

THE NORTH KOREA MISSILE IN CNN NEWS: A NETMINER ANALYSIS

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The main purpose of this article is to analyze 20 pieces of CNN news broadcasted from 10th October 2022 to 23rd December 2022 regarding the North Korea missile. This analysis was conducted by the software package NetMiner. A major point to note is that the word *missile* has the highest frequency (455 tokens) and the highest proportion (0.39) and that the seven-word expression has the highest frequency (153 tokens) and the highest proportion (0.131). A further point to note is that topic 7 was the most frequently used one in 20 pieces of CNN news, followed by topic 6, topic 4, and topic 5, in that order. When it comes to the keywords used in 20 pieces of CNN news, the word *missile* was the most widely used one, followed by the word *North Korea*, the word *test* (the word *launch*), the word *US*, the word *Japan*, and the word *South Korea*, in descending order. It is particularly noteworthy that the word *missile* is the biggest in size in the word cloud of 20 pieces of CNN news. This in turn suggests that the word *missile* was the most frequent one in the CNN news and thus it is deemed to be the most central and pivotal. It is worthwhile noting, on the other hand, that the keyword *missile* is followed by the keyword *North Korea*. Finally, this article provides the links among the relevant keywords occurred in 20 pieces of CNN news regarding the North Korea missile. More specifically, the keywords *time*, *North Korea*, *range*, *launch*, *test*, *Koreas*, and *Japan* are directly linked to the word *missile*.

Keywords: CNN news, missile, North Korea, NetMiner, word cloud, topic, keyword

1. Introduction

The main goal of this article is to analyze 20 pieces of CNN news broadcasted from 10th October 2022 to 23rd December 2022 regarding the North Korea missile. Our analysis was conducted by the software package NetMiner. First, we aim to inquire into the frequency of nouns used in 20 pieces of CNN news and their proportion. Second, we aim at looking into word length, its frequency, and its proportion. Third, we aim to explore 7 topics and their keywords that are classified from the 1st keyword to the 5th keyword. Also, we investigate the frequency of topics occurred in 20 pieces of CNN news. Fourth, we aim at pinpointing the probability of becoming the 1st keyword, the 2nd keyword, and the 3rd keyword in 7 topics. Fifth, we aim to look into the frequency of the relevant words occurred in 20 pieces of CNN news. By doing so, we can see how frequently the relevant keywords were used in 20 pieces of CNN news. Sixth, we aim at considering a word cloud in which frequent and important words (the so-called keywords) are represented as bigger in size. This word cloud provides us with the picture of which keywords are frequent and important in 20 pieces of CNN news. Finally, we provide the visualization of the network among the relevant keywords occurred in 20 pieces of CNN news.

2. Results

2.1. Results of Frequency

In what follows, we aim at looking into the use of the relevant nouns occurred in 20 pieces of CNN news and their proportion:

Table 1 Frequency of words

Value	Frequency	Proportion	Cumulative Proportion
1.0	455	0.39	0.39
2.0	265	0.227	0.617
3.0	99	0.085	0.702
4.0	79	0.068	0.77
5.0	52	0.045	0.815
6.0	34	0.029	0.844
7.0	16	0.014	0.858
8.0	19	0.016	0.874
9.0	17	0.015	0.889
10.0	10	0.009	0.897
11.0	12	0.01	0.907
12.0	8	0.007	0.914
13.0	7	0.006	0.92
14.0	11	0.009	0.93
15.0	5	0.004	0.934
16.0	4	0.003	0.937
17.0	7	0.006	0.943

THE NORTH KOREA MISSILE IN CNN NEWS: A NETMINER ANALYSIS

18.0	6	0.005	0.949
19.0	5	0.004	0.953
20.0	2	0.002	0.955
21.0	1	0.001	0.955
22.0	1	0.001	0.956
23.0	2	0.002	0.958
24.0	5	0.004	0.962
25.0	3	0.003	0.965
26.0	1	0.001	0.966
27.0	5	0.004	0.97
28.0	5	0.004	0.974
29.0	2	0.002	0.976
30.0	1	0.001	0.977
31.0	1	0.001	0.978
32.0	1	0.001	0.979
33.0	3	0.003	0.981
34.0	1	0.001	0.982
36.0	2	0.002	0.984
37.0	1	0.001	0.985
42.0	1	0.001	0.985
43.0	1	0.001	0.986
45.0	2	0.002	0.988

48.0	2	0.002	0.99
56.0	1	0.001	0.991
57.0	1	0.001	0.991
63.0	1	0.001	0.992
69.0	1	0.001	0.993
72.0	1	0.001	0.994
74.0	1	0.001	0.995
96.0	1	0.001	0.996
101.0	1	0.001	0.997
146.0	1	0.001	0.997
147.0	1	0.001	0.998
215.0	1	0.001	0.999
348.0	1	0.001	1
Total	1166	1	

It is interesting to observe that one noun has the highest frequency (455 tokens) and the highest proportion (0.39). Note that its cumulative proportion is 0.39. Perhaps it is worthwhile saying that there are two words whose frequency is 265 tokens (the second highest). Their proportion and their cumulative proportion are 0.227 and 0.617, respectively. It is probably worthwhile noting that three words occurred in 20 pieces of CNN news and that their frequency is 99 tokens (the third highest). Notice that their proportion and their cumulative proportion are 0.085 and 0.702, respectively. I think it should also be pointed out that there are four words whose frequency is 79 tokens (the fourth highest). Interestingly, their proportion is 0.608 and their cumulative proportion is 0.77. It must also be stressed that five words appeared in 20 pieces of CNN news and that their frequency is 52 tokens (the fifth highest). We thus conclude that one noun has the highest frequency (455 tokens) and the highest proportion (0.39).

2.2 Word length

This section centers on investigating word length, its frequency, and its proportion:

Table 2 Word length

Value	Frequency	Proportion	Cumulative Proportion
2.0	20	0.017	0.017
3.0	76	0.065	0.082
4.0	140	0.12	0.202
5.0	140	0.12	0.322
6.0	152	0.13	0.453
7.0	153	0.131	0.584
8.0	132	0.113	0.697
9.0	92	0.079	0.776
10.0	59	0.051	0.827
11.0	48	0.041	0.868
12.0	38	0.033	0.901
13.0	27	0.023	0.924
14.0	13	0.011	0.935
15.0	4	0.003	0.938
16.0	12	0.01	0.949
18.0	6	0.005	0.954
19.0	6	0.005	0.959
20.0	4	0.003	0.962
21.0	3	0.003	0.965

THE NORTH KOREA MISSILE IN CNN NEWS: A NETMINER ANALYSIS

22.0	8	0.007	0.972
23.0	4	0.003	0.975
24.0	1	0.001	0.976
25.0	3	0.003	0.979
26.0	4	0.003	0.982
27.0	2	0.002	0.984
28.0	2	0.002	0.985
29.0	1	0.001	0.986
31.0	1	0.001	0.987
32.0	2	0.002	0.989
33.0	1	0.001	0.99
34.0	3	0.003	0.992
35.0	2	0.002	0.994
42.0	2	0.002	0.996
44.0	1	0.001	0.997
45.0	3	0.003	0.999
46.0	1	0.001	1
Total	1166	1	

It is particularly noteworthy that the seven-word language has the highest frequency (153 tokens) and the highest proportion (0.131). Note that its cumulative proportion is 0.584. It must also be said that the six-word language is the second highest. More specifically, its frequency is 152 tokens and its proportion and its cumulative proportion are 0.13 and 0.453, respectively. It is worth saying, on the other hand, that the four-word language and the five- word language are the third highest (140 tokens) and that their proportion is 0.12. It is interesting to consider the eight-word language. Its frequency is 132 tokens (the fourth highest) and its proportion and

cumulative proportion is 0.113 and 0.697, respectively. Finally, it is worth mentioning that the nine-word language is the fifth highest (92 tokens) and that its proportion and cumulative proportion are 0.079 and 0.776, respectively. We thus conclude that the seven-word language (expression) was the most frequently used one (153 tokens) in 20 pieces of CNN news.

2.3. Topic Information

This section is focused on analyzing 7 topics and their keywords occurred in 20 pieces of CNN news. Table 3 shows 7 topics and 5 keywords consisting of them:

Table 3 Topic information

	1st Keyword	2nd Keyword	3rd Keyword	4th Keyword	5th Keyword
Topic-1	North Korea	KCNA	Kim	drill	South Korea
Topic-2	missile	South Korea	leader	Kim Jong Un	Kim
Topic-3	missile	launch	state	Japan	medium
Topic-4	US	Japan	exercise	kilometer	carrier
Topic-5	test	North Korea	North	Koreas	official
Topic-6	missile	North Korea	ICBM	CNN	Friday
Topic-7	weapon	testing	Koreas	program	launch

It must be emphasized that the keywords *North Korea*, *KCNA*, *Kim*, *drill*, and *South Korea* constitute topic 1. As can be seen from Table 3, the 1st keyword is *North Korea*, which in turn implies that *North Korea* was the most widely used one in topic 1. It must be pointed out, on the other hand, that the keywords *missile*, *South Korea*, *leader*, and *Kim* are made up of topic 2. As expected, the keyword *missile* was the most occurred one in topic 2. Quite interestingly, the keywords *missile*, *launch*, *state*, *Japan*, and *medium* consist of topic 3. Exactly the same can be said about topic 3. The word *missile* is the most occurred keyword in topic 3, thereby becoming the 1st keyword. It should also be noted that topic 6 is constituted by the keywords *missile*, *North Korea*, *ICBM*, *CNN*, and *Friday*. Again, the keyword *missile* was the most occurred one in topic 6. Finally, it is interesting to point out that topic 7 includes the keywords

weapon, testing, Koreas, program, and launch. In this topic, the keyword *weapon* is the most frequently used one, thus becoming the 1st keyword.

Now let us turn our attention to the use of each topic in 20 pieces of CNN news:

Table 4 Frequency of each topic

	# of sentences
Topic-1	55
Topic-2	95
Topic-3	86
Topic-4	102
Topic-5	97
Topic-6	109
Topic-7	114

It is significant to note that topic 7 occurred 114 times (the highest). As observed in Table 3, the keywords *weapon, testing, Koreas, program, and launch* are made up of topic 7. It is interesting to reconsider topic 6. When it comes to topic 6, it is the second highest. Simply put, it appeared 109 times and topic 7 is followed by topic 6 (the second highest). It is also worth mentioning that topic 4 occurred 102 times (the third highest). As exemplified in Table 3, the keywords *US, Japan, exercise, kilometer, and carrier* consist of topic 4. Perhaps it is worthwhile pointing out that topic 5 appeared 97 times (the fourth highest). As shown in Table 3, the keywords *test, North Korea, North, Koreas, and official* constitute topic 5. It can thus be concluded that topic 7 was the most widely used one in 20 pieces of CNN news, followed by topic 6, topic 4, and topic 5, in that order.

Now we turn our inquiry to the probability of becoming the 1st keyword, the 2nd keyword, and the 3rd keyword:

Table 5 Probability of becoming 1st keyword, the 2nd keyword, and the 3rd keyword

	1 st keyword	1 st Prob	2 nd keyword	2 nd Prob	3 rd keyword	3 rd Prob
Topic 1	Korea	0.045	KCNA	0.034	Kim	0.027
Topic 2	missile	0.075	Korea	0.041	leader	0.041
Topic 3	missile	0.108	launch	0.096	state	0.046
Topic 4	US	0.075	Japan	0.037	exercise	0.027

Topic 5	test	0.128	North Korea	0.081	North	0.067
Topic 6	missile	0.139	Korea	0.04	ICBM	0.034
Topic 7	weapon	0.065	testing	0.03	Koreas	0.028

Perhaps it is worthwhile noting that in topic 1, the 1st keyword is *Korea* and its probability is 0.045 (the highest). As exemplified in Table 5, the keyword *Korea* is followed by the keyword *KCNA*. The probability to be the 1st keyword is 1.1% higher than the probability to be the 2nd keyword. It is noteworthy that in topic 2, topic 3, and topic 6, the 1st keyword is the word *missile*. Note, however, that the probability to be the 1st keyword in these three topics is somewhat different in that topic 6 is the highest (0.139), followed by topic 3 (0.108), and topic 2 (0.075), in that order. It must also be said that in topic 4, the probability of the 1st keyword is 0.075 (the highest). As can be seen from Table 5, the keyword *US* is followed by the keyword *Japan*. To be more specific, the former is 3.8% higher than the latter, thus proving that the word *US* is the 1st keyword. Finally, it is interesting to note that in topic 7, the 1st keyword is 3.5% higher than the 2nd keyword, hence demonstrating that the 1st keyword is *weapon*.

2.4. The frequency of words in the sentence

In the following, we aim at exploring the frequency of the relevant words occurred in 20 pieces of CNN news. The following list was cut off in the top 49 for the reason of space:

Table 6 Frequency of major words

Number	Words	Degree
1	missile	277
2	North Korea	193
3	test	129
4	launch	129
5	US	91
6	Japan	88
7	South Korea	72
8	weapon	68
9	North	68
10	Koreas	59
11	Kim	56
12	year	54
13	state	47
14	time	46
15	medium	44
16	leader	42
17	Kim Jong Un	40
18	Pyongyang	36
19	KCNA	35

20	country	34
21	CNN	33
22	testing	32
23	drill	32
24	United States	32
25	exercise	31
26	ally	31
27	South	30
28	official	28
29	statement	27
30	expert	27
31	Thursday	27
32	Korea	27
33	photo	26
34	Seoul	26
35	Friday	26
36	program	25
37	image	25
38	Peninsula	25
39	October	24
40	Monday	24
41	water	23
42	day	23
43	carrier	23
44	aircraft	23
45	warhead	22
46	response	22
47	report	22
48	provocation	20
49	force	20

It is significant to note that the word *missile* has the highest frequency (277 tokens). More specifically, it occurred 277 times (the highest). It is interesting to consider the word *North Korea*. Quite interestingly, it appeared 193 times (rank-two). More interestingly, the words *test* and *launch* occurred 129 times in 20 pieces of CNN news. That is to say, they rank third in the list. It is also interesting to observe that the word *US* occurred 91 times (rank-four). It should be pointed out, on the other hand, that the word *Japan* occurred 88 times in 20 pieces of CNN news regarding the North Korea missile. It is interesting to point out that the word *South Korea* appeared 72 times in 20 pieces of CNN news (the sixth highest). To sum up, the word *missile* was the most widely used one in 20 pieces of CNN news, followed by the word *North Korea*, the word *test* (the word *launch*), the word *US*, the word *Japan*, and the word *South Korea*, in descending order.

and thus it is the most central. It is worthwhile noting, on the other hand, that the word *missile* is followed by the word *North Korea*. In section 2.6, we have provided the links among the relevant keywords occurred in 20 pieces of CNN news regarding the North Korea missile. Specifically speaking, the keywords *time*, *North Korea*, *range*, *launch*, *test*, *Koreas*, and *Japan* are directly linked to the word *missile*. On the other hand, the keywords *Kim*, *United States*, *CNN*, *US*, etc. are linked to the word *South Korea*.

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