



Linguistic tool for Physics textbook analysis

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The Physics textbook: a reading guide

What are we going to do? We will use the **linguistic tool** to analyze the parabolic motion as explained in a school textbook. In particular, we will

1. observe the features of the scientific language;
2. observe the linguistic features of the textbooks;
3. exercise: analysis of a textbook.

First of all, we have to know that...

Scientific communities adopt a **particular variety** of language (a register):

what does it mean?

Three main characteristics:

1. technical vocabulary (technical terms);
2. preference for specific morpho-syntactic constructions;
3. a small community uses it.

Textbooks' features: simplification

Textbooks simplify the scientific register since they are addressed to non-experts readers who do not have the same knowledge and do not use the same register of the small scientific community.

They try to make the discourse more understandable.

For example, it is necessary to define technical terms (glosses, definitions, explanations).

Textbooks' features: technical terms

Anyway, it takes work.

In the field of physics, the difficulty in understanding the technical terms lies in two factors:

1. lack of knowledge of the technical terms meaning;
2. lack of theoretical knowledge needed to comprehend the definition of the technical term.

Double impenetrability (Gualdo-Telve 2011: 241 et seq.).

Textbooks' features: textuality

Precisely because the aim is to make new concepts known and understood, the manual is often repetitive: **repetition** of the same concepts through reformulations to make them available to the reader's understanding.

The textbook uses different codes: written text, images, tables, and graphs (repetition).

Graphic highlighting devices.

Dialogical development.

Textbooks' features: textuality

It reports principles and theories, definitions, and explanations.

References to common everyday knowledge also are presented in the textbook.

In addition, over the last forty years, there has been a tendency to adapt the language to the television science documentaries discourse, i.e., informal (written and spoken) modes of communication.

Textual entities

When an entity is mentioned for the first time in the text, it becomes part of the textual world, of the textual representation, regardless it exists or not in the extra-textual reality.

The physics book also constructs and conveys a textual world and its contents to the readers.

In physics textbooks, the textual world represents the disciplinary concepts, methods, etc.

The textual world of physics

Therefore, reading a physics textbook means gaining an image of physics, of how it is investigated.

The linguistic choices made in the textbook determine the reader's representation of the subject field.

The textual world of physics

So, let us look at a textbook from a linguistic point of view (vocabulary, syntax, and speech development).

Try to understand how the message is conveyed.

Textbook: Walker

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