Tense-Aspect Selection In Biochemistry Texts

A Semantic-Grammatical Study

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Abstract

This paper tackles both the structure and the semantics of the finite verb phrases in writings concerning the biochemistry articles, the structures and meanings of finite verb phrases associated with tense and aspect. Many articles which have been chosen from certain scientific journals and academic magazines that might develop an understanding about the significance of the mentioned grammatical terms (i.e. tense and aspect) occurrence in genre analyses.

Generally speaking, most of the scientific writings are basically restricted to a certain type of tense which is the simple present tense; however, there are some features or restrictions which must be applied in writing papers to express different meanings.

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It is found that there are some features misused by foreign writers that might cause confusion for some of them in identifying the suitable tense- aspect selection. The selection of tense and aspect is not an arbitrary one. It needs full understanding or a specific syllabus to improve the use of such concepts by some non-native users (i.e. scientists).

1. Introduction

The present research tackles the structure and the semantics of the finite verb phrases and the tense-aspect selections in biochemistry articles which are published in certain scientific magazines and journals. In order to achieve this, the analyzing of structures and meanings associated with tense and aspect has been done so as to establish and interpret their functions in scientific writing. Studying tense- aspect selections and their associated meanings in the finite verb phrases required collecting a corpora of texts which have been chosen.

In examining the papers written in Chemistry, Biology and Medicine, it is found that writers of these kinds of articles need a specific syllabus designed to improve their language skills that are most needed by them, for example, the improvement of their writing skill. It is noted that the scientists' abilities in their subject-matter fields improve their ability to acquire English. Tense-aspect

selection is somehow misleading, nevertheless there are certain restrictions which can be followed in these kinds of writings which determine the selections of the two terms.

2. Aim of the Study and Data Collection

The aim of the present work is not to teach the subject matter of the analyzed papers, but to develop in the scientist an understanding of how he/she can express his/her subject through English. The analyzed texts are papers published in scientific journals and academic magazines which are listed in separate papers concerning biochemistry (i.e. chemistry, biology and medicine). More than (10) articles are reviewed. Chemistry articles are referred to as 1(a,b,c,d,e), biology articles are referred to as 2(a,b,c,d,e) and medicine articles are referred to as 3(a,b,c,d,e). This is done to make it clear when mentioning sentences relating to these articles throughout the research.

3. The Concepts of Tense and Aspect

Palmer (1965: 59) and Quirk and Greenbaum (1973: 40) mention that the units of time exist independently of the grammar of any particular language. However, the reference to these extra-linguistic realities is done by the means of the language-specific category of tense. The correspondence between the form of the verb and the concept of time is termed to be the system of tenses.

Broughton (1990:294) states that English verbs have a system of tenses, simple and complex, this system is a grammatical device which indicates the timing of the event to which the verb refers. Modern grammar argues that modern English has present and past tenses but no future tense, and there are verbal meanings which are not associated with any particular time which are very common in English, thus there is much confusion about the English tense system. Modern grammar partly simplifies the traditional confusion between time and tense to recognize only past and present tenses in English and the ability to express verbal meanings without association with any particular time. As for the future time, modern grammarians argue that 'shall' and 'will' patterns are more like modal patterns than the simple present and past forms. English verbs have two simple tenses and six complex ones. The term 'aspect' is the characteristic of verbs which shows whether the action of the verb is complete or still in progress.

Eastwood (1994: 82) mentions that English has two aspects: the progressive, marked by –ing, indicating that the event is still in progress, and the perfective, marked by –en, indicating that the event occurred in the period up to a given time before-now or before- then. The tenses and aspects can combine. Both forms, finite and non finite verb phrases, may be marked for aspect, the finite verb phrases are marked for aspect in complex active tense forms,

the simple tenses are marked for time only. In addition, each of the present and past tense families has four members, a simple tense (past/present tense simple aspect) and three complex tenses using auxiliaries and marked for aspect (past/ present tense perfective aspect, past/ present tense progressive aspect and past/ present tense perfective progressive aspects).

4.Present Tense Simple Aspect (Semantically Defined)

Schibsbye (1967: 70), Ewer and Latorre (1969: 3) and Quirk et al (1985:179) mention that the present tense simple aspect is used in scientific writings in the following situations:

(a) With dynamic verb senses, the present tense simple aspect is used to refer to events that repeatedly occur without limitation on their extension into the past or future. It is called *habitual present*, as in:

(1) Ethyl acetoacetate or aceto acetic ester plays an important role in preparation of different compounds. **(1d)**

(b) The present tense simple aspect is used with stative verbs senses for stating general truths or scientific laws. This tense is normally called *state present* which includes general timeless statements or eternal truths, for example:

(2) Many antimicrobial agents are active against brucella species. **(3a)**

(c) For describing a process or a phenomenon in a general way. It is an *instantaneous present* , as in:

(3) The reagent hydrochloric acid solution 5M is prepared by diluting 21.18ml of concentrated solution (fluka)11.8 **MHCL to 50 ml with distilled water in a volumetric flask. (1d)**

Ewer and Latorre (1969: 4) and Brookes (1976: 132) state that the simple form of the present tense is preferred to be used in universal statements to show timeless present actions, scientific laws and facts.

- Formula equations:

Written: n (CH_2 = CHCl) → (- CH_2 CHCl) n

Spoken: n, C, H two, C, H, Cl *yields* C, H two, C, H, Cl, n

- Definitions:

The sentences define certain words: The definitions show how the defined words are used and will be used. 'Is' and 'are' are more common in definitions than the simple form of the present.

(4) Heat stroke is a potentially fatal but reversible disorder **ranging from drowsiness to deep coma with flaccid areflexia and loss of brainstem reflexes. (3d)**

- The laws of science:

The present forms of the verb ‘to be’ ‘is and 'are’ are often found in the laws of science.

(5) Action and reaction are equal and opposite. ***(1c)***

Brookes (ibid.: 134) mentions that universal statements remain in the present, even when they are introduced by particular statements about the past or the future.

(6) Ponette et al. (1982:14) established that the exposure of mamalian cells to a short pulse of ionizing radiation elicits multiphasic, time dependent changes in the susceptibility of cells to forthcoming irradiation. **(2d)**

5. Past Tense Simple Aspect (Semantically Defined)

Ewer and Latorre (1969: 15) mention that the past tense simple aspect is the tense normally used for:

(a) Describing an action which happened in the past and is now finished, as in:

(7) However, this side effect was normally very mild in all treatment groups and never led to premature discontinuation **of therapy.** **(3a)**

(b) Referring to repeated actions in the past, this explains that the series of actions is over, as in:

(8) GFP+/ Vasa- cells were always found in the vicinity of both GFP+/ Vasa- and GFP/Vasa+ cells. **(2e)**

(c) Referring to a state in the past. The use of the past tense simple aspect means that the state is no longer exists in the present, as in:

(9) GFP- expressing cells had nuclei with a more DNA straining. **(2e)**

(d) Indicating two actions one comes straight after another, as in:

(10) When we looked at the structure in more detail, we found that the distance between the hydrogenson carbon 2 and 4 is respectively small in the planer conformation. **(1e)**

Biber et al. (1999: 467) identify that the most common time adverbial occurring with past tense simple aspect is 'then' which makes a simple progression of past events as in sentence (11), other time adverbials used with the past tense simple aspect are used to delimit a period or duration of the past time, thus marking a clear ending point before the present time. Prepositional phrases headed by: in, during, through and for, are normally used for this function, as in sentence (12).

(11) 3 ml of sea water were treated with 1ml of 0.02 M ethlendiaminetetraacetic acid (EDTA) and then the recommended procedure was applied. **(1d)**

(12) The absorbance of the colored species *remained* constant *for 1 hour* (1d)

6. Perfective and Progressive Aspects (Their Meanings and Forms)

Biber et al. (1999: 460) clarify that from a semantic point of view tense refers to past and present time orientation, whereas aspect relates to considerations such as the completion or lack of completion of the events or states described by the verb, the perfect aspect designates events or states taking place during a period up to the specified time. The progressive aspect designates an event or state of affairs which is continuing, at the time indicated by the rest of the verb phrase. Structurally, the two aspects in English are distinguished as follows: the perfect aspect is marked by the auxiliary verb have + ed participle; and the progressive aspect is marked by the auxiliary verb be + ing participle. Both aspects can be combined with either present or past tense to be known as the perfective progressive aspects.

6.1. The Present Tense Perfective Aspect

Quirk et al. (1985: 197) state that the present tense perfective aspect relates the action more directly to the present time. The present tense perfective aspect is common in scientific writing. In this kind of writing, the present tense perfective aspect is typically

used with different verbs to imply the continuing validity of earlier findings or practices to the present. The use of the present tense perfective aspect is to indicate an action which began in the past and continues or its effects continues into the present. The event is either partially completed at the present time and continue into the future or it is completed but it still has present significance.

Eastwood (1994: 88) states that when the scientist uses the present tense perfective aspect for repeated actions, it means that the actions may happen again, the use of the past tense simple aspect means that the series of actions is over. Adverbials indicating duration or a time period are used with present tense perfective aspect to mark the beginning of the period of time, but rarely indicate the ending time, as in:

(13) The preliminary experiments have shown that ethyl acetoacetate can give colored dye with diazotized P-nitoaniline only in basic medium. **(1d)**

6.2. The Past Tense Perfective Aspect

Eastwood (1994:92) states that the past tense perfective aspect has the meaning of past-in-the-past. This means that it relates two different times in the past (i.e. to express an action in the past (expressed by the past tense perfective aspect) happened before another one in the past (expressed by the past tense simple aspect)

as in sentence (14). The past tense perfective aspect is used with verbs similar to the most common verbs with the present tense perfective aspect. Biber et al. (1999: 460) identify that in scientific writings the past tense perfective aspect is most common in relative clauses as in sentence (15).

(14) After we had determined all of the parameters involved in the VESCF calculation, the problem was reduced to a general molecular mechanics parameterization. (1e)

(15) Spectrophotometic UV- method which had been used for the deternmination of PABA in tablets based on the measurement of absorbance at 268nm. (1d)

7. Progressive Aspect

Eastwood (1994: 91) states that the 'progressive aspect' designates an event or state of affairs which is in progress or continuing usually for a limited duration. In scientific writings the progressive aspect is used informally in conversation.

7.1 The Present Tense Progressive Aspect

Broughton (1990: 247) mentions that scientists use the present tense progressive aspect informally in conversation to emphasize the continuous nature of actions happening in the present. It is frequently used in subordinate clauses as in sentence (16), in the

descriptions of the progress of plans, projects and incomplete actions and unfinished events. The present tense progressive aspect is rare in scientific writing if compared with empirical and experimental work takes place in labortaries where events happened at the moment of speaking.

(16) On this basis of these observations, it is tempting to speculate the rifampicin compensates for the decreased bacterial effect of quinolones in the phagolysosome. **(3a)**

7.2. The Past Tense Progressive Aspect

Eastwood (1994: 93) mentions that the past tense progressive aspect describes events that were in progress or about to take place at some earlier time. This means it is used for an action over a period of past time and the action was in the middle of its occurrence, as in:

(17) It was interesting to note that the incidence of the disease was in general inversely proportional to the size of community.

(3d)

8. The Perfective Progressive Aspects

Greenbaum and Quirk (1990: 56) mention that when the perfect and progressive aspects are combined in the same verb phrase, the features of meaning associated with each aspect are also

combined. The two aspects carry contrasting meaning complete actions with the perfective and continuing activities with the progressive. The perfective progressive aspects convey specialized kinds of meaning and thus are less common than the past/present tense simple aspects.

8.1.The Present Tense Perfective Progressive Aspects

Broughton (1990: 246) states that this combination may be used with dynamic verb senses to refer to events or states which are relatively short though not necessarily complete. If complete they have a current significance. The present tense perfective aspect is used for repeated actions up to now. It is used for short- term activity, when no adverbial is present and for activity still in progress, the length of which is stated by an adverbial. In comparison between the present tense perfective progressive aspect and the present tense perfective aspect, it is noticed that the progressive focuses on the action going on, while the perfective aspect focuses on the result of the action, as in:

(18) The study has not been considering the prevalence of active trachoma among school children in Al_ Ahsa region. **(5d)**

8.2. The Past Tense Perfective Progressive Aspects

Broughton (1990:246) mentions that the past tense progressive aspect is used to indicate a state or an activity or series of actions at

least partially completed before a point in the past.. It is used for an action over a period up to a past time, it refers to before- then. The past tense perfective progressive aspects focus on the action going on. Not any sentence had been recorded to be used in the analyzed articles.

9. The Formula of the Analyzed Papers

The formula of the analyzed papers is as follows:

9.1 Abstract section

9.2 Introduction

9.3 Materials and Methods

9.4 Reporting Observations and Results

9.5 Stating Conclusions

9.1 Abstract Section

The scientist starts by writing an abstract section. The abstract is the summary of the whole paper, it summarizes the whole scientific work in a certain number of words, the objective or the purpose of the study, the materials and methods being applied in testing the hypotyhesis proposed, and stating the results obtained and the main conclusions.

Most of the articles started by stating the objective or the purpose of the study especially the medical articles. A common way of expressing the purpose or objective is to use the infinitive of the verb. The scientists use the infinitive to express the purpose, object or aim why something is done. Brookes (1976: 135) and Hutchinson & Waters (1987: 30) mention that the purpose or function of a process or thing is often put at the beginning of a sentence, as in:

(19) To evaluate the efficacy and safety of four combinations in the treatment of brucellosis. **(3a)**

There is a heavy use of the past and present tenses with different aspects (i.e. simple and perfective), both the active and the passive. The use of the passive rather than the active voice is one of the main characteristics of the scientific writings. The passive of the present and past tenses simple aspect is used for eliminating the unspecified doer of the action, and emphasizing the object, or the main verb. The verb phrases of the past tense simple aspect (passive and active) which are used in certain articles refer to the idea that the events completed at some time in the past as in sentence (20). The use of the present tense instead of the past is to make the action seems more direct as if happening now as in sentence (21).

(20) We studied the brainstem auditory evoked potentials (BAEPs) in seven patients with definite heat stroke at the Mekkah piligrimage. Wave I was absent .. . The latency of ... was prolonged in... . **(5d)**

(21) Continuation of mammalan species requires the formation and developed of the sexually dimophic germ cells. Cultured embryonic stem cells are generally... **(1e)**

9.2 Introduction

The introduction describes in some detail what was done and concluded throughout the study. It is called the theoretical section. The introduction involves what was proposed and what was resulted.

A combination of tenses and aspects with active and passive voices is used in writing the introduction. Usually, the scientist starts by presenting the phenomenon involved by explaining it through a definition using the present tense simple aspect both the active and the passive, for the fact that the present tense simple aspect is used as in sentence (22).

Biber et al. (1990: 460) mention that the preference of the present tense simple aspect is particularly strong in scientific writings to imply the lack of time restrictions and to convey the idea that the scientific propositions are true regardless of time. When

referring to earlier studies that accounted for that phenomenon, the use of the past tense simple aspect passive is very common to indicate completed actions in the past as in sentence (23). The present tense perfective aspect both active and passive, is also common as in sentence (24)

(22) Human brucellosis is an important public health problem, although the incidence of this infection varies from one geographic area to another. **(3a)**

(23) In a recent series of papers, it was shown that the heats of formation of conjugated molecules can be calculated by the Pople SCF MO method. **(1e)**

(24) Previous papers have described the MM3 molecular mechanics force field and its application to a wide variety of compounds. **(1e)**

9.3 Materials and Methods (The Experimental Section)

Scientists present the construction of the apparatus and the methods used. Their concern here should be with the language of the text as well as the detailed scientific content. The scientist presents facts and data. This presentation comprises stating rules and principles, describing properties and procedures, stating the use and function. Thus, a combination of active and passive tenses and

aspects are involved. The scientist needs to account for the following:

9.3.1 Design and Setting

Design and setting explain when and where the scientist begins and ends his / her experiment. It is sometimes necessary to mention certain information concerning where and when he / she started his/her experiment and all the circumstances determined the application of that experiment. The researcher needs to refer to systematic methods being used. As an example, in the medical field, the methods used in treating certain diseases, the number of the reported cases with certain information concerning their age, sex with the relative percentages if necessary. Here, the active and the passive simple aspect past tense is heavily used as in the following example which compares four different regimens in the treatment of acute brucellosis.

(25) Between January 1987 and January 1997, 175 adult patients with brucellosis were admitted consecutively to Jordan University Hospital. There were 81 males (46.3%) and 94 females (57.7%), their age ranged between 15-67 with mean age of 28.4 years. **(3a)**

9.3.2 The Material and the Procedure Used

This section is concerned with the detailed descriptions in the content of an experiment which comprises: describing shape, size, use, position, direction, movement and action, qualities of materials, colors and appearance (Donovan, 1978:56). Both the active and the passive present tense simple aspects are used for the fact that the present tense simple aspect is used for permanent facts. These descriptions can be noticed in the chemical and biological studies when referring to the characteristics of reagents or even in some of the medical studies, as in:

(26) The T-system method used is a VESCF (Variable Electornegativity Self Consistent Field) method, as previously described. The details of the quantum mechanics are all analogous to those for hydrocarbons, and the general method other than for items specified is basically the same as was used in MM2. **(1e)**

9.3.3 Reporting Actions or Experimental Variables

Donovan (1978: 64) clarifies that after describing the phenomena, the scientist turns to the process of scientific investigations which comprise describing procedural correctness, identifying and stating causes and effects, suggesting the possibility of the procedures that are being developed and discussing possible

actions, or types of results. In this way, the past tense simple aspect passive is introduced.

Maclean (1990: 60) states that the question form why + simple aspect past tense is introduced. Questions in this form which enquire about the reason why something (was or was not done) may be answered by statements beginning with: 'in order to', 'in order not to',' so as to',' so as not to', the use of words of position in the content of an experiment is apparent like, is placed, inverted, observed, rose, concluded, as in:

(27) The recording was from electrodes positioned at the 10-20 international EEG system for electrode application. Ai was on the ipsilateral ear lobe. Rarefication click stimuli were used with click duration of 0.1 ms and at a rate of 10 per second. Each trace was obtained four times in each ear in order to determine reproduciblity. **(5d)**

Donovan (1978: 62) mentions that in order to avoid the ambiguity, statements of cause and effect are introduced, in addition to comparison, contrast and similarity statements.

(28) Most comparative studies have shown that the combination of rifampcin and tetracycline, recommended by the World Health Organization is less effective than tetracycline plus streptomycin. **(3e)**

9.4 Reporting Observations and Results

After reporting observations following the application of the procedure involved, the scientist needs to state his/her results which, according to Donovan (ibid: 67), comprise comparing and contrasting, drawing attention to the effects of change, expressing conditions, making predictions, recommending or expressing necessity, given the circumstances. The attention should be drawn to the way in which conclusions are drawn from the observations, using expressions such as, 'it seems that' and 'this means that'. The identifying of the characteristics which are resulted from applying the method or the system which is done with a complete analysis of the data appeared by using the passive of the past tense simple aspect. The use of tables and figures with guiding statements using the active of the present tense simple aspect with a mentioning to the explanation of the causes, or referring to chemical rules and equations, also statistical analysis to each variable in the analyzed tables is done to emphasize the truth of the propositional information. The results of experiments and researches may be introduced by phrases beginning with "it" and using the passive, as in sentence (29). For active and passive voice see (Gooray, 1968: 203, Hill, 1971: 3 and Hutchinson and Waters, 1987: 87).

***(29) It was found that the rate of flow was improved by increasing the pressure*.** **(1e)**

9.4.1 Probable Results

In order to indicate that a given result is considered likely to occur, the scientists present statements about probable result and then introduce results which can be predicted with certainty. The modal verbs ‘should’ and ‘ought to’ are introduced. It will be necessary to introduce the word (perhaps) to indicate a possible result.

(30) It seems very likely that it may be improved to a point where beats of formation, etc. of molecules of all kinds may be predicted with an accuracy comparable with that already achieved for conjugated hydrocarbons. **(1b)**

9.4.2 Hypothetical Results

Hypothetical conditional statements may be presented with an explanation to the effect that this form is used if the action is not definitely going to be performed as in sentence (31). The gerund can be used to replace the ‘if form’ in statements of hypothetical results, as in sentence (32). Donovan:1978,70) mentions that the use of ‘could be’ in addition to ‘was’ and ‘were’ with the passive of the past tense simple aspect is introduced.

(*31) If the scientist used the Huckel approximation, the impact on chemistry would be considerable.* **(1e)**

***(32) Using the Huckel approximation, the impact on chemistry would be considerable*.** **(1e)**

(33) The effect of the higher levels of sucrose on secondary product formation in plant cultures could be a sequence of its osmotic effects. **(2c)**

9.5 Stating Conclusions

Scientists deal with the present tense perfective aspect passive and active which are used to describe recent actions or results. This indicates that the scientist sees the action as an event which began in the past and its effect continues in the present, as in the following example:

(34) This study has indicated that undifferentiated parsley cultures maintained in different hormonal and nutritional conditions were capable of synthesizing and accumulating detectable levels of some intact plant – characteristic favor volatiles.

(2c)

10. Conclusions

The study tackled reviewing certain scientific journals and magazines for academic purposes and discussed the tense-aspect selection in the finite verb phrases in the biochemistry ones. It aimed at referring to the way the scientists follow in their writings.

The contents of the papers were reviewed to identify the choices that the scientists make when writing their texts. In addition to the heavy use of the passive sentence patterns which reflects the impersonal objective attitude about any scientific activity, some notes are to be mentioned concerning the tense- aspect selection in the analyzed texts:.

1. The simple aspect verb phrases both the active and passive ones are more common than the perfective and progressive aspects in the analyzed scientific articles. The perfective and progressive aspects indicate specialized kinds of meaning. Most of the verbs used with the perfective aspects imply a resultant state, while the verbs used in the progressive aspect imply the continuing nature of the events.

2. The use of the present tense simple aspect verb phrases both the active and passive ones is to express permanent facts and repeated actions which are not restricted to a definite time. This is used in expressing definitions, stating rules and for describing a process in a general way. The present tense simple aspect can be used instead of the past tense simple aspect to make the action seem more direct. The use of the present tense progressive aspect verb phrases is to indicate temporary states which last for a short time. The present tense progressive aspect verb phrases are rare in the analyzed articles.

3. The preference of the use of the past tense simple aspect verb phrases both active and passive is common which is due to the fact that the past tense simple aspect verb phrases imply completed actions. The choice between past tense simple and perfective aspects verb phrases and between the past tense simple aspect and the present tense perfective aspect, can make a difference in the meaning:

(**a**) The past tense simple aspect is used for complete actions in the past, while the past tense perfective aspect relates two events in the past the present tense perfective aspect verb phrases relate a time in the past to the present. Thus, it depends on the researcher whether he/she sees the action as to relate to the past or to the present when he/she chooses between the past tense simple aspect verb phrases and the present tense perfective aspect ones. IF the past tense simple aspect is used for a state in the past, this means that this state is no longer exists in the present, the use of present tense perfective aspect explains that the state may happen again.

(**b**) The choice between the past tense perfective aspect verb phrases and the past tense perfective progressive aspect ones implies that the past tense perfective aspect verb phrases focus on the result of the action. The past tense perfective

progressive aspect verb phrases focus on the action going on over a period up to the past time. Thus, they are rare in the analyzed texts.

(**c**) The choice between the past tense progressive aspect verb phrases and the past tense perfective progressive aspects verb phrases indicates that the past tense progressive aspect verb phrases refer to the idea that the action was in the middle of its occurrence, the past tense perfective progressive aspect verb phrases focus on the actions going on.

4. Most of the texts have the same formula which is to start with the abstract, the materials and methods, the results and the conclusions. The use of the infinitive especially in the medical articles is done to express necessity and obligation referring to the need for doing something. The abstract summarizes the whole work, thus a combination of tenses and aspects is to be noticed.

5. The introduction involves describing and accounting for a phenomenon or an experimental procedure involved in the study. The scientist presents a general description of the process by using the present tense simple aspect, refers to previous studies that tackled that phenomenon by using the passive of the past tense perfective aspect. The scientist explains in some detail his/her work or what he/she did do through his work.

6. The materials and methods which are used through achieving an experiment are described by the scientist. This section is the experimental section. It represents kinds of the applied procedures, the characteristics of the materials used, their preparation, the experimental variables and the main outcome measures.

7. After stating observations, the transition is made to state what was done or stating results. Here, the use of the passive of the past tense simple aspect is very clear. Also, the use of tables and figures to identify the data analyzed is obvious. Any reference to the tables and figures is made by using the present tense simple aspect. In some articles, a comment is added by the scientist to identify what he/she has found. Stating conclusions and recommendations is done by scientists when they present their findings. They use the present tense perfective aspect (both active and passive) to clarify their empirical results.

11. Appendix

1. Chemistry

1(a) In–Vivo effects of Morin Specific Sulphur-Containing Metabolites on the Activity of Irradiated Liver Diammine Oxidase. In Rafidain Journal of Science, University of Mosul, College of Science, Vol.9, No.1, June 1998.

1(b) Red Cell Superoxide Dismutas in Patients with Different Liver Diseases. In Qatar University Science Journal (Qat. Univ. Sci. J.), Vol.16, No.2, 1995.

1(c) Spectrophotometric Determination of P. Aminobenzoic Acid from Procaine Drug by Using Phloroglucinol as Coupling Agent. In University of Tikrit, College of Science, No.244, 2004.

1(d) Spectrophotmetric Determination of Ethyl Acetoacetate by Coupling with Diazotized P–Nitroaniline–Application to Waters. In: J. Education and Science, College of Education, University of Mosul.

1(e) Physical and Inorganic Chemistry. In Journal of the American Chemical Society, Vol. 89,No.13,1967.

2. Biology

2(a) Involvement of Calcium in Elevation of MRNA for 7-Glutamylcysteine Syntentiase (Y-Ges) Induced by Low-Dose 7-Rays. In: International Journal of Radiation Biology. Vol.76, No. 12, 2000, pp. 1931-1939.

2(b) Ecological Notes on the Floristic Composition and Endemic Species of Saint Catherine Mountains, South Sinai, Egypt: In Qatar University Science Journal (Qatar Univ. Sci. J.), Vol.15, No.2, 1995, p.339.

2(c) The Effect of the Insecticide (Primicid) on Neurosocretory Cells of the Earthworm Aporrectodea Coliginosa. In the Same Previous Reference, p.373.

2(d) Poly (ADP- ribose) Polymerase, a major determinant of early Cell Response to Ionizing Radiation. In International Journal of Radiation Biology, Vol. 76, No. 12, pp 1624- 1629.

2(e) Derivation of Oocytes from Mouse Embryonic Stem Cells. In Science, Vol. 300, No. 5623, 2003.

3. Medicine

3(a) A Comparison of Four Different Regimens in the Treatment of Acute Brucellosis: In Journal of the Royal Medical Services, Vol.6, No.1, 1999, pp.31-33.

3(b) Maternal Age and Pregnancy Outcome. In Journal of the Royal Medical Services, Vol.6, No.1, 1999, pp.34-36.

3(c) Association of a Woman's Own Birth Weight with Subsequent Risk for Gestational Diabetes. In JAMA (Journal of the American Medical Association, Vol.2, No.8,2002, pp.49-56.

3(d) Brainstem Auditory Evoked Potentials in Heat Stroke: Diognostic and Prognostic Value. In Saudi Medical Journal, Vol. 9, No. 1, 1988, pp 49- 53.

3(e) Trachoma Among School Children in Al- Ahsa. In Saudi Medical Journal. Vol. 9, No. 1, 1988.

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ملخص

آلية انتقاء الصيغ الزمنية في البحوث العلمية (الكيمياء الحياتية)

دراسة التراكيب القواعدية ومعانيها

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أخذت الدراسة بنظر الاعتبار كلاً من تراكيب ومعاني العبارات ال فعلية في الكتابات العلمية الخاصة ببحوث الكيمياء الحياتية، تطلب ذلك دراسة تراكيب ومعاني العبارات الفعلية (ما هو مفهومنا للتوافق بين شكل الفعل ودلالته الزمنية). من أجل ذلك تم اختيار عدة بحوث من مجلات علمية رصينة ذات طابع أكاديمي وبحوث أجريت من قبل باحثين عراقيين في جامعتنا وباحثين عرب والتي يمكن أن تطور من مفهومنا للتراكيب القواعدية المذكورة والإلمام بمعانيها وماهية دورها في التحليلات الخاصة بكل حقل.

بصورة عامة,تتميز أكثر الكتابات العلمية باستخدام صيغة معينة إلا وهي صيغة المضارع البسيط. برغم ذلك فأن هناك بعض الملامح أو الضوابط التي يجب إتباعها لتوضيح المعاني المختلفة التي يهدف إليها البحث العلمي.

أظهرت نتائج البحث أن هناك عدة ملامح تتعلق بعملية انتقاء الصيغة الفعلية الملائمة ودلالتها الزمنية قد لا تستخدم بصورة صحيحة من قبل الباحثين مسببة بذلك بعض الغموض في تمييز كل نوع على حدة. وجد أيضاً أن آلية الانتقاء هذه هي أحد الأمور المهمة التي تتطلب من الباحث استيعاباً تاماً للموضوع وهنا تبرز الحاجة الملحة إلى مناهج لتطوير استخدام الباحثين للغة العلمية في كتابة بحوثهم.

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