

LINGUISTIC PERFORMANCE OF AUTOMATED PARAPHRASING TOOLS: A COMPARATIVE STUDY

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Abstract

Recent years witnessed drastic change in automated paraphrasing tools that are greatly used by researchers, students and content writers required for their writing. The accuracy of these paraphrasing tools is outstanding but somehow linguistic efficiency of these tools is a questionable phenomenon. Thus, current study endeavored to identify and highlight linguistic flaws of these automated paraphrasing tools for further improvement. For this purpose, text from Donald Trump inauguration speech was selected as data. The collected data in its original textual form was processed through QuillBot, Spinbot, ChatGPT and ZeroGPT that was analyzed through linguistic theory of artificial flaws by Mehmood (2024) as well as by using Voyant, a corpus tool. The study found semantic differences, passive syntactic construction, irrelevant context, and violation of brevity in paraphrased text. Moreover, it was also found that despite of having need for further upgradation, paraphrasing performance of QuillBot is outstanding, paraphrasing technique of ChatGPT is satisfactory, performance of Spinbot is ordinary whereas ZeroGPT still needs greater work for better linguistic performance in paraphrasing.

Key words: Linguistic performance, automated paraphrasing tools, Voyant tool

Introduction

Paraphrasing tools have got the attention of researchers, research students and experts of other academic and non-academic fields. Moreover, the students as second language learners, essay writers, article developers, and report writers need to write on regular basis but they all are in search of finding easy ways. Different people have numerous problems in their writing, such as some have grammar issues, some have vocabulary issues and some struggle with the issue of how to express their ideas visibly. To address these issues, paraphrasing tools assist the people avoiding plagiarism and give them clarity. This is easy to know what does paraphrasing mean. It means to convert any text in an easy and in different way of the original text but it should not distort original meaning of the text rather the intent should remain same. In other words, it is common belief that while paraphrasing, we do not copy someone else text but adopt a different way of writing. For paraphrasing, some people use Quillbot, some others use Spinbot while many others use ChatGPT, ZeroGPT or Wordtune. These tools assist them in rewriting the text in an easy, simple, clear and in improved language. In this regard, Sharma (2023) claims that these paraphrasing tools aid the users in rewriting sentences more appropriately and correctly, particularly to those who are facing difficulty in English writing. Taking the paraphrasing tools into consideration, Quillbot is a widely used important tool which facilitates the users with respect to grammar correction and different writing modes of composition. This tool gets support from artificial intelligence and provides sentence structure, grammar, synonyms, and sometime shuffled phrases in a sentence. According to Khan and Patel (2023), QuillBot offers different modes of writing. For example, 'standard', 'Fluency', 'Formal', and 'Creative'. These modes are accommodating in reducing grammatical errors and also support users in their essay writing and research paper writing. Users can use any specific mode according to their need. Similarly, Spinbot is also used by variety of users that swiftly changes the words and their structure in any paragraph. The major fact of the tool is that it is free to use and very easy but it has a drawback in a sense that sometimes its output may not sound natural. Wordtune is another paraphrasing tool used to receive quality of sentence and

also the tone. ChatGPT is also used for paraphrasing the text which suggests numerous ways to rewrite a sentence. Like other paraphrasing tools, ZeroGPT facilitates the users to get the text paraphrased. Brown and Singh (2023) highlighted the use of ChatGPT which according to them is a powerful paraphrasing tool as it provides the most neutral and formal form of original text. Many linguistic researchers have studied on it, mainly in political speeches. In the similar vein, Lee (2023), claimed that ChatGPT has potential to reduce emotional tone into a more objective and more informative one, and this is the reason it is preferred in academic disciplines. However, in most cases, original rhetorical power of text is required to emphasize certain important intents and factors. Hassanipour et al (2024) are among those who warned to make limited use of ChatGPT because it makes text easy for us but it gives more damage to creativity. With respect to ZeroGPT, it is the tool used for paraphrasing but has certain drawbacks which need to be addressed. Khan and Rauf (2023) advocated that this tool is helpful when somebody is working on argumentative or persuasive texts. Ideological tone of the original text paraphrased through this tool remains stronger than that of ChatGPT. In some cases, as Ahmed (2022) believes that paraphrased text of this tool lacks in some advanced features related to paraphrasing.

Therefore, it is evident from the discussion that paraphrasing tools are highly beneficial for first language learners as well as second language learners to paraphrase any given text so quickly that it is beyond the human reach and potential (Shahzad, et. al., 2025). Use of these tools help saving the time and energy. However, these tools are not accurate enough to get hundred percent correct results. Sometime, they distort the original meaning and sentence structure. Somewhere, these tools distort the whole linguistic context and create ambiguity. Similarly, on certain points, these tools violate the brevity of the sentence and even paragraph. In addition, efficiency of every paraphrasing tool is comparatively different from the others. Keeping in view the issues, current study has been conducted to investigate the phenomenon of linguistic performance of paraphrasing tools.

Research Objectives

- To identify the extent to which paraphrasing tools achieve linguistic performance when applied on selected text of Donald Trump's address which he made before a joint session of congress?
- To determine strengths and shortcomings of different paraphrasing tools in their paraphrasing when applied on the text of Donald Trump's address which he made before a joint session of congress.

Research Questions

- To what extent do paraphrasing tools achieve linguistic performance when applied on selected text of Donald Trump's address which he made before a joint session of congress?
- What are strengths and shortcomings of different paraphrasing tools in their paraphrasing when applied on the text of Donald Trump's address before a joint session of congress?

Literature Review

During the recent era, technology has brought a drastic change in the field of education where students, teachers, researchers, content writers and people from other fields use many helpful tools to make their work easy and better. These tools help users in many ways, like improving grammar, rewrite the sentences and they can express their ideas in better and more clear manner. Ahmed (2023) stated that paraphrasing tools are useful for learners to use how to express their thoughts in easy and clear ways particularly in presence of limited vocabulary. According to Ali and Jamil (2020), paraphrasing is an important method especially for second

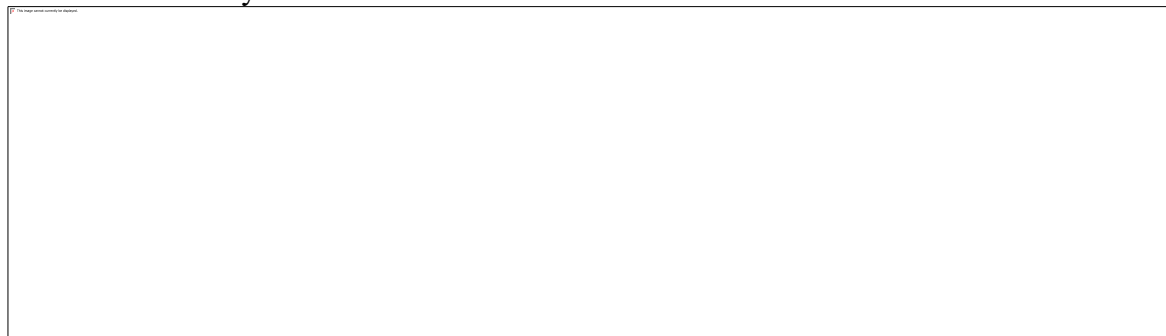
language learners because they have to struggle with correct use of sentences in a proper linguistic context. Hence, these tools are facilitative to second language learners to produce accurate sentence structure, correct grammar avoiding mistakes and replace the difficult words with easier alternatives. Recent studies have identified several limitations as well as usefulness of paraphrasing tools. In this respect, Sharma (2023) explained that paraphrasing tools like Quillbot, and Spinbot provide facilitation to students in their studies while making the text easy, simple and by writing the correct English. Iqbal (2021) points out that Spinbot sometimes produce such type of sentences that do not look like the natural sentences in English. However, Sharma (2023) further elaborates that paraphrasing tools are synchronized with artificial intelligence, supervised and unsupervised machine learning models and natural language processing (NLP) tools. The efficiency of these tools is associated with text comprehension and then transferring it into simpler and easiest way retaining the meaning similar to the original text. There is no doubt that English is international lingua franca used all over the world for communication purposes. Few tools are used for speaking purpose, but their use is limited as compared to the tools used for writing purposes. This is another widely accepted fact that paraphrasing technologies save our time, lessen stress and help us in improving the quality of writing. Nevertheless, experts also issue warning that excessive use of these tools may be detrimental. The reason of devastation relies on the matter when the students start totally depending on these tools which ultimately affects their writing skills. Khan and Patel (2023) emphasized that sometimes when the people use paraphrasing tools without understanding the original content can lead to misunderstanding and even plagiarism. Moreover, if these tools are used blindly, the students may get addicted to use them which results loss of their creativity and originality. This means that these tools can be used with essential care and ethics. The purpose of using these tools should not be to change the text only rather to understand the original text and learn to write in our own way resulting in development of critical thinking, and better comprehension. Rashid and Fatima (2020) used pedagogical perspective advocating use of paraphrasing tools in the classrooms to enhance vocabulary and improve the sentence structure but the real ability should come from the students. Educators like Zhao and Lin (2021) adopted ethical perspective and suggested that students as cream of the nation should have developed their own abilities. Doing so, they need to learn and understand the text by themselves and then should move towards using these tools. Adopting this strategy would help them polishing their creative abilities. As these tools are man-made machines, they can make some mistakes. So, students should combine their understandings with these assisted tools. Literature shows that paraphrasing tools are helpful in many ways, however these tools have numerous issues which need to be addressed, and for this purpose, guidance and proper awareness is required. Keeping in view the phenomenon under consideration, current study was conducted to identify linguistic competence and strengths and shortcomings of paraphrasing tools such as QuillBot, Spinbot, ChatGPT and ZeroGPT.

Research Methodology

The current study endeavored to identify the common drawbacks in linguistic efficiency of paraphrasing tools as well as their individual strengths and shortcomings through their application on selected text of Donald Trump's address which he made before a joint session of congress. For this purpose, four widely used paraphrasing tools, such as Quillbot, Spinbot, ChatGPT, and ZeroGPT were selected to determine their paraphrasing efficiency. Data was in the form of written text that was downloaded from google. Mehmood (2024) framework was used as method of analysis applied on the speech text of Donald Trump. To validate the results obtained through Mehmood (2024) framework, Voyant, a corpus tool has been used to obtain results in numerical form based on data in the form of original text and paraphrased text obtained from paraphrasing tools such as QuillBot, Spinbot, ChatGPT, and ZeroGPT.

Theoretical Framework

Mehmood (2024) framework has been used to analyse the paraphrased data obtained by using automated paraphrasing tools including QuillBot, Spinbot, ChatGPT and ZeroGPT. The framework introduced four standards, such as neutralization strategy, decontextualization, semantic difference, and violation of brevity. Neutralization strategy gets proved if paraphrased text does not follow SVO structure of English language other than the original text. De-contextualization is second standard which is confirmed if context of the original text is changed in paraphrased text. According to the framework, semantic difference is the third standard, where paraphrasing tools apply synonyms on the original text, if meaning is similar to the lexical entity of the original text, it shows that paraphrased text has no semantic difference, however, in case of detecting dangled synonym which has different connotation, it would indicate that there is semantic difference present in the paraphrased text. Violation of brevity is based on total count of the words used in the original text. If the number of words in the paraphrased text are lesser than or equal to the original text, it means there is balance in both the texts. However, if the number of words of paraphrased text are exceeded from the original text, it would mean that there is violation of brevity. In this respect, beginning portion of Trump's inaugural speech was selected as data and analysed through the framework below as a method of analysis.



The linguists such as Mehmood, A. Niaz, F. and Iqbal, A (2024), investigated the phenomenon of linguistic performance and potential drawbacks of QuillBot using four standards mentioned above, like Neutralization, Decontextualization, Semantic differences and Violation of brevity. They found performance of the selected tool satisfactory with certain linguistic drawbacks and suggested to overcome them for more effective paraphrasing results. Moreover, Voyant which is an online corpus tool has also been used where data was uploaded and the tool was run and results were drawn numerically, that were represented in graphical and tabulated forms as well.

Data Analysis and Discussion

Automated paraphrasing tools have been improved in recent years with a great accuracy, however, unlike humans they still need further refinement because in the process of paraphrasing, these tools are dealing with very complex phenomenon of language. To identify and highlight the matter of linguistic deficiency or efficiency in their performance, randomly selected starting portion of Donald Trump's inaugural speech has been analyzed by using Mehmood (2024) framework and Voyant corpus analysis tool. For this purpose, paraphrased text obtained through the use of QuillBot, Spinbot, ChatGPT, and ZeroGPT was selected to meet the intent of the set objectives of current study.

Original text	QuillBot	Spinbot	ChatGPT	ZeroGPT
<i>Six weeks ago, I stood beneath the dome of this Capitol and proclaimed the</i>	<i>I declared the beginning of the Golden Age of America six weeks ago while</i>	<i>I declared the Golden Age of America to have begun six weeks ago while</i>	<i>Six weeks ago, I stood under the dome of this Capitol and declared the</i>	<i>Six weeks prior, I stood beneath the dome of this Capitol and announced the</i>

<i>dawn of the Golden Age of America.</i>	<i>standing beneath this Capitol's dome.</i>	<i>standing beneath this Capitol's dome.</i>	<i>beginning of the Golden Age of America.</i>	<i>beginning of America's Golden Age.</i>
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Selected statement of Trump includes three facts including time slot, space of standing, and proclamation of the age of Trump era as the golden age of America in a particular sequence. Trump originally laid focus on particular past timing and tried to get attention of the audience by using deictic expression ‘six weeks ago’. QuillBot and Spinbot paraphrased it starting with personal pronoun ‘I’ instead of giving that much importance to time as was required, however, ChatGPT and ZeroGPT made no change in position of the temporal phrase ‘Six weeks ago’ as well as first person pronoun. In the same part of the statement, the emphasis was given to spatial existence of the speaker in the original text, that was followed by ChatGPT and ZeroGPT while QuillBot and Spinbot emphasised on declaration of the speaker instead of spatial existence of the speaker. Lexical choice of Trump ‘dawn’ is replaced with ‘the beginning of’ except Spinbot which replaced it with ‘to have begun’. This semantic choice reduced rhetoric expression with a neutral tone. Overall structure of the original statement maintained politeness in the expression following narrative style but paraphrased version of QuillBot and Spinbot dismantled the required polite expression even ChatGPT and ZeroGPT maintained narrative style of the original text but paraphrased it by mere rewording which also distorted the original natural way of the polite speech resulting in de-contextualization of the original intent in first two automated tools whereas the other two automated tools did not disturb the context but made the speech as a lay man’s talk. Further, expected standard of brevity remained intact in all the four automated paraphrasing tools.

Original text	QuillBot	Spinbot	ChatGPT	ZeroGPT
<i>Since then, we have moved with speed and determination to rebuild our country, restore our economy, and reawaken our national pride.</i>	<i>Since then, we have worked quickly and resolutely to rebuild our nation, revive our economy, and rekindle our sense of pride in our homeland.</i>	<i>Since then, we have worked quickly and resolutely to rebuild our nation, revive our economy, and rekindle our sense of pride in our country.</i>	<i>Since then, we have acted with haste and purpose to restore our nation, renew our economy, and revive our national pride.</i>	<i>Since that time, we have acted swiftly and resolutely to reconstruct our nation, revive our economy, and reignite our national pride.</i>

The above-mentioned utterance is found connected with preceding utterance by using ‘Since then’ and highlighted initiation of five key actions in original speech of Donald Trump such as moving with speed and determination, rebuilding the country, restoring the economy, and reawakening the national pride of the speaker’s country USA. Four automated paraphrasing tools did not make any change in ‘since then’ except ZeroGPT which replaced it with ‘since that time’. Every automated tool followed the syntactic pattern of original text by commencing the sentence with first person pronoun plural number ‘we’ along with possessive pronoun ‘have’. However, they changed verb phrase, ‘moved with’ by replacing it with ‘worked’ as done by QuillBot and Spinbot whereas ChatGPT and ZeroGPT replaced the same verb phrase with the verb phrase ‘acted with’ and ‘acted’ respectively. Noun phrases ‘speed’ and ‘determination’ are replaced with ‘quickly and resolutely’ by QuillBot and Spinbot while ‘swiftly’ and ‘resolutely’ by ZeroGPT. However, ChatGPT rephrased the noun phrases as ‘haste’ and ‘purpose’ which are semantically irrelevant as ‘purpose’ and carry negative meaning as ‘haste’. QuillBot replaced ‘country’ with ‘nation’ but did not change infinitive phrase ‘to rebuild’, Spinbot followed the same pattern, ChatGPT used ‘to restore’ while ZeroGPT used ‘to

reconstruct, but both of them replaced ‘country’ with ‘nation’ as was done by first two automated paraphrasing tools. In other words, there is semantic difference between nation and country because nation is consisted of people having national ideology whereas country is referred to land or a territory. Original text states ‘rebuild our country’ referring to the country’s infrastructure but the rephrased text initially has mixed country with nation and secondly distorted the actual sense of building by using ‘to restore’ which means something was scattered which needs to be restored. In actual sense, the verb ‘restore’ is used where something like identity, prestige or value was lost and new efforts are required to restore them. However, the speaker’s intent is different in the original text because his emphasis rests upon rebuilding of country which in other words had been ignored in material terms. Brevity standard was found with minor violation. In this way, one standard of the theory of Mehmood (2024), neutralization standard was found in the paraphrased text with a different dimension of neutralization of tone, rhetoric and conceptual deviation but it was found that automated tools decontextualized the original sense of the text through semantic differences and violating the standard of brevity as well.

Original text	QuillBot	Spinbot	ChatGPT	ZeroGPT
<i>Over the past six weeks, I have signed nearly 100 executive orders and taken more than 400 executive actions — a record — to restore common sense, safety, optimism, and wealth all across our wonderful land.</i>	<i>I have taken more than 400 executive actions and signed almost 100 executive orders in the last six weeks, setting a record, to bring prosperity, safety, optimism, and common sense back to our beautiful country.</i>	<i>I have taken more than 400 executive actions and signed almost 100 executive orders in the last six weeks, setting a record, to bring prosperity, safety, optimism, and common sense back to our beautiful country.</i>	<i>I have signed nearly 100 executive orders and taken more than 400 executive actions — a record — in the last six weeks alone to bring back common sense, safety, optimism, and wealth across our great nation.</i>	<i>In the last six weeks, I have issued almost 100 executive orders and executed over 400 executive actions — a record — to bring back common sense, security, positivity, and prosperity throughout our great nation.</i>

The third utterance is full of Trump’s tangible achievements including signature on 100 executive orders, and having taken 400 executive actions connecting with his resolve to restoration of common sense, safety, optimism, and wealth all across America identifying it as wonderful land. Again, the focus of Trump is on the past as states ‘Over the past six weeks’ because all the achievements for the country were made during this time period. Except ChatGPT, rest of the three automated paraphrasing tools start the utterance with the actions taken while emphasised timing is fixed within the utterance resulting in change in the structure of the utterance. QuillBot used ‘more than’ as replacement of ‘nearly’, same was done by Spinbot, ChatGPT made no change while ZeroGPT replaced it with ‘almost. The phrase ‘executive orders’ is replaced with ‘executive actions’ by all the four paraphrasing tools that is a general term as compared to ‘orders’. President Trump used the word ‘restore’ certain values including prosperity, safety, optimism, and common sense which was changed with ‘rekindled’ by QuillBot, where infinitive phrase ‘to bring’ was used by Spinbot, ChatGPT and ZeroGPT. Conclusively, out of four standards of Mehmood theory (2024), neutralization and brevity violation were not found in the paraphrased text nonetheless decontextualization and semantic differences were found in the utterance of text selected from Trump’s speech.

Original text	QuillBot	Spinbot	ChatGPT	ZeroGPT
<i>I rescinded Joe Biden's extremist Green New Deal executive orders, which crushed American jobs and helped China.</i>	<i>Joe Biden's radical Green New Deal executive directives, which harmed American employment and benefited China, were revoked by me.</i>	<i>Joe Biden's radical Green New Deal executive orders, which harmed American jobs and benefited China, were revoked by me.</i>	<i>Biden's anti-suburban zoning laws, which were destroying the suburbs, were abolished by me.</i>	<i>I revoked Joe Biden's radical Green New Deal executive orders that destroyed American jobs and benefited China.</i>

Passive voice construction was used in the paraphrased text of QuillBot and Spinbot in the subsequent utterance whereas next two paraphrasing tools aligned themselves with original text starting in active voice form which has neutralized the utterance. The lexical item used in original speech 'crushed' is loaded with and extreme action of crushing American jobs but QuillBot, Spinbot, and ZeroGPT replaced it with 'harmed' which has not the intensity of expression as the word 'crushed' has. However, ChatGPT has used the word 'destroyed' which almost carries the similar intensity of expression as the word 'crushed' has.

Original text	QuillBot	Spinbot	ChatGPT	ZeroGPT
<i>I ended the electric vehicle mandates. We're bringing back gas-powered engines and American auto workers.</i>	<i>I terminated the mandates for electric vehicles. Gas-powered engines and American autoworkers are returning.</i>	<i>I terminated the mandates for electric vehicles. Gas-powered engines and American autoworkers are returning.</i>	<i>I stopped the electric vehicle mandates. We're bringing gas engines and American auto workers back.</i>	<i>I abolished the electric vehicle requirements. We're reviving gas engines and American automotive labor.</i>

The paraphrased text commences with first person pronoun, singular number which is similar like the original text but the alternative verbs to 'ended' used, are 'terminated' paraphrased by QuillBot and Spinbot. However, ChatGPT and ZeroGPT paraphrased the same verb with alternatives such as 'stopped' and 'abolished' resultantly no semantic change occurred in the selected sentence except paraphrasing of the lexical item 'mandates' by ZeroGPT which used alternative lexical category 'requirements'. In this respect, it is obvious that the word 'mandates' means 'commands' which have changed the whole meaning by using 'requirements'. The second sentence of the extract in the table above shows semantic similarity of paraphrased text with original text reflecting minor change in the syntactic structure of the sentence. In other words, there is active voice construction in original text while QuillBot and Spinbot constructed the sentence in passive voice. ChatGPT paraphrased the text more or less similar in semantic and syntactic terms. However, ZeroGPT retained the structure in active voice whereas it has used the word 'reviving' as a replacement to 'bringing back' distorting the actual context. 'Revival' of something happens when somebody has intention to develop or make it more refined while the original text does not give such sense rather the speaker Donald Trump expresses his determination to bring back gas-powered engines and American auto workers which were abolished by Joe Biden administration.

Original text	QuillBot	Spinbot	ChatGPT	ZeroGPT
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<i>I directed a massive rollback of the Biden regulations that paralysed our economy. Every unnecessary rule and regulation must be removed.</i>	<i>I oversaw a significant repeal of the Biden rules that were crippling our economy. All superfluous rules and regulations must be eliminated.</i>	<i>I initiated a comprehensive rollback of the regulations imposed by the Biden administration that hindered our economy. It is essential to eliminate all unnecessary rules and regulations.</i>	<i>I oversaw a major reversal of the Biden-era regulations that hindered our economy, and every excessive rule or restriction needs to be eliminated.</i>	<i>I oversaw a significant reversal of the Biden regulations that hindered our economy. All redundant rules and regulations should be eliminated.</i>
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Similar to the previous table, the table above shows that original text and paraphrased text both are in active voice and begin with first person pronoun, singular number. The alternatives like ‘oversaw’ to the verb ‘directed’ of the original text are less formal and give superficial tone to the expression. Same is the case with other alternatives used in the first sentence of the extract, paraphrased by all the paraphrasing tools mentioned above. However, second sentence of the text above begins with the word ‘every’ replaced as ‘all’ by QuillBot seems appropriate. But Spinbot has changed the entire syntactic structure of the original text which has reduced the actual strength of the utterance. ChatGPT has changed simple sentence into compound sentence adding the conjunction ‘and’. Moreover, it has used the word ‘excessive’ in replacement of the word ‘unnecessary’ which is technically irrelevant to the original one giving the whole sentence a neutral tone. Lastly, ZeroGPT has also neutralized the original commanding tone by replacing the modal auxiliary verb ‘should be’ by paraphrasing ‘must be’. Word count of original text is 21 and no significant difference has been found in paraphrased text of QuillBot, ChatGPT, and ZeroGPT while in paraphrased text of Spinbot, the word count is 27 words.

Original text	QuillBot	Spinbot	ChatGPT	ZeroGPT
<i>I ordered that all federal job postings must include whether the position is in-person or remote, and if it's remote, it should be cut immediately unless it's essential.</i>	<i>I mandated that all government employment advertisements include whether the position is remote or in-person, and that if it is remote, it be removed right away unless it is absolutely necessary.</i>	<i>I mandated that all federal job listings must indicate whether the position is in-person or remote, and if remote, it should be discontinued immediately unless deemed essential.</i>	<i>I mandated that every federal job listing state whether the role is in-person or remote, and any remote position should be eliminated right away unless it is truly essential.</i>	<i>I mandated that all federal job advertisements must specify if the role is in-person or remote, and if it's remote, it should be eliminated immediately unless it is essential.</i>

The original text is found in active voice form which is followed by all the four paraphrasing tools. The original text includes ‘federal job postings’ which has been replaced with ‘government employment advertisements’ in paraphrased text by QuillBot where ‘federal entity’ is more specific while ‘government as an entity’ is more general. Modal auxiliary verb ‘must’ is used by the speaker in original text which is followed by three paraphrasing tools except QuillBot which has made the paraphrased text as neutral one. The verb ‘include’ has

been used by Donald Trump presented in original text but in QuillBot ‘must’ has been excluded, Spinbot has replaced the verb ‘include’ with ‘indicate, in paraphrased text, model auxiliary ‘verb ‘must by ChatGPT has also neutralized the expression with ‘should be’, and in the same way, ‘should be’ has been used in ZeroGPT as well. Original word count is 27 which more or less is same as in three paraphrasing tools except word count of paraphrasing tool QuillBot that is 33 which is a bit greater than the word count of original text.

Original text	QuillBot	Spinbot	ChatGPT	ZeroGPT
<i>I terminated Biden's anti-suburban zoning rules that were destroying the suburbs.</i>	<i>Biden's anti-suburban zoning laws, which were devastating the suburbs, were abolished by me.</i>	<i>I also rescinded Biden's anti-suburban zoning regulations that were negatively impacting suburban areas.</i>	<i>I revoked Biden's zoning policies that were harming suburban communities.</i>	<i>I eliminated Biden's anti-suburban zoning regulations that were harming the suburbs.</i>

The original text of the table above is in active voice. The context of the whole sentence is changed with use of ‘regulations’ and ‘policies’ as replacement of ‘rules’ used in original text. However, unlike original text, syntactic structure of the paraphrased text by QuillBot is in passive voice and such structure has evoked the need to embed a phrase unnecessarily. SpinBot paraphrased the word ‘rules’ with ‘regulations’ which has technically different connotation. In paraphrased text, ChatGPT has completely omitted the term ‘anti-suburban’ used in the speech of Donald Trump, it has also replaced the plural noun ‘rules’ with ‘policies’ which also has different connotation. Like Spinbot, ZeroGPT has replaced ‘rules’ with ‘regulations’ where both the terms have different connotations. However, as mentioned earlier, overall, syntactic structure of the paraphrased text of all other three paraphrasing tools is same like original text except QuillBot which has got passive structure emphasizing Biden rather than the emphasis on the action taken by the speaker in original text.

Original text	QuillBot	Spinbot	ChatGPT	ZeroGPT
<i>I took action to stop men from playing in women's sports, and banned federal funds for schools that teach radical gender ideology. I made it official U.S. policy that there are only two genders: male and female</i>	<i>In addition to prohibiting government funding for schools that promote extreme gender ideology, I took steps to prevent men from participating in women's sports. I formally declared that there are only two genders in the United States: male and female.</i>	<i>Furthermore, I took measures to prevent men from participating in women's sports and prohibited federal funding for schools that promote radical gender ideology. I established the official U.S. policy that recognizes only two genders: male and female.</i>	<i>I moved to prevent males from competing in women's sports and prohibited federal funding for schools that teach what I consider radical gender ideology. I established an official U.S. policy stating that only two genders exist: male and female.</i>	<i>I implemented measures to prevent men from participating in women's sports and prohibited federal funding for schools that promote radical gender ideology. I established it as official U.S. policy that there exist only two genders: male and female.</i>

The original text is found in active voice form which was followed by ChatGPT, ZeroGPT, and Spinbot with a minor addition of a connecting word ‘furthermore’ in the start of the sentence

paraphrased by Spinbot. On the other side, QuillBot has paraphrased the text in active voice form but has shuffled two longer parts of the sentence. Original text focused on prohibition of federal funds which is referred to the central funds while paraphrased text of QuillBot has replaced the entity ‘federal’ with ‘government’ that has changed the basic sense of the message of the speaker. On the other hand, rest of three paraphrasing tools have retained the entity ‘federal’ intact in paraphrased text. In paraphrased text by ChatGPT, the principal clause ‘I took action’ has been replaced with ‘I moved to’ which has neutralized the strength of the speaker’s expression. Similarly, ‘I implemented’ has been used in place of ‘I took action’ creating slightly irrelevant context because taking an action comes first while the process of implementation comes later. The word count of paraphrased text is almost similar to the original text except that of the ChatGPT. In the second sentence, ChatGPT has changed the original context of the intention of the speaker who emphasized that he made official policy that there are only two genders while paraphrased text of ChatGPT has emphasized creating sense as the speaker is highlighting his statement (not on the formation of official policy) of saying that there are two genders in US which is not similar to the original text.

Quantitative Analysis Using Voyant, a Corpus Tool

Voyant tool provides word entities as result of analysis carrying central themes of the text which if combined together and interpret, they represent one whole sense of numerous sub-themes. They also provide graphical representation as well. In order to strengthen the results obtained from interpretation of using Mehmood (2024) framework, Voyant tools have been used to obtain the result of central themes, total word count, unique word forms, vocabulary density, readability index, and average words per sentence which can indicate whether the selected paraphrasing tools have or have not distorted the actual meaning and context and brevity of original text. For this purpose, data of original text, and paraphrased data obtained from QuillBot, Spinbot, ChatGPT, and ZeroGPT was uploaded online and received visual representation and results as under:

Graph 1: Graphical representation of original text

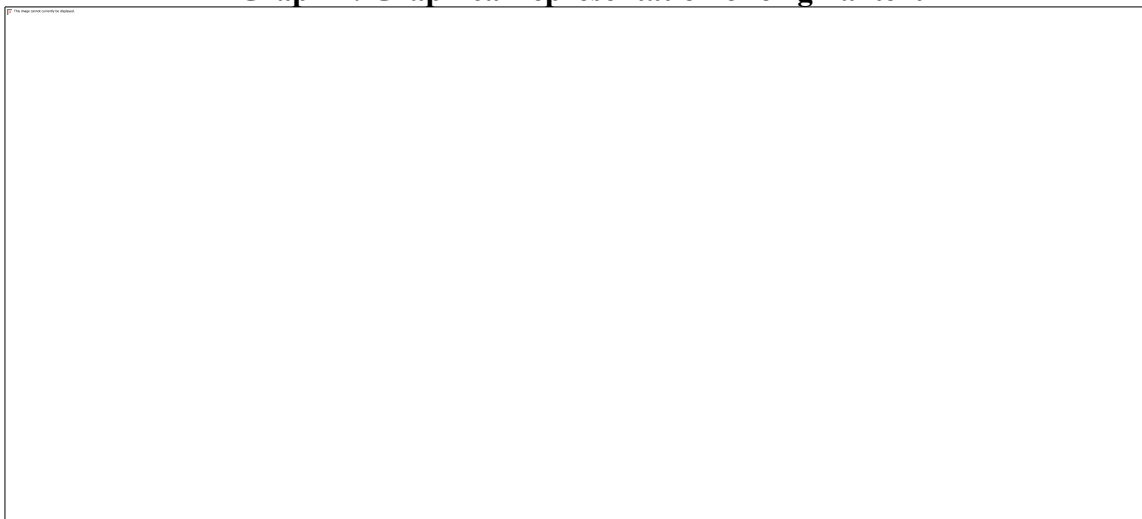


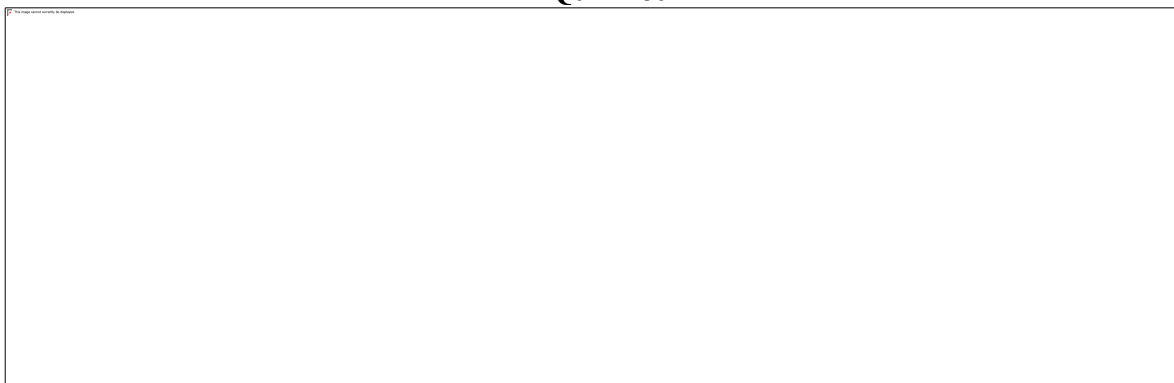
Table 1: Voyant tool’s results of different entities from original text



The graphical representation exhibits the frequency of the most frequently used words in the speech of Donald Trump. The noun 'weeks' has been used with frequency of 0.007, verb 'remote' and adjective 'executive' have been used with almost same frequency that is 0.009 which are the highest frequency words used in the corpus. The verb 'orders' and the noun 'orders' have also been used with same frequency that is 0.006. The word 'weeks' indicate that Donald Trump's focus is on the peak time of Joe Biden administration, and 'executive' and 'restore' indicate Trump's orders to 'restore' the American identity and prosperity which was lost in Biden's time. Moreover, table 1 displays that total word count of original text is 210, unique key word forms are 154, vocabulary density is 0.733, readability index is 11.336 and average words per sentence are 17.5.

Graph 2: Graphical representation of paraphrased text by QuillBot

Table 2: Voyant Tool’s results of different entities obtained from paraphrased text of OuillBot



The graphical representation appeared as result of the paraphrasing through QuillBot displays the frequency very similar to that of the original text with certain differences. The noun ‘weeks’ has been used with frequency of 0.0043, adjective ‘remote’, and noun ‘sense’ have got same frequency as the word ‘weeks’ had but they reflect low frequency as compared to the original text. However, the adjective ‘executive’ and noun ‘rules’ have got the highest frequency that is around 0.8. Significant matter is that original text highlights priority of Donald Trump to ‘restore’ what has been lost during Biden era while paraphrased text has lost the intention of the speaker that is his actual priority of getting things better. Moreover, table 2 displays that

total word count of paraphrased text of QuillBot is 221, unique key word forms are 150, vocabulary density is 0.679, readability index is 13.454 and average words per sentence are 18.4.

Graph 3: Graphical representation of paraphrased text by Spinbot

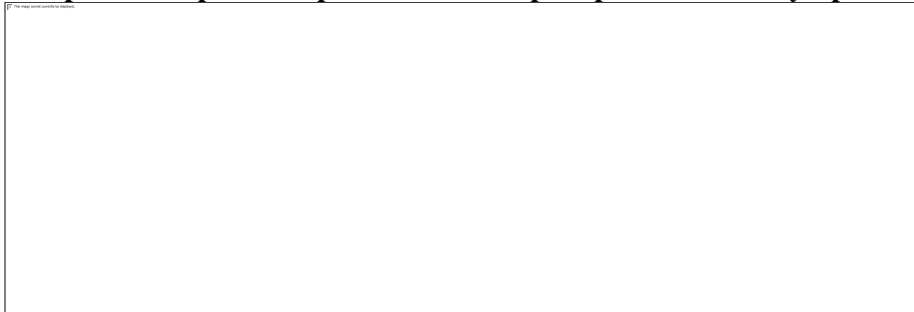


Table 3: Voyant Tool’s results of different entities obtained from paraphrased text of Spinbot

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The graphical representation displays most unique words which reflect the central theme of the speech of Donald Trump. In this respect, it is found that the words, ‘week’, and ‘executive’ have resemblance with that of original text while ‘suburban’, ‘sense’ and ‘regulations highlight different themes. Frequency of ‘executive’ is the highest one while the frequency of all other terms is almost same that is around 0.0044. Moreover, table 3 displays that total word count of paraphrased text of Spinbot is 219, unique key word forms are 152, vocabulary density is 0.6694, readability index is 14.433 and average words per sentence are 18.3.

Graph 4: Graphical representation of paraphrased text by ChatGPT

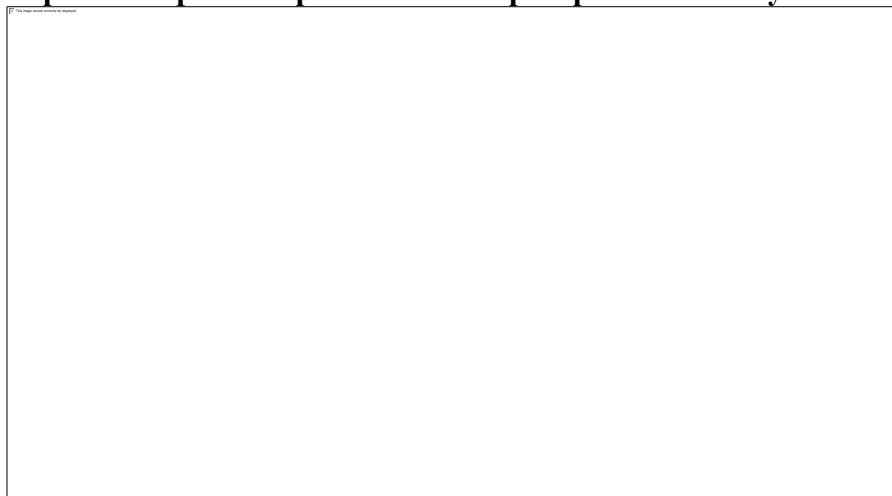


Table 4: Voyant Tool’s results of different entities obtained from paraphrased text of ChatGPT

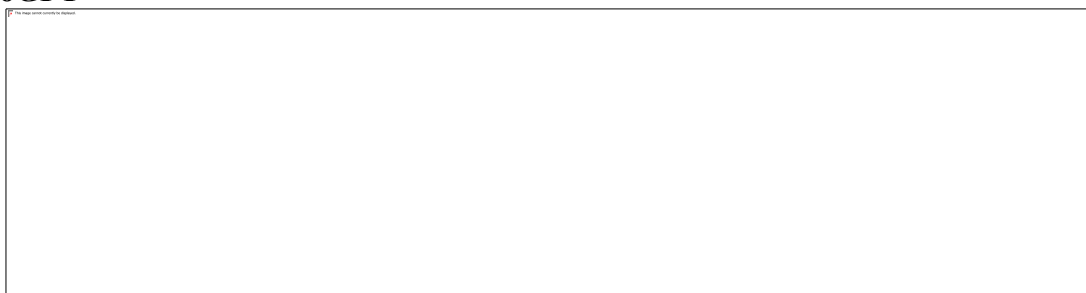


The graphical representation displays the frequencies of the words highlighted on the top of graph. In this respect, the noun ‘weeks’, verb ‘revoked’, adjective ‘remote’ and an entry different from the original text that is ‘radical’ have the same frequencies (0.0044). However, adjective ‘executive’ has got the highest frequency as compared to the other entries. The word ‘radical’ has replaced ‘orders’ which is central theme of the speech of Donal Trump which shows his power of issuing the orders as new president. Moreover, table 4 displays that total word count of paraphrased text of ChatGPT is 213, unique key word forms are 151, vocabulary density is 0.709, readability index is 11.703 and average words per sentence are 19.4.

Graph 5: Graphical representation of paraphrased text by ZeroGPT



Table 5: Voyant Tool’s results of different entities obtained from paraphrased text of ZeroGPT



Graphical representation shows that ZeroGPT has replaced two thematic words such as ‘regulations’ and ‘eliminated’. Like other paraphrasing tools, it has got resemblance in thematic category ‘executive’ with the highest frequency but it has got the similar highest frequencies in ‘regulations’ and ‘eliminated’ which form around frequency of 0.009. Other entries like ‘weeks’ and remote have got frequencies below 0.006. Moreover, table 5 displays that total

word count of paraphrased text of ChatGPT is 208, unique key word forms are 144, vocabulary density is 0.692, readability index is 13.901 and average words per sentence are 17.3.

Table 6: Combined data of entire individual tables

Original text & Tools	Total words	Unique words	Vocab. density	Readability index	Average words per sentence
Pre-paraphrased text	210	154	0.733	11.336	17.5
QuillBot	221	150	0.679	13.454	18.4
Spinbot	219	152	0.694	14.433	18.3
ChatGPT	213	151	0.709	11.703	19.4
ZeroGPT	208	144	0.692	13.901	17.3

The table displays results in the form of total words of the text and paraphrased text, unique words, vocabulary density, readability index, and average words per sentence. There is greater variation in the similarity between original text and paraphrased text obtained from different paraphrasing tools. The table shows that total word count of original text was 210 which is maintained by ChatGPT and ZeroGPT at acceptable level. Average word count per sentence of the original text was 17.5, which was maintained by ZeroGPT only. Unique word count of the original text was 154 which was maintained to some extent by other three paraphrasing tools except ZeroGPT. Vocabulary density of original text was 0.733 which is found similar in paraphrased text of ChatGPT to some extent while other three paraphrasing tools could not maintain this similarity with original text. Lastly, readability index of original text was 11.336 which is found similar in QuillBot paraphrased text only while other three paraphrasing tools show greater readability index than original text. At the end, it is found that total word count of QuillBot and Spinbot is greater than original text which indicates that these two paraphrasing tools adopt passive syntactic construction which results in increase of the total word count while ChatGPT and ZeroGPT adopt active syntactic construction which results in no significant increase in word count of paraphrased text as compared to original text.

Conclusion

The study concludes that QuillBot has neutralized even decontextualize the actual intention of Donald Trump which he emphasised in his speech of taking actions to restore the lost identity and prosperity of US which means that this tool needs more improvement to retain the actual intent of the speaker provided it in the form of original text. Total word count of paraphrased text of this tool is greater than that of original text that also increased the average words per sentence indicating that passive syntactic structure requires more words to add which along with neutral synonyms decontextualize the original intent of the communicator.

Linguistic performance of Spinbot is lower than that of QuillBot which indicates that synonyms this tool has placed against the specific terms of original text have changed the context which needs more attention paid on its linguistic performance as compared to QuillBot which itself needs attention for improvement. Moreover, it reduces rhetorical impact and often uses clunky and awkward synonyms, and creates more general sense of the text rather than the original one. ChatGPT performed better than Spinbot and has shown more or less same results like QuillBot. However, QuillBot highlighted thematic entries like 'rules' and 'executive' as were highlighted in original text. Moreover, it seemed avoiding to replace every word with synonyms, and preferably paraphrases original text into active voice form. That is why, word count of paraphrased text from ChatGPT is 213 and unique word forms are 151, very close to original text. However, still it needs improvement with respect to semantic and pragmatic perspective.

ZeroGPT distorts the context more than every other paraphrasing tool, however, it maintained its brevity with that of original text. Moreover, this tool has placed itself away from the thematic entries of original text because original text includes ‘rules’ while this tool includes ‘regulations’ which are connected but have different connotations. Similarly, original text had displayed ‘orders’ where Donald Trump prefers to focus on his commands to bring change as a new president while ZeroGPT has used thematic category ‘eliminated’ which gives opposite sense as compared to ‘orders’. Therefore, performance of ZeroGPT is more or less similar to that of Spinbot and needs attention for improvement. Almost every tool has been found transforming more formal and written forms rather than interactive communicative forms.

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