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**RESEARCH PAPER****Potential Drawbacks of Automated Paraphrasing Tools: Performance of QuillBot in Paraphrasing of Headline Discourse**

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**ABSTRACT**

Revolution in development of automated paraphrasing tools (APTs) has brought drastic change in paraphrasing text particularly through QuillBot. Studies indicate that performance of this tool is highly satisfactory. However, QuillBot has certain drawbacks that affect the paraphrased text such as it neutralizes the text by replacing subject with general statement, breaks appealing potential of text, confuses the context of the headline text, and increases number of words of the paraphrased text. Thus, the objective of this study was to investigate the performance of QuillBot. So, headlines from The Washington Post and The Times were selected randomly as data and were analysed on self-designed conceptual framework based on four standards namely neutralization, de-contextualization, semantic difference and violation of brevity of the text. The study found that there is 50% accuracy of QuillBot with respect to standard 1 and standard 2. Standard 3 showed 40% accuracy while standard 4 showed 99% accuracy.

**KEYWORDS** Automated Paraphrasing Tools, Performance of Quillbot, Headline Discourse, Potential Drawbacks

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**Introduction**

Jasper, WordAi, TextCortex, Writesonic, SpinWriter, Paraphraser.io, Hypotenuse, and QuillBot are the AI tools used for different purposes particularly, paraphrasing of text. This is claimed that there is greater efficiency, originality, user friendly interface and paraphrasing of unlimited words provided by these tools. These AI tools save time and energy of the user to a greater extent. Obviously, there is greater expectation of accuracy in the paraphrased text. However, paraphrasing happens by replacing the sequence of certain phrases and clauses of the given text. Moreover, synonyms are applied on certain lexical categories. These processes should retain the meaning, context and sentence structure but it is intended that paraphrasing distorts these processes which result in change of meaning and syntactic structure as well as context of the given text, this it violates the purpose of effective written discourse to communicate the intended meaning. In other words, this dimension of paraphrasing of text raises the questions on semantic, syntactic and pragmatic accuracy of the paraphrasing tools. In the same terrain, Niño (2009) concluded that automated paraphrasing tools are uncertain from an academic point of view. They are not fully reliable as a variety of linguistic errors are found during paraphrasing process. On the other hand, the research students mostly rely upon these tools specifically after Covid-19 pandemic. They use these tools for paraphrasing purpose which at one side result in making individual efforts to enhance their writing skills and on the other side, they obtain paraphrased text with numerous grammatical, syntactic and semantic errors which has initiated the existing research Endeavor to probe into the

performance of QuillBot that is a paraphrasing tool used at a great extent in Pakistani higher education institutions.

### **Literature Review**

Language and research students need to paraphrase the theories and ideas of different scholars. For this purpose, they are expected to have effective writing skills of English language to derive the meaning and expressing them in their works without changing the meaning and sentence structure of the original text (Inayah & Sulistyningrum, 2021; Rahmayani, 2018). Now-a-days, in the countries like Pakistan, the students use AI text generators to get in various aspects of writing, such as paraphrasing, modifying spelling and grammar, and refining sentence structure. In this concern, AI text generators that have attained growing acceptance is automated paraphrasing tools (APTs). These tools have potential to provide assistance to language and research students to deliver sophisticated work by maintaining lucid judgements and concepts. However, in their studies, Roe and Perkins (2022) and Prentice and Kinden (2019) emphasized that automated paraphrasing tools can generate sentences similar to the original text but that is of different syntax.

Automated paraphrasing tools have the potential to enhance the writing ability of the language students retaining certain strategies including modification of word forms, use of active and passive sentences, and change of word order as well (Fitria, 2021; Inayah & Sulistyningrum, 2021). Through his study, Chen et al. (2015) found that these tools effectively worked to improve the writing skills of the second language learners particularly those who were struggling to achieve writing standards. With respect to improve the students' ability regarding simplification of information, organization of the text, and improvement in their paraphrasing comprehension, Yan (2023) and Adams and Chuah (2022) concluded in their study that these automated paraphrasing tools help students to a greater extent. The study conducted by Tran and Nguyen (2022) also substantiates the view that automated paraphrasing tools are very useful in improving the writing quality of the language students.

With respect to the potential drawbacks of the automated paraphrasing tools, numerous studies have been conducted. Similarly, these tools make the users more dependent and their writing faces different issues. In this regard, Bailey and Withers (2018) and Prentice and Kinden (2018) claimed that they found alarming situation in their studies that there was content resemblance and unidiomatic language use in the writing of their students due to their heavy reliance on automated paraphrasing tools. Rogerson and McCarthy (2017) observed misuse of these tools without appropriate acknowledgement which is against ethical values. Use of automated paraphrasing tools results in poor language quality and incorrect terminology (Ansorge et al., 2021). Academic integrity may be threatened by these tools especially in case of paraphrasing of someone else work by the students and claiming it as their own (Roe & Perkins, 2022).

### **Material and Methods**

Self-designed conceptual framework has been used to investigate the performance of QuillBot through paraphrased text. For this purpose, four standards were identified. First one is based on neutralization strategy. This is expected that the original text of English language follows SVO structure. This standard is applied on the paraphrased text, if it follows it, then it is meant that neutralization strategy has not been used. However, absence of SVO structure would prove the application of this strategy in the paraphrased text. Second standard is based on de-contextualization. In some cases, it is connected to the

first standard, in certain other cases, it is dissociated. If context has been changed, it is evidence of the presence and use of this strategy. Third standard is related to semantic difference. QuillBot applies 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. Fourth standard is violation of brevity that 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 the paraphrased text exceed from the original text, it would mean that there is violation of brevity.

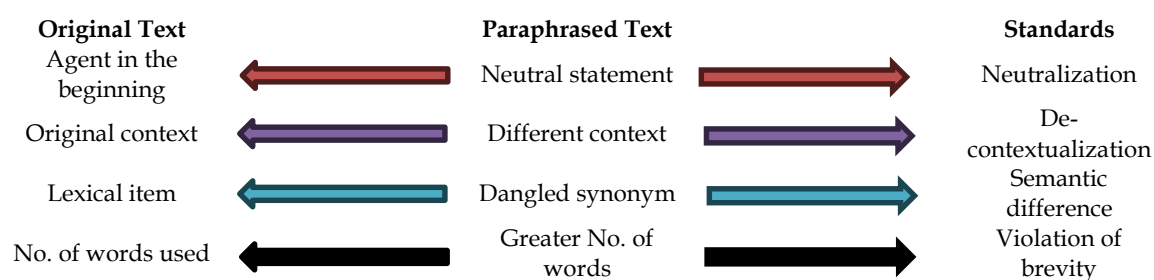


Figure 1 Paraphrasing Standards

The current study investigated the performance of QuillBot by investigating paraphrased text. For this purpose, headlines of two English newspapers, The Washington Post and The Times were selected as data. The data was analysed through conceptual framework based on four standards. First standard was to detect neutralization strategy which is used in the selected paraphrasing tool by eliminating the subject of the original text and replacing it with a neutral statement derived from the original text which results in deformation of the original text. Second standard was de-contextualization of the context of the original text. Third standard was semantic difference in the synonyms applied in the paraphrased text. Fourth standard was violation of brevity of the original text which was explored by counting the number of words in both the texts.

## Results and Discussion

Data collected from two English newspapers, The Washington Post and The Times are consisted of headlines presented below with the heading as original text on the left side and as paraphrased text on the right side of the tables below. By applying the self-designed model (presented in the figure 1) that is based on four standards. First standard is neutralization which says that paraphrased text from the automated paraphrasing tool, QuillBot replaces the subject/agent or uses neutral statements which affects the syntactic and semantic balance of the original text. Second standard is de-contextualization. QuillBot applies certain operations on the original text and by doing this, changes the actual context of the original text. Third standard is semantic difference. Certain verbs, nouns and phrases are replaced with equivalent synonyms and by doing this, the selected automated tool does not choose the right equivalent with relevant meaning. Fourth standard is violation of brevity. The headlines have the quality of brevity while it is intended that paraphrased text violates brevity of the original text. In this way, in the paraphrased text, number of words exceed as compared to the word count of the original text. Keeping in view the phenomenon under consideration, the attempt has been made to investigate the collected data on the basis of these four standards mentioned above. Every headline has been coded as H1WPN24 where H stands for headline, 1 is number of the headline, W for Washington, P for Post and 24 for the year of publishing. On the other hand, headlines collected from

the other newspaper have also been coded as H1TT24 where H stands for headline, 1 is used to denote the number of selected headline, T for The, other T for Times and 24 for the year of headline publication.

#### H1WP24

*U.S. says Israel may have violated humanitarian law using American weapons.*

#### Paraphrased headline

*According to the US, Israel may have used US weaponry to break humanitarian law.*

The headline producer highlighted the country named, 'US' writing it in the beginning of the headline whereas the paraphrased text starts with a **neutral reference line** 'according to' which has **reduced focus** of the headline producer. Such linguistic construction has broken the **terseness of the headline** as well. Moreover, the verb 'violated' has been used in the headline in ideologically charged manner whereas the replaced verb 'used' in the paraphrased text has been **euphemised** as a neutral word. Adjective phrase, 'humanitarian law' has its agreement with the verb 'violated' creating the sense that Israel has violated the humanitarian law whereas the paraphrased text has distorted the intended sense of the headline using infinitive 'to' with verb phrase, 'break the humanitarian law'. In this way, the action of violation has been imbued in humanitarian law while paraphrased text **confused the actual sense** which creates the sense that Israel used American weapons with a purpose to break the humanitarian law.

#### H2WP24

*Most extreme solar storm in 20 years brings beautiful northern lights.*

#### Paraphrased text

*Beautiful northern lights are brought about by the most intense solar storm in 20 years.*

This headline emphasises on adjective phrase, 'most extreme solar system' while the paraphrased text has replaced it with another adjective phrase, 'beautiful northern lights' used. It means by paraphrasing, **grammatical categories remained unchanged** but paraphrased text has become passive voice instead of active voice. The **brevity of the headline** is found distorted in the paraphrased text.

#### H3WP24

*Why insomnia provokes performance anxiety that keeps you awake.*

#### Paraphrased text

*Why sleeplessness causes anxiousness that keeps you awake during performances.*

Insomnia belongs to medical register which has been replaced with a **general term** 'sleeplessness' in the paraphrased text. In the same way, 'performance anxiety' is another **medical jargon** which has been replaced with 'keeps you awake' by changing the noun phrase with verb phrase.

#### H4WP24

*Should you cover exposed tree roots or leave them alone?*

#### Paraphrased text

*Is it better to hide or ignore exposed tree roots?*

The headline started with modal auxiliary verb, 'should' that is a **polite word** used **to motivate the readership** for initiation of an action. Moreover, 'should' has been connected with second person pronoun using 'you attitude' which further alerts the reader as direct addressee and helps **seeking his/her attention**. On the other hand, paraphrased text starts with **normal or a neutral phrase** 'is it better' which lacks an addressee and **motivational content**. The verb used in the headline 4 is 'cover' replaced with the verb 'hide'. The former verb **initiates a positive action** which the addressee may like to do while the verb 'hide' **creates negative sense** and may demotivate a person to be the part of a

hiding action. The headline uses verb phrase 'leave them alone' and can **touch the deep feelings** of a reader which has been removed from the paraphrased text.

**H5WP24**

*The next global crisis could come from the sun. We should prepare now.*

**Paraphrased text**

*The sun may be the source of the upcoming world crisis. It's time for us to get ready.*

The headline No. 5 is in **active voice construction** whereas the paraphrased text is in **passive voice construction**. The **brevity** is found in the headline which has been distorted in the paraphrased text. The **focus** of the headline is on the 'next global crisis' whereas the focus in the paraphrased text is on 'the sun'.

**H6WP24**

*It's Republicans who are vulnerable on crime, not Democrats*

**Paraphrased text**

*Republicans, not Democrats, are the ones who are at risk from crime.*

Paraphrased text is **catchier** than the actual headline. However, there is more **brevity** in the headline No. 6 than the paraphrased text. Prepositional phrase 'at risk' is **general** or **normal** than the word 'vulnerable'.

**H7WP24**

*In Arizona, election workers trained with deepfakes to prepare for 2024*

**Paraphrased text**

*Election officials in Arizona received deepfake training in advance of 2024.*

The headline No. 7 specifies an American territory 'Arizona' keeping readers alert to be ready for something important. On the other hand, paraphrased text begins with 'election officials' which may be lesser attentive for the readership. Infinitive phrase 'to prepare for' **gives clear meaning** that election workers are trained and ready to combat with the deepfake challenge. However, the paraphrased replacement 'in advance of' is **an ambiguous prepositional phrase**. The word 'workers' and 'officials' both have different connotations as the former word includes bottom level or middle level election management whereas the latter word used in the paraphrased text includes only the top-level election management, so there is a **semantic difference** in both the words.

**H8WP24**

*Under Putin, a militarized new Russia rises to challenge U.S. and the West*

**Paraphrased text**

*A new, militaristic Russia emerges under Putin, challenging the West and the United States.*

Europe has a specific image of Russian president 'Putin', so the headline highlights his administration as a challenge by starting the headline with 'under Putin' while the paraphrased text focuses on Russia as a militaristic region. In other words, intended context is **de-contextualized** in the paraphrased text.

**H9WP24**

*Biden's weapons sales to Israel breach legal limits, former officials say*

**Paraphrased text**

*Biden's arms sales to Israel are illegal, according to former officials*

The headline considers providing weapons to Israel as an act to 'breach legal limits' which is more diplomatic use of language. On the other hand, paraphrased text highlights the act directly as 'illegal' act which **semantically and pragmatically** is opposite to the actual sense of the headline. The verb 'say' used in the headline explains the direct statement of the former officials whereas paraphrased text shows an indirect expression as the reference line 'according to' indicates in a **neutral manner**.

**H10WP24****Paraphrased text**

*Carolyn Hax chat: My dad and stepmom hate that I live with my mom*

*Carolyn Hax chat: I live with my mother, and my dad and stepmother detest it.*

The statement of the speaker, Carolyn Hax chat, begins with **possessive case of first-person pronoun** with dad and stepmom whereas the paraphrased text begins with **subjective case of first person pronoun**. The headline highlights the act of hate by her dad and stepmom while the paraphrased text highlights her living with her mom and dad. On the other hand, in the paraphrased text, there is **reversal** of living and hate.

**H1TT24****Paraphrased text**

*How I travelled back in time and learnt to fly- all in one night*

*How I learned to fly in one night and travelled back in time*

The headline No. 11 focuses on travelling back in time whereas the paraphrased text focuses on learning to fly. The distributive adjective 'all' has been removed in paraphrased text.

**H2TT24****Paraphrased text**

*Why is Israel in Eurovision? The controversy explained*

*What is Israel's Eurovision entry? The dispute clarified*

Eurovision is an annual singing contest organized by European Broadcasting Union. The headline starts with questioning word 'why' which demands for the reason for which Israel, a non-European country is part of it. On the other side, paraphrased text begins with questioning word 'what' that is not used to ask for a reason. In other words, there is **semantic difference** between the headline and paraphrased text.

**H3TT24****Paraphrased text**

*Why more and more black voters are putting their faith in Trump*

*Why a growing number of African American voters are trusting Trump*

The headline is imbued with racial expression 'black voters' while paraphrased text uses 'African American voters' that does not reflect racial expression. However, headline No. 13 gives the **sense of continuous increase** in the faith of people in Trump as 'are putting their faith' whereas paraphrased text has a bit different dimension 'are trusting' indicating shows current situation, so there is a **semantic difference** between the headline and paraphrased text.

**H4TT24****Paraphrased text**

*UK economy exits recession with fastest growth in two years*

*With its fastest growth in two years, the UK economy emerges from recession.*

The headline focuses on 'UK' whereas the paraphrased text has neutralized the intended focus of the discourse producer. The headline No. 14 is **catchier** and has **breavity** in its expression than paraphrased text.

**H5TT24**

*Israel likely to have breached international law with our weapons, says US report*

**Paraphrased text**

*Israel most likely violated international law by using American weapons*

Paraphrased text encompasses the use of the superlative degree 'most' as an **addition** which is not part of the actual headline. Moreover, the headline No. 15 uses first person pronoun plural number with possessive case which shows in-group feelings in **subjective manner** while paraphrased text replaces it with 'American weapons' as an **objective manner**. Verb phrase 'says US report' has been **eliminated** from the paraphrased text.

**H6TT24**

*Beat the ballot: should you rush to top up your pension?*

**Paraphrased text**

*Win the lottery: should you immediately increase your pension?*

**Motivational material** as 'rush to top up' is **missing** in paraphrased text and has been replaced with general and routine phrase. 'Beat the ballot' is a strong expression structured with alliteration whereas 'win the lottery' is non emphatic expression.

**H7TT24**

*The day Alastair Stewart found out he had dementia*

**Paraphrased text**

*Alastair Stewart's discovery that he had dementia that day*

The syntactic structure of headline No. 17 is catchier as use of the noun phrase 'the day' specifies some important time and gives the expression a dramatic tone. On the other hand, this noun phrase has been **eliminated**. Moreover, the headline highlights the specific day but paraphrased text highlights the person 'Alastair Stewart' whereas any paraphrased text does not mean to change the actual intent and sense of the actual text. Paraphrased text both syntactically and semantically has become superfluous after paraphrasing.

**H8TT24**

*Why psychology is as important as physiology for plastic surgery*

**Paraphrased text**

*Why psychology is just as crucial to plastic surgery as physiology*

The paraphrased headline has distorted the acceptable syntactic sequence 'as important as' and after auxiliary verb 'is' has added the word 'just'. The headline No. 18 is more appealing than the paraphrased text. Semantically or pragmatically, there is no effect of this change and replacement of words on meaning or context of the utterance.

**H9TT24**

*Why women need more sleep than men---and 9 other health differences between the sexes*

**Paraphrased text**

*Why women require more sleep than men do, along with nine other gender-specific health disparities*

There is **no syntactic change** in paraphrased text as both of the texts are in **interrogative form** which begin with the questioning word 'why'. **Both** the texts **focus** on the need of women' sleep. **Paraphrased text** is **more appropriately structured** with required terminology than the actual headline.

**H10TT24****Paraphrased text**

*Xi signals end of isolation after whirlwind tour across Europe*

*Following a fast trip of Europe, Xi announces the end of his isolation.*

The headline No. 20 highlights the newly given version of Chinese president, Xi writing his name in the beginning of the sentence. On the other hand, the paraphrased text **neutralizes** the headline bringing the notion of his fast trip to Europe. The headline is **more appealing** than the paraphrased text. The verb 'signals' is replaced with 'announces' which has **different connotation**. Moreover, the headline indicates the end of isolation referring it to China as a country whereas paraphrased text uses the phrase 'his isolation' which is quite different from the **context** of the actual headline.

**Table 1**  
**Neutralization standard**

No.	Original text	Paraphrased text	No.	Original text	Paraphrased text
1	U.S. says...	According to US....	11	<i>How I travelled back in time....</i>	How I learned to fly...
2	Most extreme solar storm...	Beautiful northern lights...	12	<i>Why is Israel....</i>	What is Israel's ....
3	Why insomnia provokes....	<i>Why sleeplessness causes...</i>	13	<i>Why more and more black voters....</i>	<i>Why a growing number of African American voters....</i>
4	Should you cover exposed....?	Is it better to hide....?	14	UK economy exits....	With its fastest growth....
5	The next global crisis...	The sun may be the....	15	Israel likely to have breached...	Israel most likely violated....
6	It's Republicans...	Republicans, not democrats....	16	<i>Beat the ballot....</i>	Win the lottery....
7	In Arizona...	Election officials....	17	The day Alastair Stewart...	Alastair Stewart's....
8	Under Putin, a militarized new Russia...	<i>A new, militaristic Russia....</i>	18	<i>Why psychology is....</i>	<i>Why psychology is....</i>
9	Biden's weapons....	Biden's arms....	19	<i>Why women need....</i>	<i>Why women require....</i>
10	My dad and stepmom....	I live with my mother....	20	Xi signals....	Following a fast trip....

Out of 20 headlines, original text of headlines 1, 2, 4,5,7,8,10,14,17, and 20 is paraphrased with neutralized text whereas paraphrased text of the headlines 3,6,9,11,12,13,15,16,18 and 19 did not use neutralized text. In other words, 10 headlines retained the original focus of the beginning text while 10 headlines diverted the focus of the original text. This means that 50% headlines meet the first standard 'neutralization', so there is 50% accuracy in the paraphrased text while using QuillBot and rest 50% needs to be improved.

**Table 2**  
**De-contextualization standard**

Original text (OT)	Paraphrased text (PT)	Contextualization/De-contextualization
U.S. says Israel may have violated humanitarian law using American weapons.	According to the US, Israel may have used US weaponry to break humanitarian law.	Context of OT (Original text) is based on the possibility of violation of humanitarian law by using American weapons. PT (paraphrased text) emphasises the intention of using US weapons to break.
Most extreme solar storm in 20 years brings beautiful northern lights	Beautiful northern lights are brought about by the most intense solar storm in 20 years.	No change in context.
Why insomnia provokes performance	Why sleeplessness causes anxiousness that keeps you	In OT, provocation of performance anxiety is based on insomnia while in PT, cause of



anxiety that keeps you awake.	awake during performances.	anxiousness is based on sleeplessness, and performance is detached from anxiousness and written at the end.
Should you cover exposed tree roots or leave them alone?	Is it better to hide or ignore exposed tree roots?	No change in the context.
The next global crisis could come from the sun. We should prepare now.	The sun may be the source of the upcoming world crisis. It's time for us to get ready.	No change in the context.
It's Republicans who are vulnerable on crime, not Democrats	Republicans, not Democrats, are the ones who are at risk from crime.	No change in the context.
In Arizona, election workers trained with deepfakes to prepare for 2024	Election officials in Arizona received deepfake training in advance of 2024.	Prepositional phrase, 'in advance of 2024' confuses the original context.
Under Putin, a militarized new Russia rises to challenge U.S. and the West.	A new, militaristic Russia emerges under Putin, challenging the West and the United States.	OT calls new Russia as a challenge while PT has its focus laid on emergence of Russia as militarized one.
Biden's weapons sales to Israel breach legal limits, former officials say.	Biden's arms sales to Israel are illegal, according to former officials.	OT focuses on action of breaching legal limits whereas PT directly declares the action as illegal one.
Carolyn Hax chat: My dad and stepmom hate that I live with my mom	Carolyn Hax chat: I live with my mother, and my dad and stepmother detest it.	No change in the context.
How I travelled back in time and learnt to fly-all in one night.	How I learned to fly in one night and travelled back in time.	OT focuses on surprise to travelling back while PT highlights surprise of learning.
Why is Israel in Eurovision? The controversy explained.	What is Israel's Eurovision entry? The dispute clarified.	The start of questioning words both in OT and PT are different.
Why more and more black voters are putting their faith in Trump.	Why a growing number of African American voters are trusting Trump.	OT provokes racial ideology while PT does not.
UK economy exits recession with fastest growth in two years.	With its fastest growth in two years, the UK economy emerges from recession.	No change in context.
Israel likely to have breached international law with our weapons, says US report.	Israel most likely violated international law by using American weapons.	No change in context
Beat the Ballot: should you rush to top up your pension?	Win the lottery: should you immediately increase your pension?	No change in context.
Why psychology is as important as physiology for plastic surgery.	Why psychology is just as crucial to plastic surgery as physiology.	No change in context.
The day Alastair Stewart found out he had dementia.	Alastair Stewart's discovery that he had dementia that day.	OT emphasises on 'the day' while PT focuses on 'dementia'.
Why women need more sleep than men--and 9 other health	Why women require more sleep than men do, along	No change in context.

differences between the sexes.	with nine other gender-specific health disparities.	
Xi signals end of isolation after whirlwind tour across Europe.	Following a fast trip of Europe, Xi announces the end of his isolation.	OT focuses on end of China's isolation between the lines whereas PT associates the end of isolation with Chinese president 'Xi'.

The table 'De-contextualization' indicates that headlines 1,3,7,8,9,11,12,13,18, and 20 have been de-contextualized after paraphrasing. On the other hand, headlines 2,4,5,6,10,14,15,16,17, and 19 showed no change in context after paraphrasing from QuillBot. In this way, 10 headlines retained the original text while 10 headlines changed the original text after paraphrasing. Therefore, 50% accuracy in paraphrasing to meet the standard of de-contextualization was found. However, 50% accuracy is still required to obtain by using QuillBot as a paraphrasing tool.

**Table 3**  
**Semantic Difference**

No.	Word	Synonym	No.	Word	Synonym
1	Violated	Used	11	Why	What
2	.....	.....	12	Black voters	African American voters
3	Provokes	Causes	13	Likely to have	Most likely to have
4	Cover	Hide	14	Beat the ballot	Win the lottery
5	.....	.....	15	As important as	As crucial
6	.....	.....	16	.....	.....
7	Election workers	Election officials	17	.....	.....
8	New Russia	Militaristic Russia	18	.....	.....
9	Breach legal limits	Illegal	19	.....	.....
10	.....	.....	20	Xi signals	Xi announces
<b>Total</b>	<b>06</b>			<b>05</b>	<b>6+5=11</b>

Table above indicates that in the headlines 1,3,4,7,8,9,11,12,13,14,15, and 20, dangled synonyms are present. On the other hand, in the headlines 2,5,6,10,16,17,18, and 19, no dangled synonyms were found. In this way, 12 headlines which make 60% of the total headlines carry semantic difference while 08 headlines which make 40% of the total headlines do not carry any semantic difference on the basis of words and synonyms applied during the paraphrasing process. Probing qualitatively into the words and related synonyms, we see that in the first headline, verb '*violated*' has been replaced with the verb '*used*' where the former one is legally charged word whereas the latter is normally used in the general conversations. In the same way, the verb '*provokes*' in the 3rd headline is emotionally charged whereas its synonym '*causes*' does not have that much illocutionary force as the former verb does have. Denotative meaning of the verbs '*cover*' and '*hide*' is same whereas connotative meaning of both differs as the former one motivates the reader to take the action with positive sense of protecting something whereas the latter one a little negative sense of hiding something from someone. In the noun phrase '*election workers*' of the headline 7, has different connotation with its replaced noun phrase '*election officials*' as the '*workers*' is a general term but '*officials*' is a formal term which often refers to the people of higher status as compared to the '*workers*'.

In the headline 8, exchange of the location of the adjective '*new*' has changed the meaning. In the original text, adjective phrase '*new Russia*', creates the meaning that today's Russia is '*new Russia*' while adjective phrase of the paraphrased text says that today's Russia is '*militaristic Russia*', so the meaning of both the phrases is different from each other. In the headline 9, verb phrase '*breach legal limits*' is used in a diplomatic way by euphemising the whole headline while in the paraphrased text, the adjective '*illegal*' determines it used in a non-diplomatic language. The synonym applied in the headline 11 starts the headline with the word '*what*' which semantically, is completely different from

the word 'why' of the original text. Racially charged adjective phrase 'black voters' has been used in the original text of headline 12 whereas its paraphrased synonym is 'African American voters' that is non-racial adjective used in the paraphrased text. 'Likely to have' is an adverb phrase used in the original text of headline 13 but superlative adjective 'most' has been additionally used making the entire phrase as 'most likely to have' which has intensified the original meaning than the intended one. 'Beat the ballot' is a proverbial use that is semantically different from the one used in the paraphrased text of the headline 14, that is 'win the lottery'. In the headline 15, paraphrased text has distorted the syntactic balance of the original text using 'as crucial' as an equivalent to 'as important as' and has exerted greater semantic impact on the meaning of the original intended sense. In the last headline, noun phrase of the original text is 'Xi signals' which states that the president of China, Mr. Xi has indicated which is a diplomatic way of expression in media language whereas its paraphrased equivalent is 'Xi announces' which is more direct and is against the diplomatic norms.

**Table 4**  
**Violation of Brevity**

No	Original text (word count)	Paraphrased text (word count)	Frequency	No.	Original text (word count)	Paraphrased text (word count)	Frequency
1	11	14	03	11	14	13	-01
2	11	15	04	12	08	08	00
3	9	10	01	13	12	11	-01
4	10	10	00	14	10	13	03
5	13	19	06	15	13	10	-03
6	10	12	02	16	11	09	-02
7	11	11	00	17	09	10	01
8	13	14	01	18	10	11	01
9	12	12	00	19	15	16	01
10	14	15	01	20	10	13	03
<b>Total</b>	<b>114</b>	<b>132</b>	<b>18</b>		<b>112</b>	<b>114</b>	<b>18+9=27-7=20</b>

Total word count of original text is 226 words which makes 11.3% per headline. On the other hand, total word count of paraphrased text is 246 words which makes 12.3% which is 1.0% greater than the original text. Thus, in paraphrased text of the headline discourse, point four has been nullified by indicating that QuillBot has not violated the brevity of original text.

**Table 5**  
**Overall Results to Determine the Accuracy of Performance of QuillBot**

No.	Standard	OT (original text)	PT (paraphrased text)
1	Neutralization	50%	50%
2	De-contextualization	50	50%
3	Semantic difference	40%	60%
4	Violation of brevity	99%	1%

## Conclusion

The study concludes that in terms of standard 1, neutralization, during the paraphrasing operation of QuillBot, 50% original text is neutralized which affects not only the syntactic but also semantic accuracy of the original text whereas 50% original text remains unchanged and does not receive syntactic and semantic change. Similar results have been found with respect to the second standard, de-contextualization. Third standard, that is semantic difference has found that 40% original text is replaced with correct synonyms while 60% rephrased text affects the meaning of the original text.

However, with respect to the fourth standard, only 1% text violates the brevity of the original text. Therefore, the study indicates that almost 50% accuracy is present in paraphrasing through QuillBot while almost 50% accuracy is further required in the 1st three standards. Fourth standard showed almost complete accuracy of the tool.

**Recommendations**

- Further studies can be conducted by selecting the text from the books, research articles and research theses at the indigenous level.
- A variety of data with large corpus can be selected for the next studies.
- The standards of the self-designed model may be developed for further studies.

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