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“Extraordinary Attorney Woo” in Google: A Text Analysis

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ABSTRACT

The ultimate goal of this article is to analyze 32 articles of Google regarding the drama “Extraordinary Attorney *Woo*”. For an in-depth analysis of 32 articles, we used the software package Net Miner. A major point to note is that the six-word expression has the highest frequency (254 tokens) and the highest proportion (0.144). A further point to note is that in a word cloud, the keyword *Woo* is represented in the biggest font. This in turn indicates that this keyword is one of the most pivotal characters in the drama. With respect to the use of each topic in 32 articles, it is interesting to point out that topic 13 was the most widely used one in 32 articles of Google, followed by topic 8, and topic 11, in that order. When it comes to the use of key words, the word *Woo* was the most widely used one in 32 articles of Google, followed by the word Young *woo*, the word person, and the word *Attorney*, in that order. Also, this article clearly shows that the word *Woo* has the highest Katz centrality since it has the most neighbors including direct and indirect links. This article further shows that the word show has the highest PageRank centrality since it has the most links coming inside.

Key Words: *K-drama, word cloud, topic, Katz centrality, Page Rank centrality.*

INTRODUCTION

The main purpose of this article is to analyze 32 articles of Google written from June 2022 to February 2023 regarding the drama “Extraordinary Attorney *Woo*”. The software package NetMiner was used to analyze 32 articles of Google. First, we aim to investigate how often the relevant nouns occurred in 32 articles of Google. Second, we aim at providing the relevant word cloud in which major keywords occur in different sizes, depending upon the degree of importance. Third, we look into 14 topics constituting 32 articles and investigate the frequency of each topic occurred in 32 articles of Google. Fourth, we aim at considering Katz centrality, which is similar to Eigenvector centrality, but includes indirectly linked neighbors as well as directly linked ones. We provide information on Katz centrality related to 32 articles of Google and its map. Fifth, we aim to provide PageRank centrality and its map. The term PageRank centrality indicates that the more there are many links coming inside, the more centrality is high. Put differently, the more there are many links coming to a node, the more the node is influential. This algorithm is also used in the search engine of Google.

RESULTS

Information on nouns

This section centers on providing information on the frequency of the relevant nouns occurred in 32 articles of Google regarding the drama “Extraordinary Attorney *Woo*”:

Table 1 Information on the relevant nouns

Value	Frequency	Proportion	Cumulative Proportion
2.0	23	0.013	0.013
3.0	103	0.058	0.071
4.0	239	0.136	0.207
5.0	242	0.137	0.344
6.0	254	0.144	0.488
7.0	226	0.128	0.617
8.0	212	0.12	0.737

9.0	140	0.079	0.816
10.0	107	0.061	0.877
11.0	80	0.045	0.922
12.0	41	0.023	0.946
13.0	30	0.017	0.963
14.0	26	0.015	0.977
15.0	5	0.003	0.98
16.0	5	0.003	0.983
17.0	2	0.001	0.984
18.0	1	0.001	0.985
19.0	6	0.003	0.988
20.0	3	0.002	0.99
21.0	2	0.001	0.991
23.0	1	0.001	0.991
24.0	1	0.001	0.992
25.0	1	0.001	0.993
26.0	1	0.001	0.993
27.0	1	0.001	0.994
30.0	1	0.001	0.994
32.0	3	0.002	0.996
33.0	2	0.001	0.997
39.0	2	0.001	0.998
45.0	1	0.001	0.999
51.0	1	0.001	0.999
55.0	1	0.001	1
Total	1763	1	

It is probably worthwhile noting that the six-word expression has the highest frequency (254 tokens) and the highest proportion (0.144). It is worth considering the five-word expression. Note that the six-word expression is followed by the five-word expression. Talking about the five-word expression, its frequency is 242 and its proportion is 0.137. It should also be pointed out that the four-word expression ranks third. More specifically, its frequency is 239 and its proportion and cumulative proportion are 0.136 and 0.207, respectively. It must be noted, on the other hand, that the frequency of the seven-word expression is 226 and its proportion is 0.128. We thus conclude that the six-word expression was the most widely used one in 32 articles of Google, followed by the five-word expression, the four-word expression, and the seven-word expression, in that order.

Now let us turn our attention to common nouns and proper nouns:

Table 2 Common nouns and proper nouns

Value	Frequency	Proportion	Cumulative Proportion
Common Noun	1285	0.729	0.729
Proper Noun	478	0.271	1
Total	1763	1	

It is worth pointing out that 1,285 common nouns occur in 32 articles of Google and that their proportion is 72.9%. It is important to mention, on the other hand, that 478 proper nouns appear in 32 articles of Google and that their proportion is 27.1%. This in turn suggests that the frequency of common nouns is by far higher (two times) than that of proper nouns.

A word cloud

This section is focused on providing a word cloud in which the relevant nouns occur. Figure 1 shows how important the relevant keywords are:

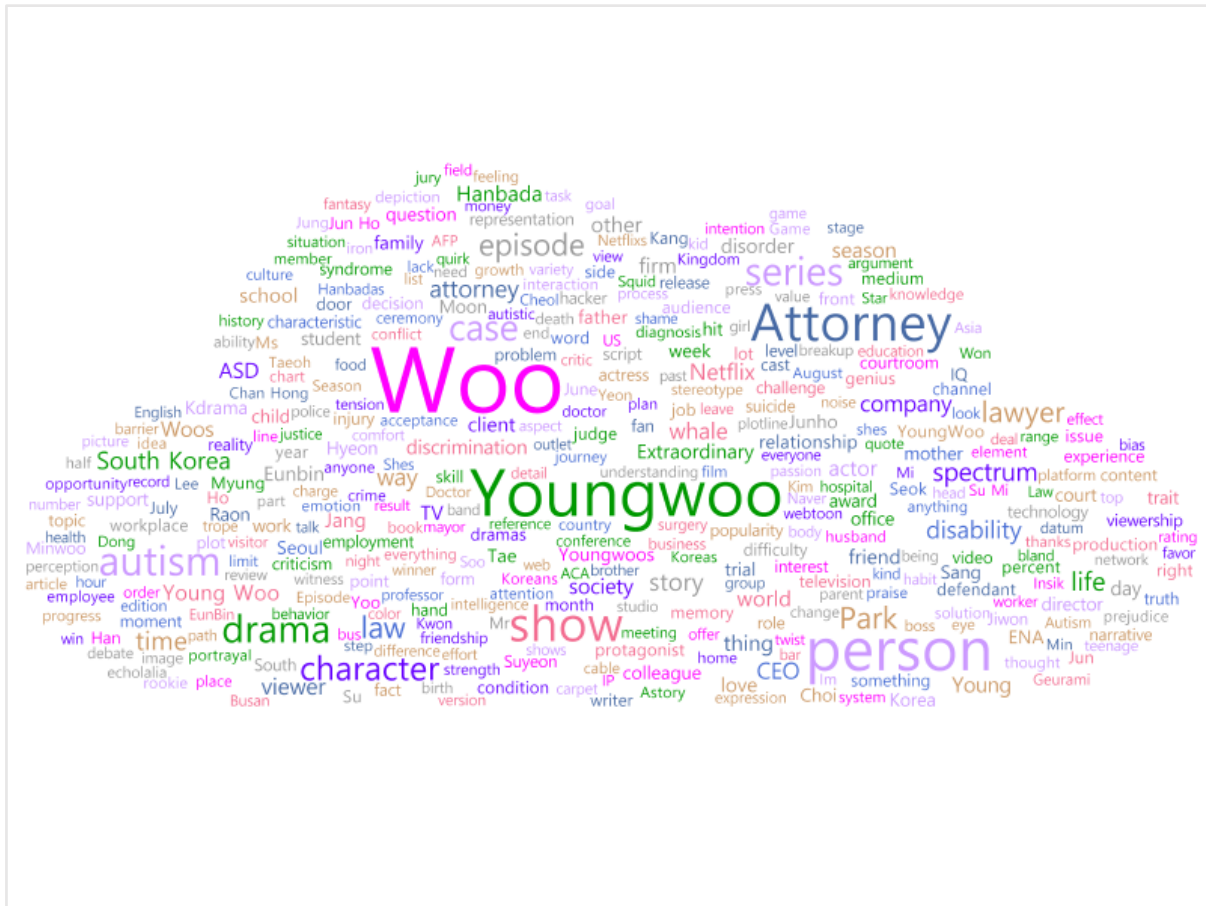


Figure 1 Word cloud

Notice, to begin with, that the so-called word cloud is used to highlight key words based on the degree of importance. Thus, this word cloud is used to provide us with quick and simple visual insights. It is worth noting that the keyword *Woo* is represented in the biggest font. This in turn indicates that this keyword is one of the most pivotal characters in the drama. It must be stressed, on the other hand, that the keyword *Youngwoo* is the second biggest in font. This in turn shows that it is the second most central one among the relevant keywords. It is also important to note that the keyword *Attorney* is the third biggest in font, which in turn implies that it is one of the most central keywords. It is also worth observing that the keyword *person* is the fourth biggest in font. This in turn suggests that it is the fourth most important one among the relevant keywords. From all of this, it seems evident that the keyword *Woo* is the most central one among the relevant keywords, followed by the keyword *Youngwoo*, the keyword *Attorney*, and the keyword *person*, in that order.

Topics

This section is devoted to providing 14 topics constituting 32 articles of Google and their keywords. Table 3 shows 14 topics consisting of 32 articles and 5 keywords constituting each topic:

Table 3 14 topics and their keywords

	1st Keyword	2nd Keyword	3rd Keyword	4th Keyword	5th Keyword
Topic-1	law	disability	firm	Hanbada	Youngwoo
Topic-2	series	show	Woo	whale	actor
Topic-3	Woo	series	Attorney	drama	Netflix
Topic-4	episode	lawyer	person	whale	day
Topic-5	character	person	autism	spectrum	disorder
Topic-6	autism	time	Youngwoo	spectrum	show

Topic-7	Jang	Young Woo	Woos	Young	Woo
Topic-8	person	autism	show	South Korea	family
Topic-9	Woo	other	Youngwoo	viewer	company
Topic-10	story	life	company	drama	Woo
Topic-11	Woo	Attorney	attorney	Extraordinary	love
Topic-12	Park	CEO	Tae	Eunbin	way
Topic-13	Youngwoo	case	character	Junho	client
Topic-14	show	case	drama	Youngwoo	way

It is worth observing that topic 1 includes the keywords *law*, *disability*, *firm*, *Hanbada*, and *Youngwoo*. In this topic, the keyword *law* is assumed to be the most widely used one, thus leading to the 1st keyword. It is interesting to note that topic 3 includes the keywords *Woo*, *series*, *Attorney*, *drama*, and *Netflix*. Quite interestingly, the keyword *Woo* is the 1st keyword, which we can take as confirming evidence that the keyword *Woo* is the most frequently used one in this topic. It is also interesting to observe that the keywords *person*, *autism*, *show*, *South Korea*, and *family* consist of topic 8. Presumably, the second keyword *autism* is deemed to be one of central keywords occurred in 32 articles of Google. It is interesting to consider topic 10. Topic 10 contains the keywords *story*, *life*, *company*, *drama*, and *Woo*. In this topic, the word *story* is the 1st keyword, which in turn implies that it is one of the most widely used keywords. Now let us observe how often each topic occurred in 32 articles of Google:

Table 4 Frequency of each topic

	# of sentences
Topic-1	74
Topic-2	42
Topic-3	74
Topic-4	56
Topic-5	48
Topic-6	50
Topic-7	74
Topic-8	120
Topic-9	38
Topic-10	58
Topic-11	110
Topic-12	56
Topic-13	142
Topic-14	42

It is interesting to point out that topic 13 occurred 142 times in 32 articles of Google (the highest). As observed earlier, topic 13 includes the keywords *Young woo*, *case*, *character*, *Junho*, and *client*. It is worthwhile observing, on the other hand, that topic 8 appeared 120 times in 32 articles of Google (the second highest). Note that as illustrated in Table 3, the keywords *person*, *autism*, *show*, *South Korea*, and *family* consist of topic 8. It must also be emphasized that topic 11 occurred 110 times in 32 articles (the third highest). As indicated in Table 3, the keywords *Woo*, *Attorney*, *Extraordinary*, and *love* constitute topic 11. From all of this, it seems clear that topic 13 was the most widely used one in 32 articles of Google, followed by topic 8, and topic 11, in that order. It should also be noted that topic 1, topic 3, and topic 7 occurred 74 times in 32 articles of Google. We thus conclude that topic 13 was the most frequently used one among 14 topics.

Information on nouns

In what follows, we aim at considering how frequently major words were used in 32 articles of Google:

Table 5 Information on nouns

Number	Words	The use of words
1	Woo	218
2	Youngwoo	156
3	person	132
4	Attorney	118
5	show	108
6	autism	83
7	series	73
9	drama	73
9	case	64
10	character	62
11	Park	52
12	episode	51
13	lawyer	49
14	law	47
15	time	38
16	life	37
17	spectrum	36
18	story	34
19	attorney	33
20	disability	32
21	SouthKorea	31
22	way	29
23	viewer	27
24	Netflix	27
25	CEO	27
26	whale	26
27	YoungWoo	26
28	world	25
29	thing	25
30	firm	25

It is worthwhile saying that the word *Woo* occurred 218 times in 32 articles of Google (the highest). This in turn indicates that this word was the most widely used one among the relevant nouns. It is also worth mentioning that the word *Young woo* appeared 156 times in 32 articles of Google (the second highest). It should also be pointed out that the word *person* occurred 132 times in 32 articles (the third highest). This in turn implies that it was the third most widely used one among the relevant nouns. It is interesting to consider the word *Attorney*. It turned up 118 times in 32 articles (the fourth highest). It seems thus reasonable to assume that the word *Woo* was the most frequently used one in 32 articles of Google, followed by the word *Young woo*, the word *person*, and the word *Attorney*, in that order. It is worth observing the word *disability*. It occurred 32 times in 32 articles of Google. Finally, it should also be noted that the word *Netflix* turned up 27 times in 32 articles. We thus conclude that the word *Woo* was the most frequently used one in 32 articles of Google.

Katzcentrality

In the following, we aim to consider Katzcentrality and provide its map. The so-called Katzcentrality includes indirectly linked neighbors as well as directly linked ones. Note that if an ode is associated with high degree, its centrality becomes higher. We sorted out words related to Katzcentrality in descending order:

Table 6 Words related to Katzcentrality

Number	Words	In-StatusCentrality
1	Woo	0.691248
2	Youngwoo	0.335507
3	autism	0.113089
4	Attorney	0.100581
5	series	0.091748
6	firm	0.088113
7	spectrum	0.075575
8	Eunbin	0.072995
9	show	0.071755

4	autism	0.030084
5	Youngwoo	0.029373
6	Attorney	0.025138
7	series	0.022530
8	law	0.021534
9	Park	0.021470
10	Eunbin	0.020593
11	South Korea	0.019329
12	Extraordinary	0.018615

The term PageRank centrality indicates that if there are many links coming to a node, the node becomes influential. Note that this algorithm is also used in the search engine of Google. It is worth saying that as indicated in Table 7, the word *show* has the highest PageRank centrality (0.050573). This in turn indicates that this word has the most links coming inside, thereby implying that the word *show* is regarded as the most influential. It must be emphasized again that the word *Woo* has the second highest PageRank centrality (0.044857). As can be seen from Table 7, the word *Woo* has the second most links coming inside, thus indicating that from the perspective of PageRank centrality, it is the second most influential. I think it should also be pointed out that the word *lawyer* has the third highest PageRank centrality (0.037150). From this it seems clear that the word *lawyer* has the third most links coming inside, which we take as meaning that from the viewpoint of PageRank centrality, the word *lawyer* is the thirdmost influential. Now attention is paid to the map of words related to PageRank centrality:

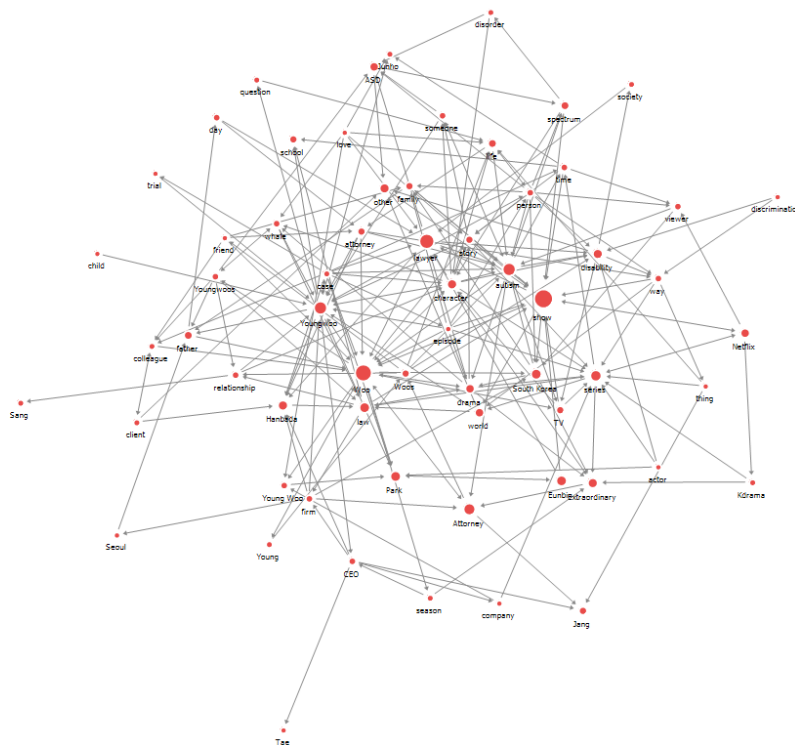


Figure 3 Map of words related to PageRank centrality

It is significant to note that as shown in Table 7, the word *show* has the most links coming inside, thus leading to the highest PageRank centrality (0.050573). This figure is the highest and thus the word *show* is interpreted as the most influential. It should also be noted that as illustrated in Table 7, the word *Woo* has the second most links coming inside (0.044857). This figure is the second highest and thus the word *Woo* is construed as the second most influential. Finally, it is also important to mention that the word *lawyer* has the third most links coming inside (0.037150). This leads us to assume that the word *lawyer* is the third most influential since it has the third most links. From all of this, it seems clear that the word *show* has the most links coming inside, followed by the word *Woo*, and the word *lawyer*, in that order. For the map of synonyms and keywords, see Kang (2022a, 2022b, 2022c, 2022d, 2023a, 2023b).

CONCLUSION

To sum up, we have analyzed 32 articles of Google regarding the drama “Extraordinary Attorney Woo”. In section

2.1, we have argued that the six-word expression has the highest frequency (254 tokens) and the highest proportion (0.144). In section 2.2, we have further argued that in the word cloud, the keyword *Woo* is represented in the biggest font. This in turn indicates that this keyword is one of the most pivotal characters in the drama. In section 2.3, we have contended that topic 13 was the most widely used one in 32 articles of Google, followed by topic 8, and topic11, in that order. In section 2.4, we have maintained that the word *Woo* was the most frequently used one in 32 articles of Google, followed by the word *Young woo*, the word *person*, and the word *Attorney*, in that order. In section 2.5, we have shown that the word *Woo* has the highest Katz centrality since it has the most neighbors including direct and indirect links. In section 2.6, we have also argued that the word *show* is interpreted as the most influential since it has the highest PageRank centrality.

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