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Constructing Imminent Carcinogenic Attack in English and Arabic Scientific Discourse: A Corpus-Based Contrastive Study

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Abstract

Cancer is one of the critical health concerns. Health authorities around the world have devoted great attention to cancer and cancer causing factors to achieve control against the increasing rate of cancer. Carcinogens are the most salient factors that are accused of causing a considerable rate of cancer cases. Scientists, in different fields of knowledge, keep warning people of the imminent attack of carcinogens which are surrounding people in the environment and may launch their attack at any moment. The present paper aims to investigate the linguistic construction of the imminent carcinogen attack in English and Arabic scientific discourse. Such an investigation contributes to enhancing the scientists' awareness of the linguistic conduct they follow in attracting people's attention towards the risk of the approaching attack. The linguistic awareness also helps maintain better promotion of people's pre-emptive responses that can reduce the potential for cancer cases. To achieve this aim, the paper adopts dual methodological procedures of qualitative and quantitative analyses. Cap's (2013) proximization theory of threat and crisis construction is adopted for both qualitative and quantitative procedures. The mathematical calculations and statistical results for discourses in both languages are maintained by corpus linguistic analysis using Anthony's (2019) software, AntConc. The paper has come up to certain conclusions that shed light on the

similarities and differences in the construction of the imminent carcinogen attack in both languages. English scientific discourse has shown more reliance on temporal proximization to envisage the imminent attack of carcinogens against human bodies. Categories 1, 2, 3 and 5 are all more dominant in the English scientific discourse. However, both English and Arabic discourses show diversity in the density and employment of the lexicogrammatical tools (categories) that manifest the carcinogen attack.

Keywords: AntConc, carcinogen, cognitive pragmatics, proximization theory, scientific discourse, temporal proximization

البناء اللغوي للهجوم الوشيك لمُسببات السرطان في الخطاب العلمي باللتغوية والإنجليزية والعربية: دراسة تقابلية قائمة على المدونات اللغوية

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المستخلص

يُعد مرض السرطان من الامور البالغة الاهمية؛ إذ أولت السلطات الصحية في جميع أنحاء العالم اهتمامًا كبيرًا بالعوامل المسببة للسرطان لتحقيق السيطرة على معدلاته المتزايدة. تعد المواد المسرطنة من أبرز العوامل التي تُنتج بالتسبب في نسبة عالية من حالات السرطان. ويواصل العلماء، في مختلف المجالات المعرفية، تحذير الناس من الهجوم الوشيك والمستمر للمواد المسرطنة التي تحيط بالناس في البيئة. يهدف هذا البحث إلى استقصاء البناء اللغوي للهجوم الوشيك للمواد المسرطنة في الخطاب العلمي الإنجليزي والعربي. ويسهم هذا الاستقصاء في تعزيز وعي العلماء بالسلوك اللغوي المُنتج في جذب انتباه الناس نحو خطر هذا الهجوم الوشيك. ويساعد الوعي اللغوي أيضًا في الحفاظ على تعزيز أفضل لاستجابات الناس الوقائية التي يمكن أن تقلل من احتمالية الإصابة بحالات السرطان. لتحقيق هذا الهدف، يعتمد البحث إجراءات منهجية مزدوجة تجمع بين التحليلات النوعية والكمية. تم اعتماد نظرية التقريب لكاب (٢٠١٣) للبناء اللغوي للتهديدات



والأزمات لكل من الإجراءات النوعية والكمية. تم إجراء الحسابات الرياضية والنتائج الإحصائية للخطابات في كلتا اللغتين من خلال تحليل المدونات اللغوية باستعمال برنامج المدونات اللغوية لـ أنت كونك لانتوني (٢٠١٩). توصل البحث إلى بعض النتائج التي تلقي الضوء على أوجه التشابه والاختلاف في البناء اللغوي للهجوم الوشيك للمواد المسرطنة في كلتا اللغتين. أظهر الخطاب العلمي الإنجليزي اعتمادًا أكبر على التقريب الزمني لبناء الهجوم وشيك للمواد المسرطنة ضد الأجسام البشرية. وتعد الفئات ١ و ٢ و ٣ و ٥ أكثر انتشارًا في الخطاب العلمي الإنجليزي. ومع ذلك، يظهر الخطابان باللغتين الإنجليزية والعربية تنوعًا في كثافة وتوظيف الأدوات (الفئات) المعجمية النحوية التي تظهر هجوم المواد المسرطنة.

الكلمات المفتاحية: أنت كونك، التقريب الزمني، الخطاب العلمي، علم اللغة التداولي الإدراكي، مادة مسرطنة، نظرية التقريب

1. Introduction

Scientific discourse is specialized in constructing knowledge linguistically. This feature is unique and cannot be found in other kinds of discourse; in political discourse for example, politicians direct their speech to nations and the delivery of such speeches is somehow a historical incident where viewpoint, ideologies, decisions, orientations, etc. are produced (Khalil, 2013; Hussien & Al-Bahrani, 2022). Knowledge stems from fields like: medicine, chemistry, physics, biology, pharmacy, ecology, etc. One cannot separate between knowledge and semiotics, since semiotic resources contribute to communication knowledge. Language is a critical part of semiotics. Knowledge about disciplines such as physics, chemistry, medicine, pharmacy, biology, etc., is textualized through linguistic resources. To identify knowledge structure, one needs to examine language that expresses knowledge. The language of knowledge is constructed throughout a stratified linguistic hierarchical system which includes, as part of its component parts, the discourse of the text and the social context (Azeez & Al-Bahrani, 2019; Hao, 2020). Both text and social context are related, since the world is somaticized by science through making generalizations about processes and things (Martin & Rose, 2008).

From a cognitive pragmatic standpoint, it appears that the participants in the scientific discourse on carcinogen risk, in particular, adjust their category choice to match the mental states that are typical in this situation for both actors

and participants. The common interest shared by both actors and partners is that they are searching for information that they are deliberately producing and receiving (Jaafar & Jasim, 2022; Khalil, 2022). Carcinogens represent a vital issue that has been continuously discussed by scientific discourse. The ultimate aim of discussing carcinogens is to enhance people's knowledge about carcinogens which leads to preventive measures that people undertake to face cancer. Carcinogens are cancer-causing elements that exist in the environment either naturally or artificially. The term *carcinogen* (noun) was formed in 1853 from the Latin word *carcinoma* (from Greek *karkinoma*), which means "malignant tumor, cancer" and the suffix "-gen" which means "something produced," or "thing that produces or causes" (Carcinogen, 2008). Carcinogens can promptly penetrate human bodies through food, air, radiation, water, make up products, smoking, etc.

In the present world of fast paced events, the temporal construction of imminent attack is of much prominence for people. What people are more concerned with is time. Therefore, the paper examines the language related to carcinogen attack from a temporal perspective. It investigates the linguistic construction of the imminent carcinogen attack in English and Arabic scientific discourse. It targets the temporal portray of carcinogens attack which is represented as a danger that invades human bodies and might afflict anyone at any time. Both English and Arabic scientific discourses are analyzed to widen the scope of investigation of carcinogen attack as a global issue. The contrastive analysis leads to a more ample discursual view with wider linguistic and social coverage.

To achieve the aims, the paper conducts qualitative and quantitative analysis procedures to make sure that the comparative results are objective and precise enough. Cap's (2013) cognitive pragmatic proximization theory of crisis and threat construction is adopted for analysis. It investigates the proximization of treat



and crisis by three strategies, spatial, temporal and axiological. The temporal proximization strategy in particular is applied to the data, since it helps best to achieve the aim of the paper. To get accurate statistical results for the quantitative part, Anthony's AntConc (2019) corpus linguistics software is used to process both the English and Arabic corpora. AntConc provides basic analytic features and can easily work with uploaded corpora. It provides a concordance tool that set the scene for qualitative procedure as well. From a technical viewpoint, AntConc is a lightweight program that represents an easy corpus analysis toolkit with various vital tools that are essential for analyzing any corpus (Diniz, 2005).

It is valuable to employ temporal proximization strategy to carcinogen attack discourse, since such discourse comprises metaphoric construals of carcinogens as an enemy that constitutes an impending threat on the home entity (people). As a reaction, people wage a preventive war on carcinogens. For Cap (2014), it is sufficiently possible to consider cancer prevention discourse as a possible empirical field for applying proximization theory. Since 1971, war metaphor has become common in describing the fight against cancer. At that time, Richard M. Nixon (the US president) declared a federal war on cancer (Cap, 2014).

2. Theoretical Framework

2.1 Previous Studies

El Shazly's (2020) study examined the conceptual and spatial delineation of lockdown during COVID-19 outbreak in both UK and U.S.A. from a cognitive viewpoint. The data consisted of public speeches of the Parliament Members, Boris Johnson and President Donald Trump after declaring the spread of the pandemic by the WHO. In particular, the study explored the discursive strategies employed by the UK and U.S.A. authorities to legitimize the partial or full lockdown during March 2020. Depending on Cap's PT (2013), as a cognitive pragmatic model for threat construction, the study explored the

way the authorities construct threat through the construal of relationships between elements within the Discourse Space (DS). The analysis revealed that PM Johnson relied on the dynamic discursive representation of threat while President Trump represented the threat statically.

Fawzy (2020) analyzed the construction of geopolitical entities to provide guidance to discursive geopolitics. It employed cognitive pragmatics as a means for that purpose. It investigated the outbreak of COVID-19 in the context of discursive geopolitics. The investigation was performed by applying Cap's (2013) PT for its suitability to address the cognitive paradigm of critical geopolitics. The data consisted of news articles on COVID-19 from NYT (an American newspaper with liberal political orientation). Cap's PT conceptualized the geopolitical identification of COVID-19 by relating it to space and time qualities. The results showed that the NYT reports were framed within spatio-temporal configurations that cognitively proximized the geopolitical identity of the Chinese threat in particular.

Using Cap's (2013) PT, Ninković's (2020) inspected the discursive construal of COVID-19 as a proximizing entity in the Anglo-American political discourse. The aim was to elucidate the pragmatic effects and construal operations of threat representation. The research was carried out within the theoretical framework of cognitive pragmatics, and the data consisted of the written samples and transcripts of the political statements made by the ruling party representatives at COVID-19 public briefings. The corpora were concluded to be loaded with linguistic forms that realized subjective positioning strategy to achieve common cognitive viewpoint. Hence, legitimizing policies were implemented during the pandemic.

The present paper is distinguished from the previous studies in certain points. First, it is a combination of qualitative and quantitative study that employs corpus linguistics as one of the methodological tools to achieve the aims. Second, it targets scientific discourse and tries to



find out the way temporal proximization is employed to construct the imminent carcinogen attack. Third, it is wider in its scope in that it is a contrastive study that compares between English and Arabic scientific discourse.

2.2 Proximization Theory

Cap's (2013) proximization theory is a cognitive pragmatic model that it is concerned with certain discourse goals where it (proximization) is identified. Proximization is related to issues of representation that are addressed by Chilton (2004) within cognitive linguistics. A theory of proximization needs first to derive linguistic forms from cognitive categories (such as space or time) to propose directions in which these linguistic forms could be applied in Discourse Space (DS). Therefore, there is a sense of interdisciplinarity which goes in two directions. First, there is interdisciplinarity between the pragmatic approach and the "upward" cognitive approach. Second, interdisciplinarity exists between the pragmatic approach and the "downward" configurations of lexico-grammatical forms that perform proximization and the changes in these configurations that result from (extralinguistic, geopolitical, social,) context. Corpus approaches are needed to measure these changes in word counts (Cap, 2013).

Proximization theory relies on the original concept of proximization which acts as a forced construal operation that evokes "closeness of the external threat in order to solicit legitimization of preventive measures" (Cap, 2020). The spatio-temporal-axiological (STA) proximization model encompasses the strategic deployment of particular lexico-grammatical choices that are derived from the cognitive categories of space, time and value. These cognitive categories suit the demands of a dynamic temporally-extensive context. Thus, the model depends on interdisciplinary research program that involves cognitive, pragmatic, critical and corpus-based approaches (Cap, 2013).

According to proximization theory, threat proceeds from DS-peripheral entities which are referred to as outside-deictic-center (ODCs). Carcinogens in English and Arabic scientific discourse act like ODCs. The ODCs are conceptualized to be crossing the Space to invade the inside-deictic-center (IDC) entities which consist of the people that are at the risk of carcinogen attack at any time. Such a strategy aims at the negative representation of the ODCs which are considered threatening and harmful to the IDCs that are positively represented. The negative representation raises fear and evokes preventive measures. Accordingly, the basis for motivating public approval is constituted to enhance the preventive action (Cap, 2020).

2.3 Temporal Proximization Strategy

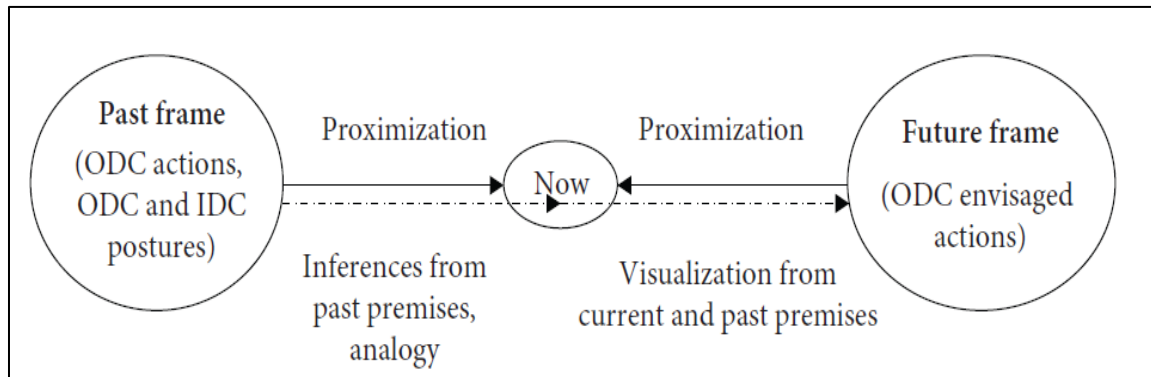
In his proximization theory, Cap (2013) defined temporal proximization saying:

Temporal proximization [is] a forced construal of "now" ... [the actor's present] as the central time frame of the time axis in which to use premises of the past and the present, as well as anticipations of the future, to decide on an immediate action to preempt a very near future ODC action. (p. 111)

Temporal proximization is, then, a symbolic representation of the time axis which results from two conceptual shifts: from past-to-present and from future-to-present as illustrated in Figure 1:



Figure 1



The Two Temporal Proximization Shifts (Cap, 2013, p. 86)

To merge the events envisaged for the future with the actual past events, temporal proximization strategy employs certain linguistic tools. Cap (2013) considered the ‘structured combinations of “real time” (RT) lexico-grammatical markers and “construed time” (CT) lexico-grammatical markers’ as the most promising candidates for this strategy. In such candidates, RT markers indicate events as occurring at ‘dated points in time, ...while the CT markers “fit” these points into preferred temporal frames’ (Cap, 2013, p. 111). RT markers are not restricted to actual past events. Rather, they may describe (or presuppose) future events. The CT markers turn the future events into durative perspectives in that the future events can be construed as happening anytime between the *now* and *the infinite future*. The construed events occur in frames that are not restricted to the future frames. Cap (2013) stated that, in the phrase *A September morning*, *A* (a CT marker), describes the meaning of the *September morning* (an RT marker) to construct “unrealized future possibility” and “a past possibility remaining unrealized in most of the past frame” (p.112). CT markers form a heterogeneous class which is not restricted to a grammar-based typology. The most prominent CT markers are “indefinite descriptions, nominalizations, modal

auxiliaries, and certain tense and aspectual patterns” (Cap, 2013, p. 112).

Category 1 of the temporal proximization strategy is as follows: “(1) Noun phrases (NPs) involving indefinite descriptions construing ODC actual impact acts in alternative temporal frames” (Cap, 2013). This category reflects the importance of the indefiniteness markers (such as *a* and *an*) “in construing real time actual events as events that could have occurred before ... , or, crucially, as events that can re-occur at any moment following the speaking time” (Cap, 2013, p. 112). Indefiniteness grants the category member items a rhetorical appeal which leads to a quick conceptualization of the *now* frame which acts against the “tangible” threat.

This characteristic applies also to category 2 that involves a specific pattern of grammatical tenses as follows: “(2) Discourse forms involving contrastive use of the simple past and the present perfect construing threatening future extending infinitely from a past instant” (Cap, 2013, p. 112). The category evokes a synthetic description in that a past moment presupposes an ODC intrusive act through the use of both the simple past and the simple present perfect tenses. Obviously, Cap intended the past and the present perfect tenses to be the simple past and the simple present perfect tenses since he has applied



this category to anti- terrorist discourse and assigned simple past and present perfect simple verb phrases (see, for example, Cap, 2013; Cap, 2006).

The other categories include items that focus on “the momentousness of the present by other means than an explicit, lexically-coded reference to a past actual ODC act” (Cap, 2013, p. 113). However, there are alternative formulas that construe the near future virtual realities that resemble the realities that occur at the time of the past ODC acts. There are “more lexical, grammatical and discourse material that involve elaborate inference” (Cap, 2013, p. 113). Category 3 performs such inferences by nominalizations as follows: “(3) Noun phrases (NPs) involving nominalizations construing presupposition of conditions for ODC impact to arise anytime in the future” (Cap, 2013, p. 113).

As far as category 4 is concerned, it consists of various lexico-grammatical constructs as follows: “(4) Verb phrases (VPs) involving modal auxiliaries construing conditions for ODC impact as existing continually between the now and the infinite future” (Cap, 2013, p. 114). The modal auxiliaries are mainly *can* and *could*. The present (now) is coded (as a point in time rather than a frame) by time adverbials such as *now*, *today* or *at this moment*. The organization of category 4 resembles that in category 3 in being durative in nature. However, in category 3, the “threat period is clearly bounded on the starting side” (Cap, 2013, p. 114). The explicitness of the starting point helps the text receivers to cross the boundary and enter the threat period at the moment threat is declared.

Category 5 is the last one and it states as follows: “(5) Discourse forms involving parallel contrastive construals of oppositional and privileged futures extending from the now” (Cap, 2013, p. 114). Within the temporal proximization strategy, future presupposes an ODC threat to the IDC camp. Within such a sense of the future, the text producer prefers the IDC active status to a passive status (oppositional future) in which such threat is not recognized. Such an oppositional

future can be expressed through category 5. Of all the categories, category 5 includes the longest language form stretches and requires contextual elaboration because intensifying the contrast needs a quasi-dialogue and a considerable text space. Accordingly, the analysis needs to be based on lexico- grammatical tools that indicate relations, contextual elaborations and those that act like supporting fillers. Therefore, a corpus analyst needs to identify specific lexico-grammatical relations that suit the theme and type of the corpus. Such specificity, however, needs considerable acquaintance with the information presented in the corpus. In the present paper, acquaintance has been acquired during collecting the texts (both English and Arabic) to form the corpora. The inclusion of the texts within the corpora came as a result of surveying each single text to make sure that it matches the theme of carcinogenic attack. Eventually, the analysis of the corpora has relied on both semantic macrostructure and semantic microstructure in addition to the acquaintance of the issues presented in the corpora.

To sum up, Table 1 recaps the temporal proximization strategy categories:

Table 1

Temporal proximization strategy (Cap, 2013, p. 114)

Category	Lexico- grammatical tools within the DS
1	Noun phrases (NPs) involve indefinite descriptions, construing ODC actual impact acts on alternative temporal frames.
2	Discourse forms involve a contrastive use of the simple past whereas the present perfect construe threatening future extending infinitely from a past instant.
3	Noun phrases (NPs) involve nominalizations, construing presupposition of conditions for ODC impact to arise anytime in the future.
4	Verb phrases (VPs) involve modal auxiliaries, construing conditions for ODC impact as existing continually between the now and the infinite future.
5	Discourse forms involve parallel contrastive construal of oppositional and privileged futures extending from the now.



3. The Analytical Part

Cap has originally meant his theory to investigate the legitimization of war in political discourse. Later on, the theory has been extended by Cap (2017) to investigate fear construction in the discourse of health and disease prevention. In the present paper, carcinogens are envisaged as enemies (ODCs) that are located on the periphery of the DS and people are the central entities (IDCs) that exist in the center of the DS.

3.1 Building the Corpora

Two corpora of English and Arabic scientific discourse are manually formed as data for analysis. Scientific discourse is realized in certain sub-genres like dissertations, research papers, news reports, monographs, conference proceedings, periodicals, etc. (Melandar, 1998, as cited in Martín, 2003; Mordovina & Nikulshina, 2010). The English and Arabic corpora are compiled from the equivalent scientific genres of scientific reports and articles, news reports and scientific papers which are collected from different medical and ecological webpages. The sources of the corpora are electronic ones that are freely available online. The selection of texts to form the corpora depends on both the title and the contents of the texts. After extracting the texts from the electronic resources, they have been put into word. doc. files to manage word counting as a representative of the corpora size. Ultimately, AntFileConverter has been used to convert the word. doc files to txt. format to be processed by AntConc. Both Anthony's (2019) AntConc and AntFileConverter are freely available on line in <http://www.laurenceanthony.net/software/antcon/>. The sizes of the corpora are almost equivalent as well; the English corpus consists of 56410 tokens and the Arabic one consists of 56288 tokens.

Both corpora are representative to scientific discourse on carcinogens, since the content of the corpora mimic the language variety under investigation. The corpora have been carefully collected from the scientific genres mentioned earlier in a symmetric manner.

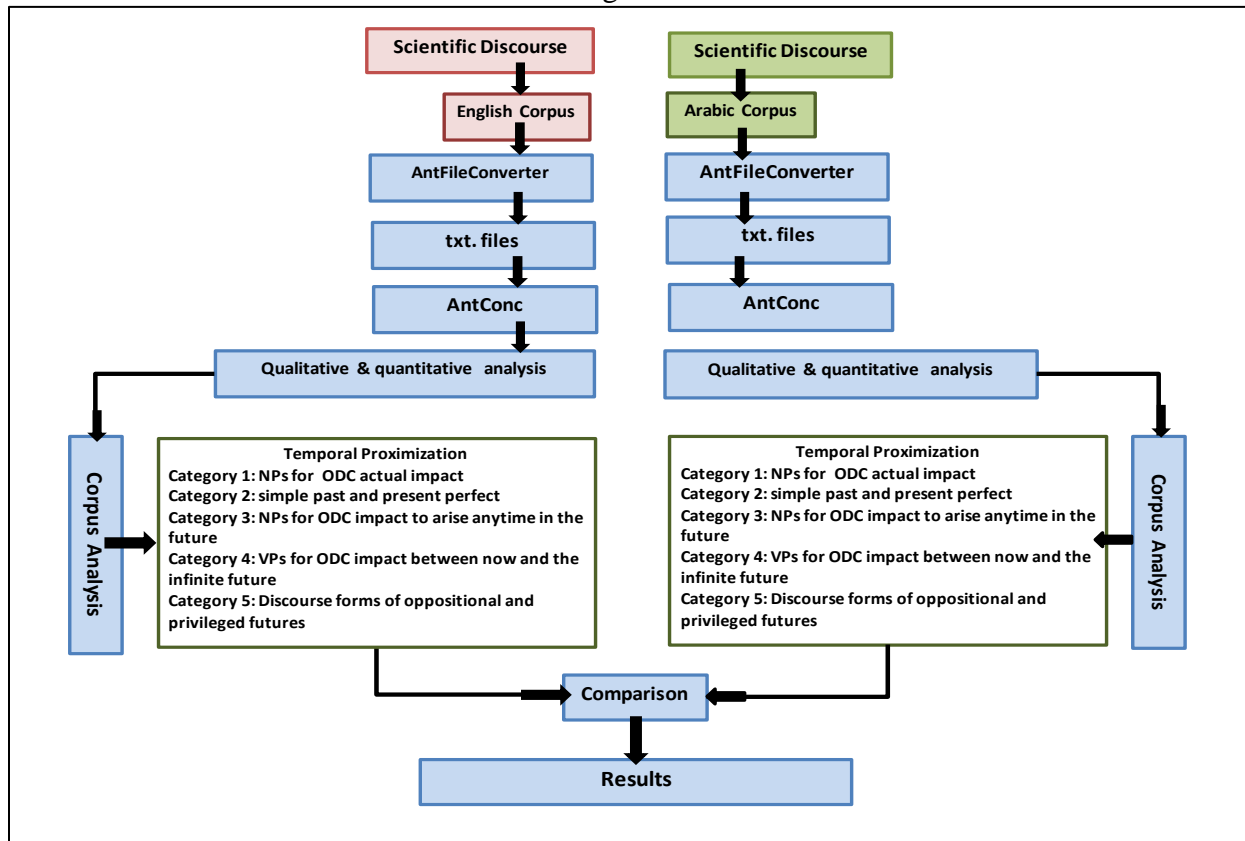
No genre has been relied on more than the other genres. In addition, the sub-genres for both English and Arabic corpora are equivalent. The relatedness to the theme of carcinogens is another aspect of representativeness. Before including any scientific texts within the corpora, careful identification of the relatedness of the text to carcinogens is performed. This is done by, first, pointing out their titles which name the scientific topic discussed in the content and, second, by skimming each article so as to make sure of the relatedness of the content both to the title and the theme of carcinogens. Moreover, both corpora are balanced in size in order to maintain fair qualitative and quantitative comparison in the results. The corpus linguistics based preparation of the corpora is an essential part of their representativeness; after collecting the texts, the corpora are finally prepared by corpus software tools before being processed by Anthony's (2019) AntConc, as is mentioned above.

3.2 Procedures

The analysis procedures are analogous for both corpora taking into consideration the typological differences between English and Arabic. Each category in the temporal proximization strategy is applied to the corpora depending on Anthony's AntConc (2019). The corpus linguistics tools mostly employed in the analysis are Frequency, Concordance, FileView, WordList, specific word list and the Wildcard of "*". The establishment of such corpus tools helps figuring out the solid bases upon which texts are based to construct certain discourse worlds (Khalil, 2020). Each category is examined separately in both corpora and statistical results are put forward before moving to another category. Eventually, statistical results for the temporal proximization strategy are settled. Figure 2 summarizes the methodology conducted in the present paper:



Figure 2



The Theoretical Framework

3.3 Data Analysis and Results

3.3.1 Temporal Proximization in the English Corpus

After analyzing each category separately, the overall statistical results of the five categories in the English corpus are summed up in Table 2:

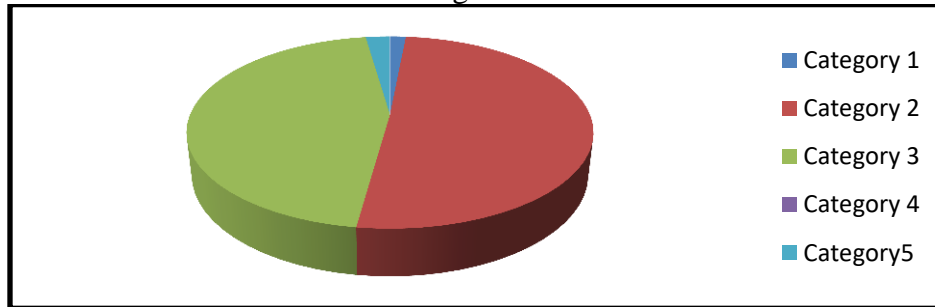
Table 2
The Distribution of the Temporal Strategy Categories in the English Corpus

No. of category	Lexico-grammatical tools	Total instances	Percentage of instances
1	NPs for ODC actual impact	24	1.5%
2	Simple past and present perfect	834	50.7%
3	NPs for ODC impact to arise anytime in the future	748	45.5%
4	VPs for ODC impact between now and the infinite future	0	0%
5	Discourse forms of oppositional and privileged futures	38	2.3%
	Total instances	1644	100%

Figure 3 presents the graphic presentation for the distribution of the temporal proximization strategy categories in the English corpus:



Figure 3



Distribution of Temporal Proximization Strategy Categories in the English Corpus

The categories can be organized into five ranks depending on their rates of occurrence in the corpus as shown in Table 3:

Table 3
The Ranks of the Categories in the English Corpus

Category rank	Category No.	Lexico-grammatical tools	Total instances	Percentage of instances
1 st	2	Simple past and present perfect	834	50.7%
2 nd	3	NPs for ODC impact to arise anytime in the future	748	45.5%
3 rd	5	Discourse forms of oppositional and privileged futures	38	2.3%
4 th	1	NPs for ODC actual impact	24	1.5%
5 th	4	VPs for ODC impact between now and the infinite future	0	0%

Category 2 has obtained the first rank (834 instances; 50.7%) in the English corpus. The lexico-grammatical tools in this category (simple past and present perfect simple) make explicit reference to actual cancerous cases. Such actual cases are widespread with the rising rate of cancer around the world. Cap (2015) has emphasized the fact that the abundant choices that denote ODC entities and their impact are supposed to be achieved by nominal choices. However, ODC denotation can also be achieved by verbal forms to “construe possible impact or physical confrontation” (p. 318). Therefore, the corpus adopts mainly this category as a tool to motivate rapid legitimization of preventive action to face the risk that emerges from periphery forces. Examples are:

- The spread of cancer in areas that suffered from wars has changed the view of people about fighting and weapons.***
- The bad reputation of canned meat made women turn to fresh foods.***

Since the corpus is part of scientific discourse, such actual cases are part of the scientific methodological principle to support any scientific claim. Another reason for occupying the first rank is that the category advocates the use of the two tenses without specifying certain time adverbial to co-exist in the same structure (as is the case with some other categories).

Category 3 is put in the second rank with 748 instances (45.5%). The NPs in category 3 emphasize the fact that the partners should expect the threat to occur at any time starting from now to the future. That is why *before*, or



any semantic counterpart, is considered as the main indicator of presupposition. Therefore, a significant part of temporal proximization depends on how construed time items convert real time events to conditions for ODC impact to appear at any time in the future. This fact emphasizes the short span and impact of carcinogens as ODCs and shows that their proximization is strategic and “involves a step-by-step assumption of full control over the body” (Cap, 2017). An example NP from the corpus is *Carcinogenic+ exposure/ factor/ agent(s)/ activity/ chemicals/ compound/ effect/ etc.*

The third rank is taken up by category 5 (38 instances; 2.3%). Of all the five categories, category 5 occupies the middle position. Category 5 creates temporal proximization by granting IDCs more potential so as to reverse the situation between the periphery and center of the DS. IDCs can adopt an active role by reversing the situation and attacking the threatening elements. Although this cannot always be the case when it comes to active carcinogens that invade the world, legitimizing prevention actions is the main aim behind the construal of attack from Cap’s viewpoint (2013) on the proximization theory. This aim puts the strategies in a state of balance between the construal of attack and directing the IDCs of how to face attack. The state of balance is confirmed by Cap (2006, p. 6) who believes that IDCs are usually construed “as passive ... and thus easily “invadable”. From a purely linguistic viewpoint, the lexico-grammatical tools of this category comprise the domain of the sentence. Such lengthy linguistic manifestation has definitely contributed to the rather low percentage (2.3%) of the instances of this category. Examples from the corpus are:

3. *Antioxidants are chemicals that block the activity of other chemicals, known as free radicals, that may damage cells.*
4. *[W]e don’t make recommendations...but there are clearly some ideas for lowering exposure, and this could be taken forward by the consumers....*

Category 1 occupies the fourth rank with frequency of 24 instances (1.5%). The lexico-grammatical tools are indefinite article as pre-modifiers for nouns with temporal reference. The low frequency comes as a result of the high specification that results from the temporal denotation for the nouns modified by the indefinite articles. Examples from the corpus are:

5. *Being exposed for a long time and/or to high levels of toxic chemicals*
6. *The level of nicotine in urine after an hour of sharing a hookah*

The indefinite articles are markers of construed time that is durative in nature in that it may occur at any time between *now* and the *future*. The heads of these NPs (nouns with temporal reference) are real time markers that create a yet unrealized future possibility within the past frame. The low frequency of this category can also be explained by the fact that the carcinogen attack is universal and scientists cannot specify a particular date for its existence. This explanation is supported by Cap (2017) who believed that the continuity of the ODCs risk extends into the future without salient “indication of the precise moment of materialization”. Moreover, people vary in their period of undergoing the exposure to carcinogens before getting the disease which, as Cap (2017, p. 36) thought it to be, is “unpredictable”. Consequently, temporal proximization would rather be construed with other lexico-grammatical tools in other categories other than using time reference words that might restrict the temporal existence of risk.

This fact also explained the reason behind the null frequency of category 4 where the modal auxiliaries should co-exist with time adverbials whose time span reference occurs within the *now* domain. The lexico-grammatical tools here bound the attack period to the starting point of that attack. Text producers are supposed to have already reported the carcinogen attack period right at the moment attack is declared. However, this cannot be the communicative intention of the Text producers in the corpus; they are just



warning of potential attack that may arise at any moment.

3.3.2 Temporal Proximization in the Arabic Corpus

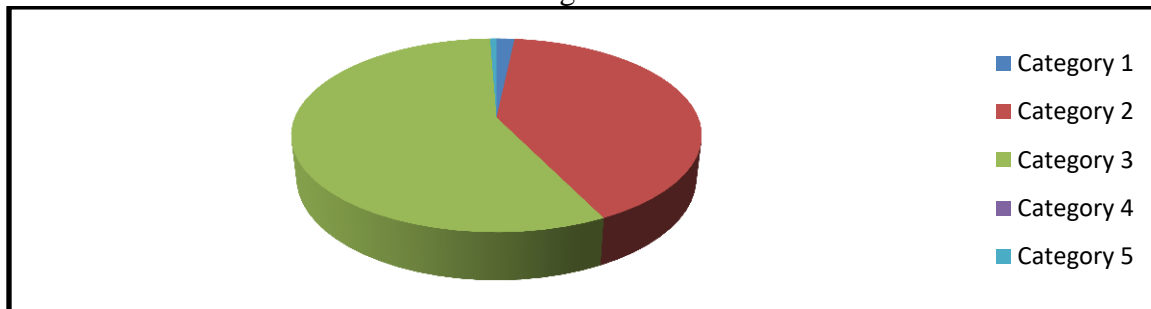
The results of analyzing the temporal proximization strategy in the Arabic corpus are put in Table 4, which displays the distribution of the five categories:

Table 4
The Distribution of the Categories in the Arabic Corpus

No. of category	Lexico-grammatical tools	Total instances	Percentage of instances
1	NPs for ODC actual impact	18	1.7%
2	Simple past and present perfect	432	41%
3	NPs for ODC impact to arise anytime in the future	596	56.7%
4	VPs for ODC impact between now and the infinite future	0	0%
5	Discourse forms of oppositional and privileged futures	6	0.6%
Total instances		1052	100%

The statistical results of the distribution of the categories are represented in the graphic presentation in figure 4:

Figure 4



The Distribution of the Categories in the Arabic Corpus

The five categories of the temporal proximization strategy can be organized in five ranks as presented in Table 5:

Table 5
The Ranks of the Categories in the Arabic Corpus

Category rank	Category No.	Lexico-grammatical tools within the discourse space	Total instances	Percentage of instances
1 st	3	NPs for ODC impact to arise anytime in the future	596	56.7%
2 nd	2	Simple past and present perfect	432	41%
3 rd	1	NPs for ODC actual impact	18	1.7%
4 th	5	Discourse forms of oppositional and privileged futures	6	0.6%
5 th	4	VPs for ODC impact between now and the infinite future	0	0%



Theoretically speaking, the five categories of temporal proximization aim to follow the general mechanism of temporal proximization regardless of their frequencies in the corpus. However, these categories realize that aim by different lexico-grammatical tools. This fact affects their frequencies in different types of discourse since each discourse might employ different language patterns that suit the communicative intention and the common attention among interlocutors. Consequently, not all of the temporal proximization strategy categories are achieved in the Arabic corpus.

The category that has scored the highest frequency is category 3 (596 instances; 56.7%). The lexico-grammatical tools in this category are NPs that nominalize conditions for ODCs impact to emerge at any time in the future. This finding reveals the tendency of the Arabic corpus to form temporal proximization depending on the threatening potentials of the ODCs. The Arabic corpus constructs the proximization of attack starting from the main initiators of that attack (ODCs) even when they have not yet crossed the periphery to head towards the center of the DS.

Category 2 occurs in the second rank with 432 instances (41%). Both past and present perfect tenses are employed to tell about actual past threatening cases that occurred previously. Thus, temporal proximization conceptualizes future attack, which may occur at any time starting from *now*, depending on solid bases of past cases that form evidence for the seriousness of attack. Such tendency involves the implicature that unless a preventive measure is performed to hinder ODCs, the attack will advance and go on to extend to the present or future. The ultimate aim is to enhance and legitimate pre-emptive actions instead of standing still and waiting for the attack to materialize at any moment. Such pre-emptive confrontation is labeled as “counter-force schema” (Hart, 2014). This way, prevention procedures will be promoted in a more motivating manner. Moreover, the reliance on actual cases is an essential tendency in

scientific discourse and it is equivalent to scientific experiments.

It is worth mentioning that, in Arabic, the perfective aspect of the verb is sometimes labeled as the suffixed aspect (Messaudi, 1985 & Belazi, 1993 as cited in Mansour, 2012). Wightwick and Gaatar (2008, p. 13, as cited in Mansour, 2012) stated that the Arabic verbs have two basic tenses: past and present. The present perfect in English has no equivalent in Arabic. Rather, there are certain compound structures which are composed of specific particles plus any verb in Arabic to form the present perfect (Mansour, 2012). The stem of the Arabic verb in these compounds is either the one which is used for the past tense or that which is used for the present tense (Khalil, 1999; Ryding, 2005). These compound structures are as follows:

i. Present perfect meaning with مُنْذُ (since) to denote an action that has started in the past and continued to the present. In Arabic, the preposition مُنْذُ (since) is used for specifying the point of time at which a past action started (Ryding, 2005, pp. 385- 386). An example from the corpus is:

1. وقد ارتبطت هذه المواد الكيميائية منذ أمد طويل بالأضرار البيئية، لا سيما في مجاري المياه والمجاري المائية.

These chemicals have long been associated with environmental damage, particularly in water and waterways.

ii. The present perfect can also be formed by the past verb when preceded by the particles قَدْ or لَقَدْ which carry the syntactic and semantic functions of the auxiliaries *has* and *have* in the present perfect tense (Khalil, 1999; Ryding, 2005). Examples from the corpus are:

2. وفي دراسة اخرى أجريت في كاليفورنيا شاركت فيها نساء وكانت قد بدأت في تسعينات القرن الماضي لتحديد عوامل الخطر المحتملة للسرطان.

And in another study conducted in California, in which women participated, and it has begun in the nineties of the last century, to identify potential risk factors for cancer.

3. لقد وجدنا تأثير العلاقة ما بين تناول اللحوم وطريقة طهيها على مرض السرطان.



We have found the effect of the relationship between eating meat and the way it is cooked on cancer.

iii. Another compound that indicates the present perfect tense is the use of the particle **بَعْدَ** (yet) with the negative present stem of the verb (Mansour, 2012, p. 8). For example:

4. **لم يصل القطار بعد.**

The train hasn't arrived yet.

However, such compounds have not been detected in the corpus.

In response to the first and second ranks adopted by categories 3 and 2 respectively, Cap's (2015) statement supports these findings. He states that the plentiful lexico-grammatical choices that indicate ODC entities are of both nominal and verbal forms that work to construe possible physical confrontation or impact of ODCs upon IDCs.

In the third rank comes category 1 with frequency of 18 instances (1.7%) which is low in comparison with the size of the corpus. In this category, indefinite NPs (with time referring expressions as heads) are used for construing the impact of ODCs. Arabic has only a definite marker called **التعريف** (the **ا** of definition). However, nouns in Arabic can be either definite (**معرفة**) or indefinite (**نكرة**). The indefinite marker is not a separate word as is the case in English. Rather, it is a suffix (-n) that is referred to as "nunation" (**التنوين**) from the name of the letter/sound *nuun*. Hence, in Arabic, the indefiniteness marker is attached to the end of the word (Khalil, 1999, p. 147; Ryding, 2005, p. 156; Al-Araji, 2012). The uses of the indefinite article in Arabic are as follows (Ryding, 2005):

i. To express non-definite status; for example:

5. **أصابهم مرضٌ خبيثٌ.**

(They had a virulent disease)

ii. With masculine proper names which represent an unusual function to English speakers. In Arabic, proper names are semantically definite but morphologically indefinite because many of them are derived from adjectives. For example:

6. **محمَّدٌ (muHammad-un/ praised)**

The lexico-grammatical items in category 1 are of rhetorical appeal in that the "now" frame acts in a proactive way against threat (Cap, 2013, p. 112). Therefore, the indefinite articles come as pre-modifiers in NPs where the heads are nouns with temporal reference (Cap, 2013, p. 116). In Arabic, the "nunation" (**التنوين**) is also attached as a suffix to nouns with temporal reference (**ليومٍ، لمدّة، سنةً، شهراً، مُدَّتاً**; a period, a month, a year, a time span, a day). Example instances from the Arabic corpus are: **لفترةٍ طويلةٍ** (for a long period), **مدةٍ لساعةٍ** (an hour) and **فترةٍ قصيرةٍ** (a short period), **طويلةٍ** (a long time). Khalil's (1999, p. 147) and Ryding's (2005, p. 164) views of indefiniteness in Arabic have been adopted in the analysis.

The rarity of such instances stems from the main issue raised in the corpus; carcinogens are restricted to neither a definite nor indefinite time. The exposure to and the consumption of carcinogens is logically threatening. Thus, threat cannot usually be associated with a *now* indicating nominal reference to denote the future since carcinogen attack has existed since scientists knew about cancer and its causes. Moreover, as Cap (2017, p. 36) stated, the proximization of cancer threat is both continuous and eternal and it extends into the future with no need for indications of the exact moment of embodiment.

Category 5 comes in the fourth rank for scoring only 6 instances (0.6%). Accordingly, the IDCs in the Arabic corpus are mainly granted passive roles. They are presented as stagnant entities that can only be protected from attack by forces other than themselves. They are unable to reverse the status of impact between the periphery and center of the DS. Therefore, temporal proximization is rarely based on them to legitimate and initiate prevention.

The last rank is taken up by category 4 which has not scored any instances in the corpus. The lexico-grammatical tools here are the modal auxiliaries *can* and *could* when associated with a *now* reference time adverbial. In Arabic, the scale of modality encompasses certain degrees



that are indicated by equivalent modal auxiliaries in English. The modality degrees of *less possible*, *possible*, *less certain* and *certain* have the English equivalents of *could*, *can*, *could not* and *cannot* respectively. In Arabic, such modality degrees are indicated by certain particles that stand as equivalents to English modal auxiliaries (Aziz, 1992). Table 6 shows the Arabic equivalent particles for the English modal auxiliaries *can* and *could* (Ryding, 2005):

Table 6
The Arabic Equivalent Particles for the English Modal Auxiliaries can and could

English modal auxiliaries	Equivalent Arabic particles
Can	يُحْتَمَل، يُمكن ان، يَجوز، من المُحتمَل، من الجائز، من المُمكن، ربما، لَعَلَّ، قَدْ
Could	من الارجح، على الارجح، يرجح، اغلب الظن

The amalgamation of any of the Arabic particles above with a time adverbial that refers to a state that occurs within the present sense of *now* would comprise temporal proximization of category 4 type. An example of such adverbials in Arabic is *الآن* (now) or a compound adverbial like *في هذه اللحظة* (at this moment) or *في الوقت الحاضر* (currently). Illustrative examples which are not from the corpus are:

6. **من المحتمل ان يصل الوفد الان**

The delegation can arrive now.

7. **يُرَجَّح في الوقت الحاضر ان ينوب شخص عن الوزير لأستقبال الوفد.**

At present, someone could represent the minister to receive the delegation.

This category is supposed to compound the potential power of modality with time reference adverbials within the *now* span. But it seems that the Arabic corpus does not locate the sensitive issue of carcinogens within such a highly specific linguistic blueprint (even when *now* indicates the future). Cap (2017, p. 37) thought that “most of health discourse and disease prevention discourse in particular” attempt to construe “an unconditional and ultra-fast legitimization” so as to achieve “rapid actions against equally rapid

negative developments”. Thus, there is no time for construing conditions through modality when the ultimate aim is to achieve fast preventive measures against the fast approaching carcinogen.

3.4 Discussion

In both corpora, category 4 is inoperative; it has scored zero frequency and, thus, comes in the last rank as shown in table (7). Obviously, *can* and *could* and their equivalents in Arabic have scored zero hits since scientific discourse is based on firm experimental facts and probability and possibility seem not to exactly fit as coherent elements with the general lay out of that discourse. Except for category 4, the temporal proximization strategy displays substantial dissimilarity between the corpora in the ranks and frequencies of categories.

Table 7
The Ranks of the Temporal Proximization Categories in both Corpora

Category rank	Category No. in English	Category No. in Arabic
1 st	2	3
2 nd	3	2
3 rd	5	1
4 th	1	5
5 th	4	4

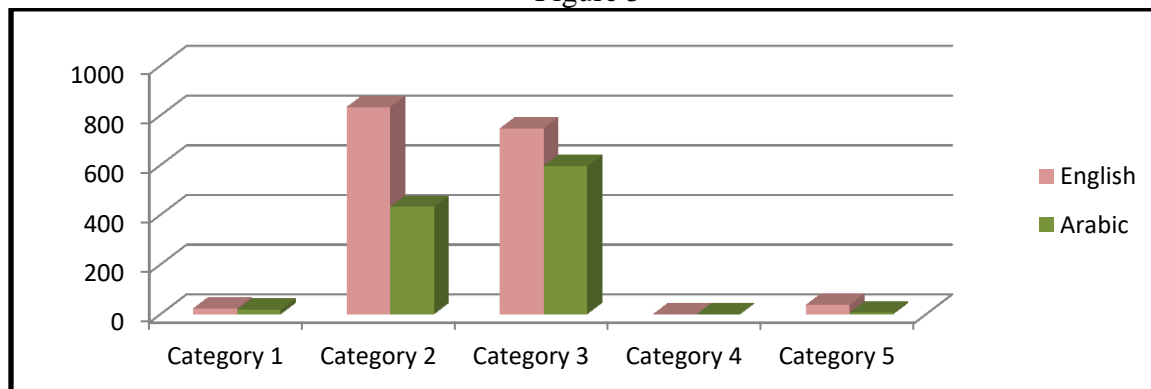
In accordance with Table 8 and Figure 5, temporal proximization is more active in the English corpus than in the Arabic corpus, (1644 total instances in English and 1052 in Arabic). This applies to all categories (except category 4).



Table 8
The Distribution of the Categories in both Corpora

No. of category	Lexico- grammatical tools	Total instances in English	Percentage of instances in English	Total instances in Arabic	Percentage of instances in Arabic
1	NPs for ODC actual impact	24	1.5%	18	1.7%
2	Simple past and present perfect	834	50.7%	432	41%
3	NPs for ODC impact to arise anytime in the future	748	45.5%	596	56.7%
4	VPs for ODC impact between now and the infinite future	0	0%	0	0%
5	Discourse forms of oppositional and privileged futures	38	2.3%	6	0.6%
	Total instances	1644	100%	1052	100%

Figure 5



The Distribution of the Categories in both Corpora

Although category 1 is slightly more frequent in the English corpus (24 instances, 1.5% in English and 18 instances; 1.7% in Arabic), it comes in the fourth rank for the English corpus and the third rank for the Arabic corpus. However, the frequencies in both corpora are rather low in comparison with the size of the corpora. As a reminder, the lexico- grammatical elements in category 1 are NPs with indefinite descriptions to construe ODC actual impact acts in alternative temporal frames. Such lexico-grammatical restriction may contribute to the scarceness of instances in both corpora. In addition, from a semantic macrostructure view point, carcinogens represent a physical aspect that is not restricted to temporal frames of life. This also applies to the actual impact of

carcinogens which is related to exposure to and consumption of these carcinogens.

Category 2 is the most dominant one in the English corpus and occupies the second rank in the Arabic corpus (834 instances; 50.7% in English and 432 instances; 41% in Arabic). Hence, both past simple and present perfect simple are vigorous agents in the temporal proximization (though more in English than in Arabic) to construe the carcinogen attack. Both tenses are used to denote past impacts that construe similar future impact. The past impacts can be findings of an experiment or actual cancer cases that are caused by carcinogens. This explains Cap's (2008) view which stated that temporal proximization is a strategy of interpreting consequences of past events that presupposes the current situation as a



prerequisite for achieving a better future situation. According to this view, past events represent the factor that determines the current situation and ensures the conceptualization of antagonistic beliefs and values.

Category 3 is more frequent in the English corpus (748 instances; 45.5% in English and 596 instances; 56.7% in Arabic). However, it occupies a higher rank in Arabic (the second rank in English and the first rank in Arabic). Thus, the Arabic corpus relies rather heavily on nominalizations that construe presupposition of conditions for ODC impact to appear at any point in the future to mark the imminent carcinogen attack. The basic statistical findings in both corpora are supported by Cap's (2008) view about the temporal proximization strategy. He believes the strategy to be mostly a matter of past and anticipated actions. Therefore, categories 2 and 3 occupy the first two ranks in both corpora. In line with Cap's (2008) previous view, the lexico-grammatical tools in category 2 are the simple past and the present perfect VPs which construe future attack and those of category 3 are NPs which construe presupposition of conditions for ODC impact which is anticipated to arise in the future.

Category 4 has no significance in both corpora for scoring zero frequency in both. This finding is due to the highly specific lexico-grammatical tools which combine modality (*can* and *could* and their equivalents in Arabic) to time reference adverbials within the *now* framework. While some categories in the temporal proximization strategy employ highly specific lexico-grammatical elements, category 5 employs the least probable construal of risk. According to the construal of this category, the status here is reversed where IDCs attack ODCs. Such construal of attack seems to be more proactive in English than in Arabic (38 instances; 2.3% in English and 6 instances; 0.6% in Arabic). Therefore, it occupies the third rank in the English corpus and the fourth in the Arabic corpus. However, it is apparent that both corpora have granted the IDCs some active status, though

with low frequency. For Cap (2008), the presence of both active and inactive construal of IDCs reflects an intention to promote a radical response to the risk to enhance the spirit of the feasibility of pre-emptive actions. Thus, one can say that both corpora adopt this dual (active-inactive) status of the IDCs to promote stronger preventive measures and to give hope that carcinogens can be overcome.

4. Conclusions

The analysis and discussion of temporal proximization in the English and Arabic scientific discourses have produced an explicit answer to the research question raised. English scientific discourse has shown more reliance on the temporal proximization to envisage the imminent attack of carcinogens against human bodies. However, both English and Arabic discourses have displayed diversity in the density and employment of the lexico-grammatical tools (categories) that manifest the carcinogen attack. Categories 1 (indefinite NPs construed as ODC actual impact that acts within temporal frames), 2 (discourse forms with contrastive use of the simple past and the present perfect to construe threatening future that extends from a past instant) and 3 (NPs construed as presupposition of conditions for ODC impact to appear anytime in the future) have shown higher frequency in English scientific discourse than in the Arabic. Category 1 suggests the imminent attack by conceptualizing a *now* indefinite impact. Category 2 foresees the attack by past events that are construed as threatening future. Category 3 presupposes the occurrence of a possible present condition for carcinogen impact to occur at any time in the future. Hence, English scientific discourse have revealed to have more reliance upon conceptual (symbolic) temporal frameworks to warn of proximizing carcinogen attack since the three categories above anticipate future attack depending on present or past threatening events.

The English corpus also has shown higher frequency than the Arabic corpus for category 5 which construes the normal status as



being reversed where people (IDCs) attack carcinogens (ODCs). Such optimistic construal of proximizing attack is more evident and proactive in the English than Arabic scientific discourse.

References

- Al-Araji, B. F. (2012). A pragmatic analysis of polite forms in English and Arabic A Contrastive Study. *Al- Ustath*, 203, 75-85.
- Anthony, L. (2019). *AntConc*. Retrieved from <http://www.laurenceanthony.net/software/antconc/> on November, 2021.
- Anthony, L. (2019). AntFileConverter. Retrieved from <http://www.laurenceanthony.net/software/antconc/> on November, 2021.
- Azeez, F. A. S. & Al- Bahrani, R. H. (2019). A cognitive linguistic study of the satirical language in Al-Hajjar's caricatures. *Journal of College of Education for Women*, 30(1), 203-217. Retrieved from <https://jcoeduw.uobaghdad.edu.iq/index.php/journal/article/view/1158/1079>
- Aziz, Y. (1992). Modality in English and Arabic. *Tarjuman*, 1, 101-115.
- Belazi, H. (1984). *Diglossia and the situation of Arabic in Tunisia* (Unpublished Mater Thesis). Cornell University.
- Cap, P. (2006). *Legitimization in political discourse: A cross-disciplinary perspective on the modern US war rhetoric*. Newcastle: Cambridge Scholars Press.
- _____ (2008). Towards the proximization model of the analysis of legitimization in political discourse. *Journal of Pragmatics*, 40, 17-41.
- _____ (2013). *Proximization: The pragmatics of symbolic distance crossing*. Amsterdam: John Benjamins.
- _____ (2014). Applying cognitive pragmatics to critical discourse studies: A proximization analysis of three public space discourses. *Journal of Pragmatics*, 70, 16- 30.
- _____ (2015). Crossing symbolic distances in political discourse space. *Critical Discourse Studies*, 12(3), 313-329, DOI: 10.1080/17405904.2015.1013481
- _____ (2017). *The language of fear: Communicating threat in public discourse*. London: Palgrave Macmillan.
- _____ (2020). Representation, conceptualization and positioning in critical discourse analysis. *International Review of Pragmatics*, 12, 272-294.
- Carcinogen. (2008). *Webster's new world medical dictionary*. New Jersey: Wiley Publishing, Inc.
- Chilton, P. (2004). *Analysing political discourse: Theory and practice*. London: Routledge.
- Diniz, L. (2005). Comparative review: Textstat 2.5, Antconc 3.0, and complete lexical tutor 4.0. *Language Learning and Technology*, 9(3), 22-27.
- El Shazly, R. F. (2020). The geopolitics of COVID-19: A pragma-cognitive approach. *Journal of Scientific Research in Arts*, 21(2), 290-330.
- Fawzy, R. M. (2020). The geopolitics of COVID-19: A pragma-cognitive approach. *Journal of Scientific Research in Arts*, 21(2), 38- 53.
- Hao, J. (2020). *Analysing scientific discourse from a systemic functional linguistic perspective: A Framework for exploring knowledge-building in biology*. New York: Taylor and Francis.
- Hart, C. (2014). *Discourse, grammar and ideology functional and cognitive perspectives*. London: Bloomsbury Academic.
- Hussien, L. O. & Al-Bahrani, R. H. A (2022). Cognitive linguistic study of battered woman in selected Iraqi Caricatures. *Journal of College of Education for Women*, 33(3), 20- 35. Retrieved from



- <https://doi.org/10.36231/coedw.v33i3.1617>
- Jaafar, E. A & Jasim, H. A. (2022). A Corpus-Based Stylistic Analysis of Online Suicide Notes Retrieved from Reddit, *Cogent Arts & Humanities*, 9(1), 1-16. DOI: 10.1080/23311983.2022.2047434
- Khalil, A. M. (1999). *A contrastive grammar of English and Arabic*. Amman: Jordan Book Center.
- Khalil, H. H. (2013). The Turn-taking system in American presidential debates. *Journal of the College of Education for Women*, 24(1), 303- 323.
- Khalil, H. H. (2014). Discourse deixis in the American political speeches. *Journal of the College of Education for Women*, 25(2), 525- 535.
- Khalil, H. H. (2020). The construction of time, place and society in 21st century American dystopia fiction: A corpus linguistics analysis of deixis. *3L: The Southeast Asian Journal of English Language Studies*, 26(2), 139–157. <http://doi.org/10.17576/3L-2020-2602-11>
- Khalil, H. H. (2022). Constructing carcinogen risk in scientific discourse through ideological conflict: A cognitive pragmatic analysis. *Theory and Practice in Language Studies*, 12(8), 1489-1499. DOI: <https://doi.org/10.17507/tpls.1208.04>
- Mansour, A. S. (2012). Difficulties in translation of the English present perfect simple and the past perfect simple into Arabic and Some Suggested Solutions. *Al-Ustath*, 200, 1- 20.
- Martin, J. R., & Rose, D. (2008). *Genre relations: Mapping culture*. London: Equinox.
- Martín, P. A. M. (2003). Genre and discourse community. *ES: Revista de filología inglesa*, 25, 153–166. Retrieved in March 2022 <https://www.semanticscholar.org/paper/>
- [Genre-and-discourse-communityMart%C3%ADn/514867e04e01a1d816ba9cc5b0ffcaf72e64f8da?sort=relevance&citationIntent=background](https://doi.org/10.36231/coedw.v33i3.1617)
- Melander, B. (1998). Culture or genre? Issues in the interpretation of cross-cultural differences in scientific papers. In I. Fortanet, S. Posteguillo, J. C. Palmer & J. F. Coll (Eds.), *Genre studies in English for academic purposes* (pp. 211-226). Universitat Jaume I: Col·lecció Summa.
- Messaoudi, L. (1985). *Temps et aspect: Approche de la phrase simple en Arab écrit*. Paris: Paul Geuthner.
- Mordovina, T. V. & Nikulshina, N.L. (2010). *From analysis to teaching types of foreign language scientific discourse*. Retrieved in December 2021 from <https://www.tstu.ru/en/science/st/pdf/2010/mordovina.pdf>
- Ninković, L. (2020). Spatial, temporal and epistemic proximization as dynamic event construal strategies. Retrieved in January, 2022 from <http://doi.fil.bg.ac.rs/pdf/journals/zivjez/2020-1/zivjez-2020-40-1-1.pdf>.
- Ryding, K. C. (2005). *A reference grammar of modern standard Arabic*. Cambridge: Cambridge University Press.
- Wightwick, J. & Gaafar, M. (2008). *Arabic verbs and essentials of grammar*. New York: McGraw-Hill Companies, Inc.