SCIENTIFIC ENGLISH

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Course 4: Congugation tenses in scientific texts

Introduction

- It is important to know that for each section in a scientific manuscript (abstract, introduction, methodology, results, discussion, conclusion) there are **appropriate conjugation verb tenses**.
- For this reason we will learn in this course about conjugation verb tenses and there **employment in scientific writings.**

Background:

- The tense of a verb reflects the timing of the action:
- **The past tense** indicates that an action already occurred; it is used to talk about past or about hypothesis.
- **The present tense** indicates that the action is currently occurring.
- **The future tense** used for a future activity or a future state of being, that means it indicates that the event has not yet occurred.
- Verbs can also be conjugated into a past, present, or future **perfect tense**, it is used to describe completed actions in which the action is defined relative to another point in time.

TITLE:

- The title of a scientific text does not need to be a complete sentence, and no verb is necessary. In cases where a complete sentence is appropriate, we can use the simple present tense to describe a conclusion of the text meaning or to ask a hypothesis question.
- Examples:

✓“**Parasite resistance is costly**”. a conclusion

✓“**Are there general laws in parasite ecology?**” a hypothesis question

ABSTRAC:

- The choice of the verb tense for the abstract should be based on the section of the text to which each sentence corresponds. For example:

1. Introductory statements describing the current understanding of the issue should use **the present tense**,
2. References to previous research should use **the present perfect**,
3. Descriptions of the methods and results should use **the past tense**.

INTRODUCTION

- The introduction often includes **several verb tenses**, the choice of the verb tense depends on the context for the statement that is accompanies.

1. First, when stating **a fact that is widely accepted**, the present tense is appropriate.

Examples:

✓"DNA is composed of four nucleotides"

✓"The parasite is a life been."

2. In an introduction, we can also introduce references to previous research. We can use **the present perfect** (‘have/has’ plus a past participle) to refer to a previous study if the results of this study are still relevant. This will demonstrate that the action occurred in the past but still applies in the present.

- Examples:

✓Recent works **has shown** that mosquito and parasite biology are influenced not only by average temperature, but also by the extent of the daily temperature variation.

✓Gwadz **has shown** that the infectivity of malarious chickens to mosquitoes can be reduced greatly by prior vaccination

3. Likewise, we can use the present perfect in the introduction when the event began in the past but continues in the present.

- Examples:

✓The sexually produced stage of this parasite, oocysts containing sporozoites, **has been** found only recently.

✓A number of diagnostic tools **have been** developed.

✓Other studies **have been** aiming at the identification of specific antigenic components of *N. caninum*.

4. The present tense is used in the introduction when a specific result, figure, or paper is the subject of a sentence. We mean by this that a published research is still available for readers to examine.

- Exemples:

✓The results of their study **indicate** a combination of day 3 parasite positivity rates.

✓This study **characterizes** the isolates by western blot analysis and by restriction enzyme analysis of the small subunit (SSU) RDNa.

5. In some parts of an introduction, the past tense is the best to use when referring specifically to the methods used in a previous paper.

- Examples:

✓“The author **indicated** that three categories of biological processes are shown to have a destabilizing influence on the dynamical behaviour of model host-parasite associations”

✓“The author **examined** the importance of parasitic species as regulators of host population growth.”

6. Likewise, we can use **the past tense** in the statements that are no longer considered true:

- Examples:

✓"Parasitism **was considered** always as an interspecific interaction"

✓"Early biologists **thought** that this agent acts broadly on redox processes in the parasite."

7. Otherwise, a combination of tenses can be applied:

- Example:

Robert Corey suggested that DNA **contained** three helices, but subsequent work **has proved** the existence of a double-helix structure.

METHODOLOGY:

1. In the methods section, we should use **the past tense**, because it is a report of what was done during the study procedure.

- Examples:

✓We **tested** the product

✓The species **were identified**

2. When one action occurred before another, we use **the past perfect tense** (‘had’ with the past participle of the verb) or **the past perfect tense continuous** (‘had’ plus been plus the past participle of the verb) to indicate the earlier action and **the simple past tense** to indicate the subsequent action.

- Examples:

✓The cells that **had been irradiated** were **assayed** for DNA damage

✓Patients who **had elected** to undergo surgery **completed** questionnaires.

3. In less frequent cases, when one action occurred while another was ongoing, we use **the past continuous (**was' or 'were' plus the present participle ('-ing' form) of the verb.) to describe the ongoing action and the simple past to indicate the principle action.

- Examples:

✓While the specimens **were incubating**, the temperature **was** raised 1°C per hour.

✓While specimens **were preparing** for the study, students **collected** based information on the topic.

RESULTS:

1. We frequently use **the past tense** to write the result section because the experiments described in the text were completed before the paper was written.

- Examples:

✓We **have detected** no danger of this species to vertebrate hosts

✓We **detected** the presence of ectoparasites on the patients skin

2. However, we can need to use **the present tense** when writing the results section. The present tense is appropriate when referring to the entire paper or to individual elements of the manuscript (e.g., figures, tables, sections, results, or data)

- Examples:

✓The figure 1 **represents** the morphology of the parasite

✓The table to **is** an illustration of the obtained resulte

3. Also, two tenses can be used within the same sentence, **The present tense** is appropriate to indicate a statement considered as fact based on the results basing on the observation extends beyond the specific experiment referenced in the first part of the sentence.

- Examples:

✓"Because no pathogenicity **was detected** in natural conditions, our results **indicate** that the parasite **consist** no danger for public health."

DISCUSSION:

- The same rules of the previous sections are applied for the discussion section.

1. When referring to specific results or methods, we use **the past tense**,
2. We use **the present** when presenting conclusions.

3. However, the discussion may include **the future tense** if directions for additional research or scholarship are proposed

Examples:

✓“The methods reported here **will allow** for rapid screening in the field”

✓“We **will publish** the full results of our screen as part of another study”).