Lesson Plan: GRAMMAR: SYNTACTIC ANALYSIS

Teacher: Mª TERESA MONREAL BOLUDA

Subject: LANGUAGE AND LITERATURE

Title : Lesson	**Time : 2 SESSIONS OF 50 minutes**
Subject *: Syntactic analysis of a simple sentence.*	
Aim: Learn how to analyze a sentence	
Key CS elements: decomposition, pattern recognition, abstraction, algorithm design	
Age group : 1st and 2nd year students (12- 14 year-old)	
Learning situations: classrooms	**Activity type :** Syntactic analysis of a simple tense.
Resources : paper, pen, colour pencils.	

Learning development:

1. Decomposing:

We have to analyze a sentence syntactically, we could refer to syntactic analysis as the process of analyzing the strings of symbols in natural language in conformance with grammatical rules. Syntactic analysis also pays attention to the order of the words in a sentence. It also considers the morphology of the words in the sentence.

First we have to consider the analysis only involves simple sentences: with one verb only. Simple doesn't mean easy ones, it means there is only one verb.

The small parts of a sentence are called syntagms or phrases, such as noun phrases, verb phrases or prepositional phrases, and each one has different components. So, the most difficult part of the starting point is identifying the different syntagms in the sentence, and also which is the head of the phrase and the child or the dependent.

2. Pattern recognition:

By reading the sentence, " Juan's mother baked a cake for her daughter for her birthday yesterday"
we can see that there are different things which are repeated: nouns, adjectives, prepositions, determiners, but there is only one verb.

Simple sentences always have one verb and it is located in the middle of the sentence, as an average.
In English language, a subject is compulsory and it is mainly placed at the beginning of the sentence.

3. Abstraction:

In this point, abstraction can be considered as the ability to identify syntagms.

Students can cut the sentence in different " chunks" . These different parts are identified after the students have learned the differences between noun, verb, adjective, etc and their position in a phrase. Morphological analysis is practiced before syntactic one appears.

Yesterday // Juan's mother //baked //a cake //for her daughter// for her birthday

4. Algorithm design:

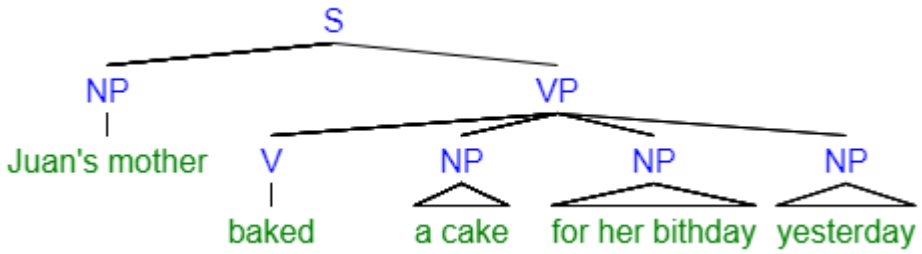
1. Identify the verb and ask "who" or "what" did the action, the answer is the subject of the sentence. And it should agree with the verb in number (singular or plural) and genre (male or female, at least in Spanish, where verbs conjugation is more complex than English)
2. Once the subject is identified, the rest of the sentence is the Predicate. The verb is always the head of the predicate.
3. Within the subject, as this one is formed by more than one word, the next step is identify the head of the phrase and the dependant.
4. To get the direct object, which in English is usually after the verb, we ask "What did she bake?"
5. To get the indirect object, placed either before or after the direct one, we ask "who did she bake for?"
6. To get the purpose object, we ask "why…?"
7. Finally, the time expression, usually placed at the end of the sentence, we ask "when"
8. To conclude the analysis, the final question is what type of sentence is? Affirmative, Negative or Interrogative.

Juan's mother baked a cake for her daughter for her birthday yesterday

dependant-head	head-verb	head d. object	head indi. object	head purpose comp.	head time
subject	predicate				

Assessment: During the practice, the teacher solves the doubts and provides more examples of sentences which include more complements in them.

Once they understand how a sentence works, they practice online creating Syntactic Trees to "see" their analysis, by using the web http://mshang.ca/syntree/



Expected results: Within the 2 sessions the students learn first and practice later this analysis which is the basis for a more complex one involving more than one sentence.

Notes:

When analyzing a sentence in a syntactic way, maybe some points may differ from one language to another, such as order in the sentence, which is more fixed in English than in Spanish.

Altenatively

Lesson Plan: Syntactic Analysis of a Simple Sentence (45 minutes)

Aim: To introduce students to syntactic analysis and sentence structure, focusing on simple sentences with only one verb, using computational thinking principles.

Grade Level: Suitable for students aged 15-16.

Materials:

- Whiteboard and markers or a projector for visual aids.
- Examples of simple sentences.
- Access to a computer or paper and pens for note-taking.

Four Principles of Computational Thinking:

1. **Decomposition:** Breaking down the process of syntactic analysis into smaller steps.
2. **Pattern Recognition:** Identifying patterns in sentence structure.
3. **Abstraction:** Extracting the key elements of a sentence.
4. **Algorithm Design:** Planning the steps to syntactically analyze a sentence.

Lesson Plan:

Introduction (5 minutes):

- Explain the importance of understanding sentence structure and syntactic analysis.
- Mention the four principles of computational thinking and how they apply to this task.

Decomposition (10 minutes):

- Discuss the process of syntactic analysis and break it down into steps: identifying subjects, verbs, objects, and other sentence components.

Pattern Recognition (10 minutes):

- Present examples of simple sentences on the board or screen.
- Ask students to identify the patterns they observe in the sentences.

Abstraction (10 minutes):

- Guide students in extracting the key elements from the examples, such as subjects, verbs, and objects.
- Discuss the roles these elements play in the structure of a sentence.

Algorithm Design (10 minutes):

- Instruct students to create a structured plan for syntactically analyzing a simple sentence.
- Encourage them to outline the main steps involved in the process.

Pseudocode algorithm for syntactic analysis of a simple sentence with only one verb:
Input: a sentence string Output: a parsed sentence representation

Algorithm:

1. Split the sentence string into words.
2. Identify the subject of the sentence. The subject is the noun or pronoun that performs the action of the verb. (By asking who or what?)
3. Identify the verb of the sentence. The verb is the word that describes the action or state of being of the subject. (What is happening?)
4. Identify any objects of the verb. Objects (complements) are nouns or pronouns that are affected by the action of the verb. (By asking who, whom, where, how or why etc)
5. Construct a parsed sentence representation that shows the relationships between the subject, verb, and objects.

Example:

Input: "The cat sat on the mat."
Output:
Parsed sentence representation:
Sentence:
Subject: The cat
Verb: sat
Complement: on the mat

Steps:

1. Split the sentence string into words: ["The", "cat", "sat", "on", "the", "mat"]
2. Identify the subject of the sentence by asking who or what -> "The cat"
3. Identify the verb of the sentence by asking what is happening (ed)-> "sat"
4. Identify any complements of the verb: "on the mat"
5. Construct a parsed sentence representation:

Sentence: Subject: The cat Verb: sat Object: on the mat

Sentence Analysis (5 minutes):

- Have students apply their algorithm to analyze a sample simple sentence.
- Discuss the results as a group.

Flowchart (5 minutes):

- Present a simple flowchart demonstrating the steps of syntactic analysis.
- Ask students to create their own flowcharts as a visual aid for future analysis.

Conclusion (5 minutes):

- Summarize the key points covered in the lesson.
- Reinforce how computational thinking principles can be applied to linguistic analysis.

Homework/Extension:

- Assign more sentences for syntactic analysis and ask students to create flowcharts for each sentence they analyze.