

Original Article

A Study on the Authenticity of Private Remarks by President Suk-Yeol Yoon of the Republic of Korea

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Abstract - On September 21, 2022, a camera reporter from Korea's MBC station, who was in charge of filming the 'Global Fund 7th Fiscal Pledge Meeting' held in New York, USA, reported a private conversation the president of his country had with his companions at a time other than the official schedule. It became a big problem when it was broadcast on the news. In an MBC article on September 22, 2022, the reporter said, "If these XXs do not approve in the (USA) National Assembly, Biden will be embarrassed?" It was broadcast with subtitles included. The MBC article acted suspiciously of manipulation, even writing "United States" in parentheses at the part where it said the National Assembly in the subtitle. In addition, it did not just stop at reporting but also sent an e-mail to the White House in the United States to inform them. However, in the presidential office of the Republic of Korea, neither the word 'USA' nor the word 'Biden' was said, and to be precise, they said, "What if these XXs do not approve in the National Assembly and if they blow away<Korean word: Nal-li-myun>?" These articles can be misunderstood among countries, and the public needs to know the exact contents, so in this paper, we will strictly research and analyze the truth and reveal it. In particular, in existing acoustics, there have been studies on the barbecue phenomenon, the mondegreen phenomenon, and the McGurk phenomenon, in which people hear the subtitles when conversations in noisy places are processed as subtitles. In this paper, based on various research theories, we analyzed the authenticity using a scientific voice analysis tool. If MBC's article is judged to be fabricated, it is judged that strict legal action is necessary.

Keywords - MBC, Biden, Nal-li-myun, National assembly, Barbecue phenomenon, Mondegreen phenomenon, McGurk phenomenon, Legal action.

1. Introduction

On September 22, 2022, President Suk-Yeol Yoon met US President Biden at the 'Global Fund 7th Financial Pledge Meeting' held in New York, USA, and then the remarks he made while exiting the conference room were reported by MBC of Korea, making a big splash both domestically and abroad. It has been controversial; moreover, it is pointed out that the Blue House coverage system should also be reorganized because this controversy was caused by a pool reporter who accompanied the president. The pool reporter corps refers to the reporters who cover the events of the day among the reporters who accompany the president on his tour. Since not all reporters can cover the event, it is a system in which essential personnel such as newspaper reporters, broadcast reporters, photo reporters, and broadcast camera reporters enter the site as pool reporters and cover the event. In this case, the pool reporter corps does not report as a representative of each media company but as a representative of the entire reporter corps, so the final coverage of the pool reporter corps is decided by all reporters through a meeting.

Moreover, the contents have also to be owned by the entire reporter group, not by one individual among the pool reporters. Above all, it is customary for reporters who attended the coverage as a pool reporter group to cover the event quickly and then return to the press room to inform other reporters of the coverage. However, it is known that the MBC video camera reporter in question did not return to the press room and continued to follow and film President Yoon. In the process, the private remarks of President Suk-yeol Yoon of the Republic of Korea were captured on a video camera. The article in question was text and video with subtitles saying South Korean President Suk-yeol Yoon said, "If these XXs do not approve in the (USA) National Assembly, Biden will be embarrassed?" Reporters from other companies who were present at the scene at the time were in the middle of a meeting, saying, "I can't hear President Yoon's remarks clearly." that was reported alone. The media world is criticizing the MBC video camera reporter for such deviant behavior as a shameless act of forgetting the duty of



pool reporters. It is pointed out that there is a clear problem with the act of publishing an independent report while being a pool reporter and that sanctions are needed. In addition, it is arousing public anger in that it deliberately sent an e-mail to the White House to inform about such an important article that could damage the ROK-US alliance and damage the national interest. It is also doubtful that the individual reporter thought of this deviant act alone. If it were reported under the approval of MBC's desk, it would be a serious case in which a national public broadcaster harmed the national interest of its own country and damaged the honor of its president. In this paper, the seriousness of this case cannot be overlooked, so we try to analyze it through scientific analysis. For the study, first of all, the most problematic part of President Yoon's on-site remarks was compared and analyzed intensively. For the analysis, Adobe's voice analysis tool audition program was used.[1][2][3]

2. The Circumstance Overview

On September 21, 2022, an MBC camera reporter who was in charge of filming the scene of the "Global Fund 7th Financial Commitment Conference" left the event venue after South Korean President Suk-yeol Yoon met with US

President Joe Biden and the US Congress. It was reported through an MBC article dated September 22, 2022, that he used non-slang, referring to President Biden. In addition, it did not stop at just reporting but also sent such content to the White House in the United States by e-mail. However, as a result of listening to President Yoon's remarks at the time of the speech research professor at Seoul National University and Soongsil University Sound Engineering Research Center at the time, he did not say anything like 'US' or 'Biden', and President Yoon's remarks said, "What if these XXs don't approve in the National Assembly and if they blow away <Korean word: Nal-li-myun>?" Nevertheless, from the daytime news that day, MBC continued to broadcast-related news with subtitles such as "If these XXs do not approve in the (USA) National Assembly, Biden will be embarrassed?" In the subtitles, parentheses were used to add the word 'USA', which was not even in the remarks, forcibly portraying it as if it were a remark directed toward the United States. MBC said that President Suk-yeol Yoon said 'National Assembly' in his remarks, but MBC manipulated it by adding the word 'US' in parentheses, knowing that in the United States, a place that plays the same role as Korea's 'National Assembly' is called 'Congress' in America.



September 22, 2022 MBC News Desk video screen capture photo material <Report that President S-Y Yoon... made a remark containing profanity while leaving the event after meeting with President Biden>

Fig. 1 MBC News-Desk video screen
<President Yoon's private remarks report>

In fact, this remark is a private conversation made in the midst of noisy background music, so it is difficult to hear it even if you listen to it over and over again. Some studies and experts point out that if there are subtitles like this, it sounds like subtitles. However, in the President's Office of the Republic of Korea, neither the word 'US' nor the word 'Biden' was said, and to be precise, they said, "What if these XXs don't approve in the National Assembly and if they blow away<Korean word: Nal-li-myun>?" ven the 1st union, which is the counterpart of the KCTU, the current flagship union of MBC, replays President Yoon Seok-yeol's remarks slowly at 50-60% speed, and concludes, "What if Biden is embarrassed if the National Assembly does not approve it?" They are saying that you will know how reckless it is to report. In addition, the second union is of the opinion that the proper noun 'Biden' cannot come because the content right before 'Biden' claimed by the KCTU uses a linking investigation to the verb in the context of 'do not approve'. In addition, it was said that MBC's broadcasting with subtitles, even the word '(USA)' that did not exist through the news desk, was an incident that could cause misunderstanding between the leaders of Korea and the United States, and it was a disaster reported. Even if President Suk-yeol Yoon said something swearing at 'Biden' in a private conversation, a reporter in the Republic of Korea should have hidden the mistake of his own president for the sake of the national interest. Suppose MBC's article turns out to be a fabricated article that harms the national interest. In that case, the reporter who wrote the article should be immediately fired and arrested, and the broadcasting company should be immediately closed down.[4][5][6]

3. Sound Phenomena Referenced for Analysis

MBC reporter published the news by adding a subtitle, saying, "If these XXs do not approve in the (USA) National Assembly, Biden will be embarrassed?" while President Yoon Seok-yeol had a private conversation with his party after the "7th Global Fund Fiscal Pledge Meeting" in New York on September 21, 2022. However, the president of the Republic of Korea's presidential office said, "What if these XXs don't approve in the National Assembly and if they blow away <Korean word: Nal-li-myun>?" and replied that they never said "(USA)", "If you don't approve" or "Biden". In addition, professors related to voice research at Seoul National University and Soongsil University's Sound Engineering Research Institute said that neither the word

"(USA)" nor 'Biden' could be confirmed, and the context of "no approve and" is closer to what the president's office claims. In this paper, the fact that the word '(USA)' was written in parentheses in the subtitle of the MBC report and that 'no approve and' was changed to 'if you do not approve' is a malicious attempt by an MBC reporter to manipulate the private remarks of South Korean President Suk-Yeol Yoon. It was judged that the intention was visible. Above all, the most important point is whether President Suk-Yeol Yoon said 'Biden' or 'if they blow away<Korean word: Nal-li-myun>' in his private remarks, which is the most important keyword, and decided to analyze it strictly. In fact, if you listen to President Yoon's private remarks recorded on the spot, the MBC reporter said, 'If you don't approve' in the sentence right before the part where 'Biden' or 'if they blow away<Korean word: Nal-li-myun>' will be entered, but 'no approve' It must sound like 'and'. If so, the next word after 'no approve and' would be 'if they blow away<Korean word: Nal-li-myun>' rather than 'Biden' in a more natural context. The MBC reporter used subtitles to manipulate this point to induce a voice imprinting effect. The voice imprinting effect, in which conversations in noisy places are heard as subtitles when subtitled, has been studied by world-renowned phoneticians as the Barbecue, Mondegreen, and McGurk phenomena.[7][8][9].

3.1. Barbecue Phenomenon

The barbecue phenomenon is also called the barbecue-like pre-imprinting effect, and it is a phenomenon known by a famous experiment in which the word 'barbecue' is repeated. When you learn certain information through your eyes, it is imprinted in your head. If the sound corresponding to such information is transmitted in succession, even if it is a similar sound, it is imprinted in advance, so it follows the intention of the person who is trying to imprint the visual information. Therefore, the barbecue phenomenon is also called the imprinting effect by prior learning.

When you hear the word barbecue several times, if you show other words that sound similar in pronunciation, such as 'cook me<Korean word: Babikhyuyo>', 'raise it at night<Bamekiwar>' and 'cozy<Aneokkheayo>' in the subtitle, people recognize the voice as the word in the subtitle, not 'barbecue.' It is a kind of word imprinting phenomenon that shows it is done. It is also a phenomenon in which initial information influences subsequent judgments.[10][11]

Table 1. Phenomenon that helps voice imprinting effects

No	Phenomena	Details
1	Barbecue phenomenon	A phenomenon in which, when shown another word that sounds similar to what is being heard, it is mistaken for the word being heard.
2	Mondegreen phenomenon	A kind of illusion in which all or part of the pronunciation of a foreign language sounds like the native language of the listener who 'has meaning.'
3	McGurk effect phenomenon	A phenomenon in which when the sound seen with the eyes and the sound heard are different, the sound is heard as a completely different sound, or the words of the subtitle are recognized and deceived or deceived.

3.2. *Mondegreen Phenomenon*

The mondegreen phenomenon is a phenomenon known from an essay by American writer 'Sylvia Wright' who confessed that she misunderstood the phrase "And laid him on the green" as "And Lady Mondegreen" in the lyrics of the Scottish song 'The Bonny Earl of Murray'. This phenomenon mainly occurs in places with poor acoustics, and it is a phenomenon in which certain pronunciations in song lyrics sound like other pronunciations known to the person in question. In particular, it is a kind of language illusion that all or part of foreign language pronunciation sounds like words or sentences in one's native language, depending on the listener.[12][13]

3.3. *McGurk Phenomenon*

The McGurk phenomenon is a phenomenon in which, when the sound seen with the eyes and the sound heard are different, it is heard as a completely different sound or recognized as the letters of the subtitles and is deceived or deceived. This phenomenon was discovered by British psychologists 'Harry McGurk' and 'John Macdonald' during an experiment to prove that sight has priority over hearing.

It was discovered that people tend to accept visual information first when both visual and auditory information comes in at the same time. In other words, the sound is heard not only by the ears but also by the eyes. When a person perceives a sound, it can be said that he or she perceives it not only by hearing but by imagining and recognizing with the brain by combining sight and hearing. Although there are differences among people, it is known that vision accounts for 70 to 80% of the information received from the outside, and the remaining 20 to 30% is understood through hearing.[14][15]

4. Analysis of the Authenticity of the President's Private Remarks in the Contents of the MBC Report

This paper delves into the authenticity of South Korean President Yoon's private remarks as he leaves the meeting room after meeting with U.S. President Biden at the "7th Global Fund Fiscal Pledge Meeting" held in New York on September 21, 2022. In order to analyze the authenticity of President Yoon's personal remarks, the most important part to analyze can be identified in three main areas.

The first is why MBC put the word '(USA)' in the subtitles in parentheses, which President Suk-Yeol Yoon did not even mention. The second is why the subtitles were written by replacing "no approve" with "If you don't approve" during President Yoon's private remarks. The third is the part that is the most controversial because it doesn't sound exactly like 'Biden' or 'if they blow away<Korean word: Nal-li-myun>'. Among them, the first part of the subtitle, '(USA)', was not audible even after checking by hearing, so it is judged that it was intentionally manipulated.

The second subtitle part, "If you don't approve", is judged to be pre-manipulation to manipulate the third part because it sounds "no approve and" even when checked by hearing. The third most important part, 'Biden' or 'if they blow away<Korean word: Nal-li-myun>', was scientifically analyzed using a voice analysis program because it could not be accurately determined by hearing. Adobe's audition program, a voice analysis tool, was used to perform time-domain analysis and spectrogram analysis for accurate voice analysis.[16][17][18]

4.1. *Time Domain Analysis*

Time-domain analysis can basically grasp the duration, loudness, and frequency range of sound through the waveform change of sound by time period. It can confirm sound characteristics such as tone, rhythm, melody, and dynamics. President Suk-yeol Yoon's on-site private remarks, "What if these XXs don't approve in the National Assembly and if they blow away<Korean word: O-O-O>?" The part corresponding to 'O-O-O' is the most problematic part.

This study focused on whether the 'O-O-O' part, which is the most problematic part of the recorded private remarks of President Suk-yeol Yoon, was called 'Biden' or 'if they blow away<Korean word: Nal-li-myun>'. For comparative analysis, 'Biden' and "Nallimyun<English word: if they blow away>" were separately recorded with the voices of others and compared with the 'O-O-O' part of the field sound through time-domain graph analysis. Time-Domain analysis is a necessary method for comparing unclear words because even if the same word has been uttered by another person, syllables and pitch, which are unique characteristics of each word, are expressed in a time domain graph. [19][20][21]

After analyzing the 'O-O-O' part, which is the most problematic among the private remarks made by President Seok-yeol Yoon, with a time domain graph, it was clear that it was a 3 syllables word. Most importantly, as shown in the time domain graph, the problematic part among the private remarks made by President Suk-yeol Yoon is clearly expressed in 3 syllables words. Since 'Biden' claimed by MBC News Desk is pronounced with 2 syllables: 'Bi' and 'Den', it was analyzed that the 3 syllables: 'Nal', 'Li' and 'Myun' of 'Nallimyun<English word: if they blow away>' claimed by the presidential office are more appropriate words.

In addition, due to the nature of Korean, the word immediately before 'O-O-O' uses the postposition '<Korean pronunciation: ~go>', which expresses a continuous action in Korean, so a person's name cannot appear after it. If a person's name appears, the nominative particle '<Korean pronunciation: ~ga>' or '<Korean pronunciation: ~i>' should appear, but there is no corresponding pronunciation. In other words, since the 'O-O-O' part is a 3 syllables word, it is far from 'Biden' and in context, 'Nallimyun <English word: if they blow away>' is judged as the correct word.

The Problematic Part of President Yoon's Private Remarks

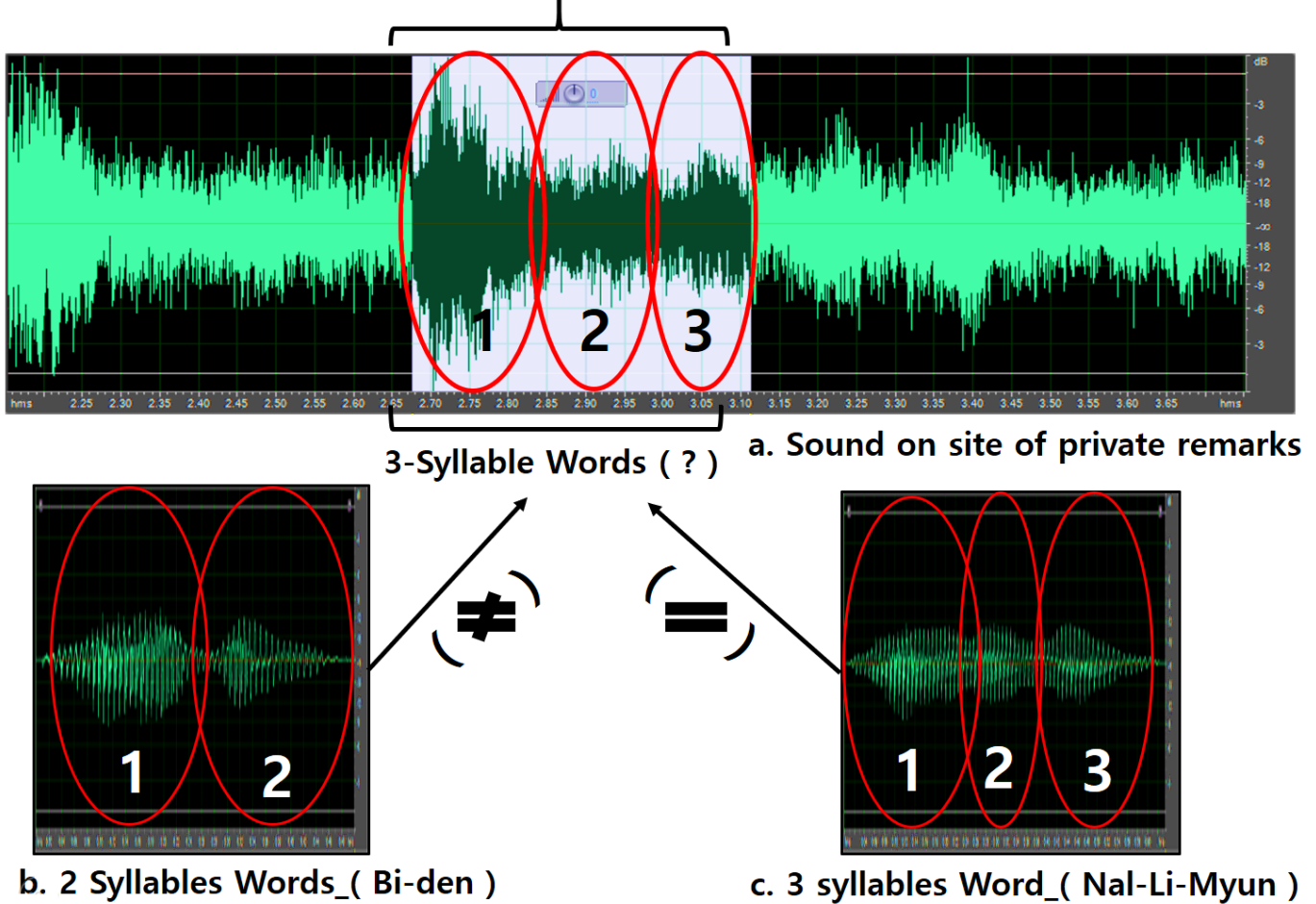


Fig. 2 Time-domain graph of the problematic part of President Yoon's private remarks

4.2. Spectrogram Analysis

Spectrum analysis can determine the distribution of sound energy in each frequency band and confirm the unique characteristics of each frequency band of the sound to be analyzed. In addition, since the spectrogram graph can check the energy distribution of sounds by frequency between sounds to be compared to the extent that it is called the fingerprint of sound, it is possible to check which word is the word to be compared by phoneme. In this study, the problematic word 'Nallimyun <English word: if they blow away>' among the on-site private remarks of President Suk-yeol Yoon, identified as 3 syllables in the time domain analysis, and the recorded 'Nallimyun <English word: if they blow away>' by comparing the spectrogram graphs of the part, the identity of the sound was analyzed more clearly.[22][23][24]

Figure 2 is a spectrogram graph of President Yoon's private remarks, a is a field sound graph, b is an enlarged graph of the 'O-O-O' part, which is the most problematic part of the field sound, and c is a graph separately recorded and analyzed.

'a. Graph of the sound on site of private remarks' is a mixture of music and background sound, so all sounds are expressed very roughly, similar to the graph of white noise.

'b. Magnified graph of the 'O-O-O' part', which is the problematic part, it was confirmed that the context was composed of three-syllable words, as confirmed in the time domain graph.

In addition, the part represented by two pairs of circles in 'a' graph that enlarges the 'O-O-O' part, which is the problem part 'b', represents the sound energy part of the 1st and 2nd formants constituting the vowel of voice, and one syllable. It was analyzed that it had components of 'a' pronunciation, 'i' pronunciation in 2 syllables, and 'yu' pronunciation in 3 syllables.

In particular, since the 'O-O-O' part, which is problematic in both the time domain graph and the spectrogram graph, is clearly shown in three syllables, what President Suk-yeol Yoon said is "Nallimyun <English word: if they blow away>'.

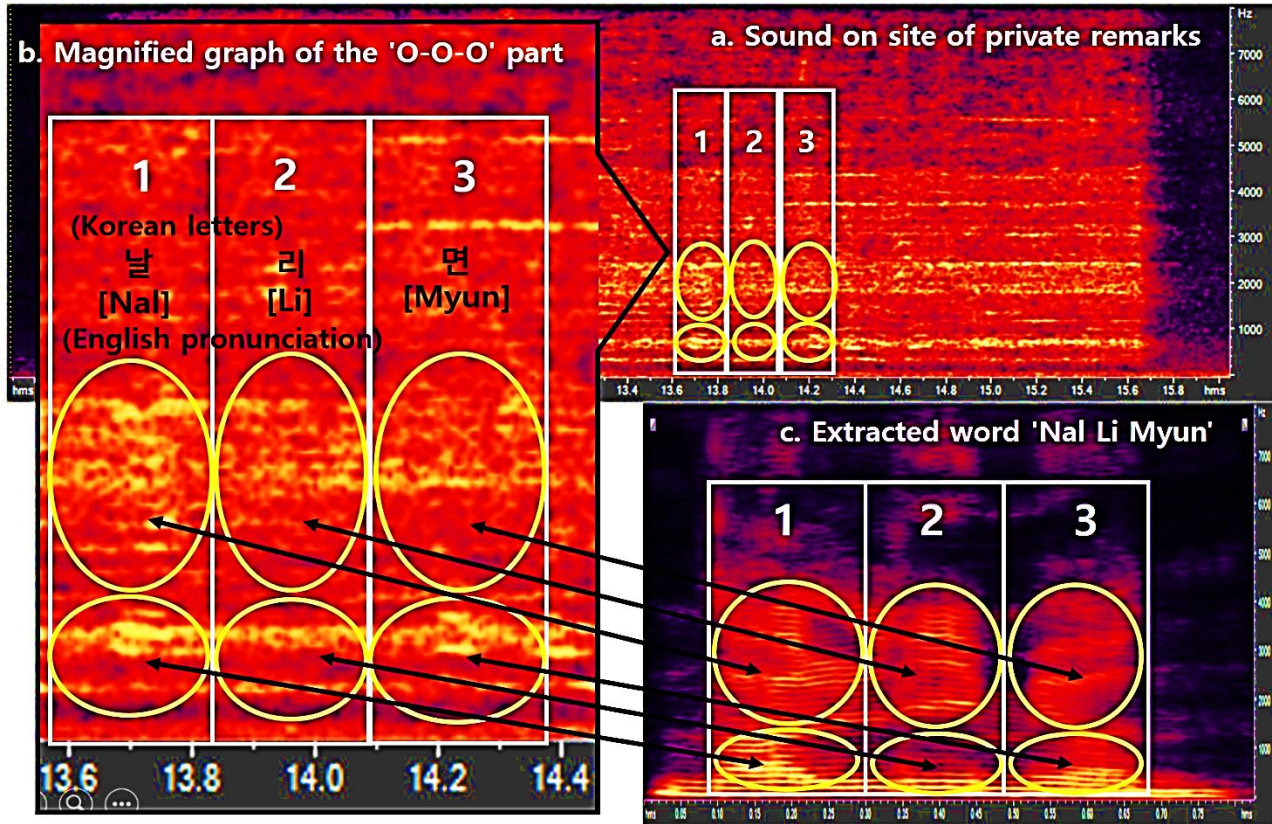


Fig. 3 Comparison of spectrogram graph of the problematic part 'Nallimyun <English word: if they blow away>' of President Yoon's private remarks

5. Conclusion

This paper delves into the authenticity of South Korean President Yoon's private remarks after meeting with U.S. President Biden at the "7th Global Fund Fiscal Pledge Meeting" held in New York on September 21, 2022. As a result of the research, President Yoon Seok-yeol's remarks were confirmed as "What if these XXs don't approve in the National Assembly and if they blow away<Korean word: Nal-li-myun>?" To put it more accurately, it can be interpreted as "The (Korea) National Assembly did not approve (the 100 million dollar support plan for underdeveloped countries) and Nallimyun<English word: if they blow away> (I) was embarrassed What should I do?". MBC intentionally used subtitles to write the word '(USA)' in front of the words referring to the National Assembly and manipulated 'Nallimyun<English word: if they blow away>' into 'Biden'. It was not enough, so he committed the crime of alienating the ROK-US alliance by e-mailing fabricated reports to the White House in the United States. In addition, MBC did not go through multiple experts' confirmation of what the fact was. From the beginning, it was broadcast using the subtitle, "If these XXs do not approve in the (USA) National Assembly, Biden will be embarrassed?". This act is highly suspicious of the intention to manipulate President Yoon's private remarks from the beginning maliciously. In particular, sending false information to the White House in the United States is an act of fraud against the other country

and can be seen as an act of treason to deceive allies. Even within MBC itself, the main union, the Korean Confederation of Trade Unions (KCTU), and the second union had conflicting opinions, as if they had sensed the seriousness of the problem. MBC's 1st union criticized this article and hurriedly came up with various answers to determine the incident's authenticity and put it to rest. MBC 1st Labor Union analyzed the voice of President Seok-Yeol Yoon's official speech with the automatic subtitle generation program (STT: Sound To Text) developed by MBC, and as a result, it was analyzed as an accurate sentence, but they announced the result was that the private remarks in question could not be accurately analyzed. Of course, when the 2 union's statement pointed out this fact, the Korean Confederation of Trade Unions, the 2 unions of MBC, opposed the position of the 1 union, saying that the STT service was only an auxiliary means to increase the efficiency of content production and could not be recognized. However, I would like to point out that it is an obvious case of fabrication that an MBC reporter reported with subtitles '(USA)' and 'Biden' on a file that even the automatic subtitle generation program (STT) judged was not a meaningful voice as a human language. The MBC reporter who sent out fabricated reports should be severely punished, and MBC broadcasting stations should be sanctioned. It is judged that strict legal measures are needed to ensure that this never happens in the future.

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