

Daily Vocabulary and Grammar Learning (13 Dec 2023)-Part 2

In this note, I will comprehensively analyze a scientific research paper, dissecting each section from its inception to its conclusion. This discussion will encompass a variety of elements, including basic grammatical structures, tense application, diverse sentence structures, academic vocabulary, phrases, and the effective use of linking words.

Additionally, I will demonstrate proper grammatical structure, coherence, and cohesion throughout. Let's embark on this exploration of academic writing based on a scientific research paper.

Title: QUANTITATIVE FLOW CHARACTERISTICS FOR SIDE-BY-SIDE SQUARE CYLINDERS VIA PIV

Published in 2012 by EDP Science

Introduction

Vocabulary	Part of speech	Type of verb	Meaning	Synonyms	Collocation	Example
Interference (<i>intər</i> ' <i>fɪərəns</i>)	Interfere (v) Interference (n) Interfaith (adj) Interfering (adj) Interfere with (Phrasal v)	Interfere (v1) Interfere (v2) Interfering (g)	An occasion when someone tries to interfere in a situation	Obstruction, hindrance, disruption, intervention, intrusion, meddling, obstruction, impedance	Political interference Radio interference Interference pattern Interference with a process	The constant interference in the negotiations made it challenging to reach a resolution The experiment was affected by electromagnetic interference, leading to inaccurate results. His interference in their personal matters only created more problems.

Grammar Associated with Introduction Section

Present Simple

Active Form:

Examples from paper:

1. The knowledge of the flow field around bluff bodies **is** of major importance in many engineering applications including cooling of electronic equipment, heat exchangers, groups of neighboring tall buildings, chimneys, bridges and trash racks.
2. One of the main features of these bluff body flow configurations **is** a periodic force loading in streamwise and vertical directions due to the pressure variations on the cylinder surface caused by periodic vortex shedding.
3. When more than one square cylinder (SC) are placed in a uniform flow, the flow characteristics such as surface pressure, drag coefficient and vortex-shedding frequency are completely different from the case of single SC depending on the arrangement of the gap ratio G/D of the SCs and Reynolds number.
4. In addition, the flow structure around two or three SCs displays a very complicated flow patterns due to the strong interference of vortices caused by the SCs when the gap ratio G/D is relatively short.
5. For this reason, aerodynamic forces acting on the two or three structures **could be** very different in comparison with a single structure.

Explanation:

The sentence you provided is in the present simple tense. Specifically, the modal verb "could be" is used, which is a construction of the present simple tense indicating a possibility or potentiality in the present.

Modal verbs, such as "**can**," "**could**," "**will**," "**would**," "**shall**," "**should**," "**may**," and "**might**," are often associated with the present simple tense, but their usage extends beyond it. Modal verbs can be used to convey various meanings across different tenses.

Present Simple Tense:

- Modal verbs can be used in the present simple tense to express **ability, permission, possibility, or necessity**.
 - Example: "She can speak Spanish."

Past Simple Tense:

- Modal verbs can also be used in the past simple tense to **express ability, permission, possibility, or necessity in the past**.
 - Example: "He could swim when he was five."

Future Simple Tense:

- Modal verbs can be used in combination with "**will**" or "**shall**" to express **future actions or possibilities**.
 - Example: "They may go to the beach tomorrow."

Passive Form:

Examples from paper:

Past Simple

Active Form:

Examples from paper:

Passive Form:

Examples from paper:

Present Perfect

Active Form:

Examples from paper:

Passive Form:

Examples from paper:

1. The subject of single, two or multiple bluff-body flows owing to interactions of flow and solid structure **has been attracted** a great deal of attention, recently.

Past Perfect

Active Form:

Examples from paper:

Passive Form:

Examples from paper: