third cluster (blue color) consisting of 13 items is a cluster that has the keyword humans with the largest diameter in this cluster. However, this cluster only shows a relationship with the first cluster on semantic keywords and no relationship with Grammatical Arabic in Arabic.

#### 4. Discussion

##### 4.1. What Quote Trends are Related to Grammatical Arabic in Arabic

The citation trend related to Grammatical Arabic in Arabic from 1981 to 2023 can be seen from the TC value in Table 1. In Table 1 it can be seen that publications in 2005 have been cited 35 times by having h-index and g-index among those years with the values h-index = 1 and g-index = 1. This shows that research in 2005 had a major influence on research related to Grammatical Arabic in Arabic. As for the article with the highest number of citations published in 2015, there was only 1 article. The second most citation trend found in 2013 has been cited 14 times with h-index = 3 and g-index = 3. Furthermore, the trend of most articles was also found in 2011 with several citations of 12, h-index = 3, and g-index = 3.

Table 3. Articles with the highest number of citations

No	Author (year)	Title	Sources	Citation
1	Khaled F. Shaalan (2005)	<i>Arabic GramCheck: A grammar checker for Arabic</i>	Software – Practice and Experience	35
2	King D. (2013)	<i>Grammar and logic in Syriac (and Arabic)</i>	Journal of Semitic Studies	3

3	A. Kasher (2013)	<i>The vocative as a speech act in early Arabic grammatical</i>	Histoire Epistemologie Langage	4
4	D. Bondarev (2013)	<i>Qur'anic exegesis in old kanembu: Linguistic precision for better interpretation</i>	Journal of Qur'anic Studies	7
5	Gabsi, Z. (2011)	<i>Attrition and maintenance of the Berber language in Tunisia</i>	International Journal of the Sociology of Language	5
6	Guillaume, J.- P. (2011)	<i>Defining the word within the Arabic grammatical tradition: 'Astara ba`di's predicament</i>	Studies in Semitic Languages and Linguistics	3
7	Aliane, Alimazi ghi, Z.(2011)	<i>Discovering Arabic Structures from Texts: What a formal analysis can tell us</i>	International Journal of Computer Applications in	4

According to Table 3 above, Khaled's study has been cited 35 times. This indicates that the study was most frequently mentioned in 2005. The authors present their findings from building Arabic GramCheck, a syntax-based grammar checker for standard modern Arabic. The system detects erroneous Arabic phrases using a feature relaxation approach based on in-depth syntactic analysis. This excellent application can detect and propose corrections for certain frequent grammar problems.

#### 4.2. How is the distribution of journal rankings based on quartile values related to Grammatical Arabic in Arabic?

Journal-level distribution is viewed based on quartile (Q) values. Most publications from Scopus data related to grammatical Arabic (with more than 1 publication) are found in 5 journals with quartile value Q4. For more details, see Table 4 below:

Table 4. Five Journals With the Most Articles

Journals	Number of Articles	Quartile Value
Historiographia Linguistica	6	Q4
Histoire Epistimologie Langage	4	Q4
Studies in Semitic Languages and Linguistics	4	Q4
Romano Arabica	3	Q4
Arabica	2	Q4

Table 4 shows that the journal "Historiographia Linguistica" has published up to six papers in Arabic about Grammatical Arabic. Furthermore, the above list of journals can be utilized as a destination for future articles linked to Grammatical Arabic in Arabic.

#### 4.3. What is the focus of research related to Grammatical Arabic in Arabic?

The focus of the research is related to Grammatical Arabic in Arabic, divided into 3 parts, namely 1) Arabic language; 2) natural language processing systems; 3) Sibawayhi. Research conducted by Fargaly (2009) states that overall, the relationship between Arabic and Arabic grammar involves linguistic complexity and the need for understanding for proper use in various contexts. In line with the research, Ameerah (2020) revealed that Reali was the leading school for Arabic studies in the Jewish education system during the British mandate and that it maintained this status and became the leading school for Arabic studies in the Israeli education system when other Jewish schools did not teach it at all or decided to stop teaching it. Several of the school's teachers and students have gone on to become prominent figures at the Institute of Oriental Studies at the Hebrew University of Jerusalem, the country's first and only higher education institution dedicated to the study of Arabic language and culture.

The second research focus is natural language processing systems. Farghaly's (2009) research addresses significant challenges researchers and developers face working on natural language processing (NLP) applications for Arabic. In his research, Farghaly provides an overview of the general characteristics of the Arabic language and explores the properties of the language in particular. The concept of Arabic Diglossia is also examined, along with its implications for NLP applications and suggested approaches to address them. He also highlighted the challenges faced by the Arabic script, including the absence of a clear representation of short vowels and case markers. In addition, this article discusses the specific linguistic features of Arabic, such as nonconfidential morphology, agglutinative properties, and pro-drop characteristics, all of which pose challenges for NLP. Solutions that have been proposed by pioneering researchers are also presented. This article emphasizes the lack of formal and explicit grammar for Modern Standard Arabic, which hindered the development of sophisticated NLP systems.

The next research focus is Sibawayhi, this research topic is very closely related to grammatical Arabic, especially in discussing the tradition and history of grammatical Arabic, some research that discusses this focus is research by Ulfa, et al (2021) this research aims to prove whether historical and academic studies are important to be taught to AFL (Arabic as a Foreign Language) students in Indonesia. This study used a quantitative approach with a

descriptive type. This study also states that *nahwu* learning needs to be developed by taking into account the historical aspects of *nahwu* development, especially the differences between the *Basrah* and *Kufā Madrasas*.

In addition, the focus of this research was also discussed by Giuliano, et al (2019) discussing *Kitāb Sībawayhi*, a work that formed the basis of the study of grammar in classical Arabic. This work not only served as the theoretical basis for the study of Arabic grammar, but it also served as a repository of facts that would be utilized by other researchers. The relevance of the Kitb lies in its placement in the broader linguistic discussion, which tackles the processing of linguistic data as well as the beginning of the process of language standardization.

## 5. Conclusion

Based on the findings and discussions, it is possible to conclude that there were 8 documents in 2022. In 2005, the trend of citations related to Grammatical Arabic in Arabic reached 35 total citations. With as many as ten publications and five linkages of cooperation with other countries, Israel has become the most influential country in this subject. Publications in journals related to Grammatical Arabic in Arabic are most ranked in Q4 journals as many as 26 journals. The focus of Grammatical Arabic research in Arabic includes 1) the Arabic language; 2) Natural Language Processing Systems; 3) Sibawayhi.

## 6. Limitations

The limitations of this study, namely: 1) The data analyzed come from the Scopus database, so many other databases can be used such as google scholar and others. 2) This study only discusses Grammatical Arabic in Arabic so many other fields of education can still be researched 3) This data was taken on 4 May 2023, which cannot reflect the research afterward so there may be a slight difference

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