

Sentence Parsing

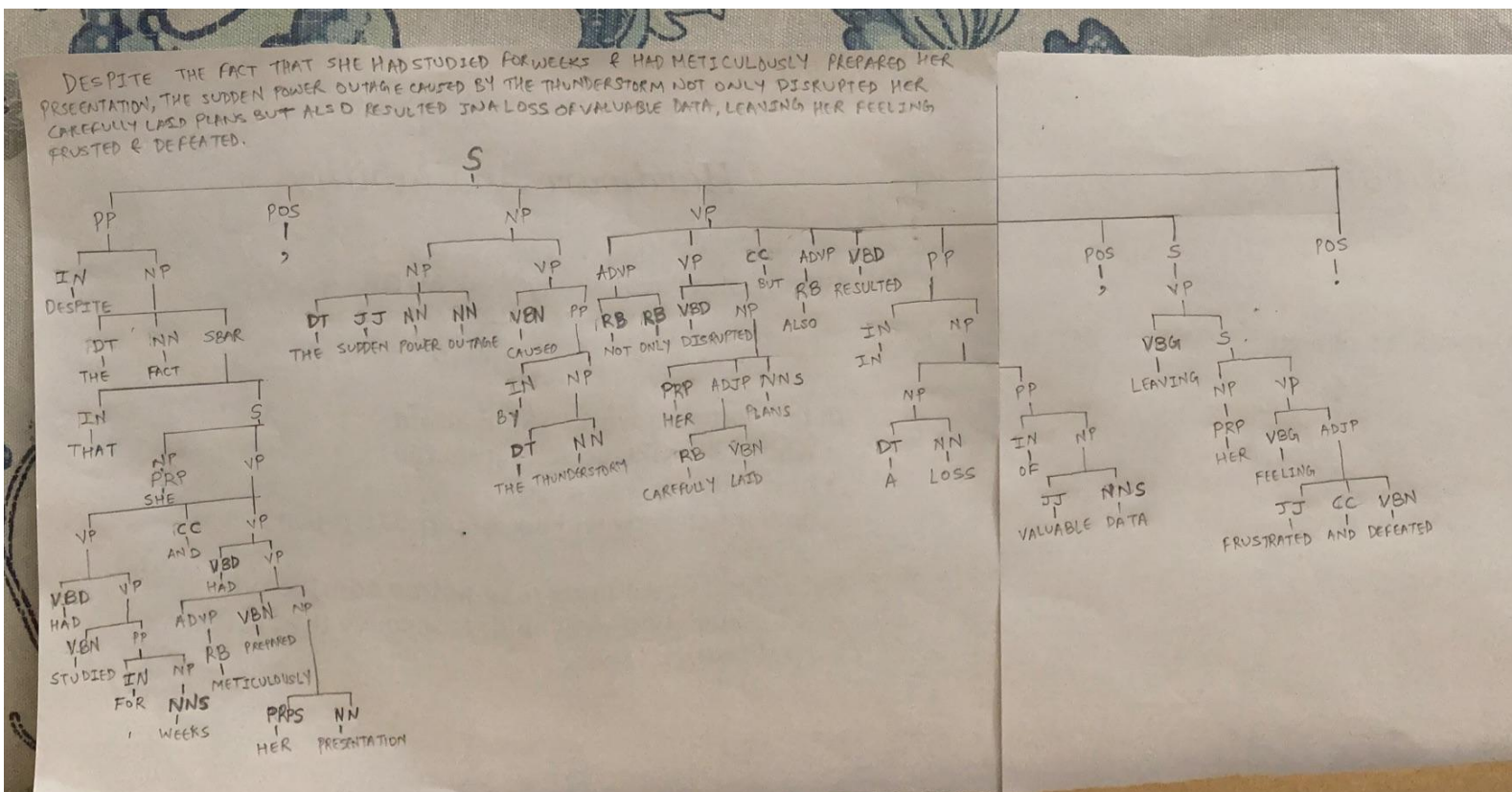
By

Jignesh Suryakant Satam

Sentence:

Despite the fact that she had studied for weeks and had meticulously prepared her presentation, the sudden power outage caused by the thunderstorm not only disrupted her carefully laid plans but also resulted in a loss of valuable data, leaving her feeling frustrated and defeated.

PSG tree:



Terms Definitions:

S (Sentence): The highest-level phrase in a sentence that contains all the other phrases.

NP (Noun Phrase): A phrase that contains a noun and its modifiers.

VP (Verb Phrase): A phrase that contains a verb and its modifiers.

PP (Prepositional Phrase): A phrase that consists of a preposition and its object, along with any modifiers.

ADJP (Adjective Phrase): A phrase that contains an adjective and its modifiers.

ADVP (Adverb Phrase): A phrase that contains an adverb and its modifiers.

SBAR (Subordinate Clause): A clause that is dependent on another clause and functions as a modifier or complement.

IN: Preposition or subordinating conjunction

DT: Determiner

NN: Noun, singular or mass

NNS: Noun, plural

PRP: Personal pronoun

PRPS: Possessive pronoun (prolog version PRP-S)

VBD: Verb, past tense

VBN: Verb, past participle

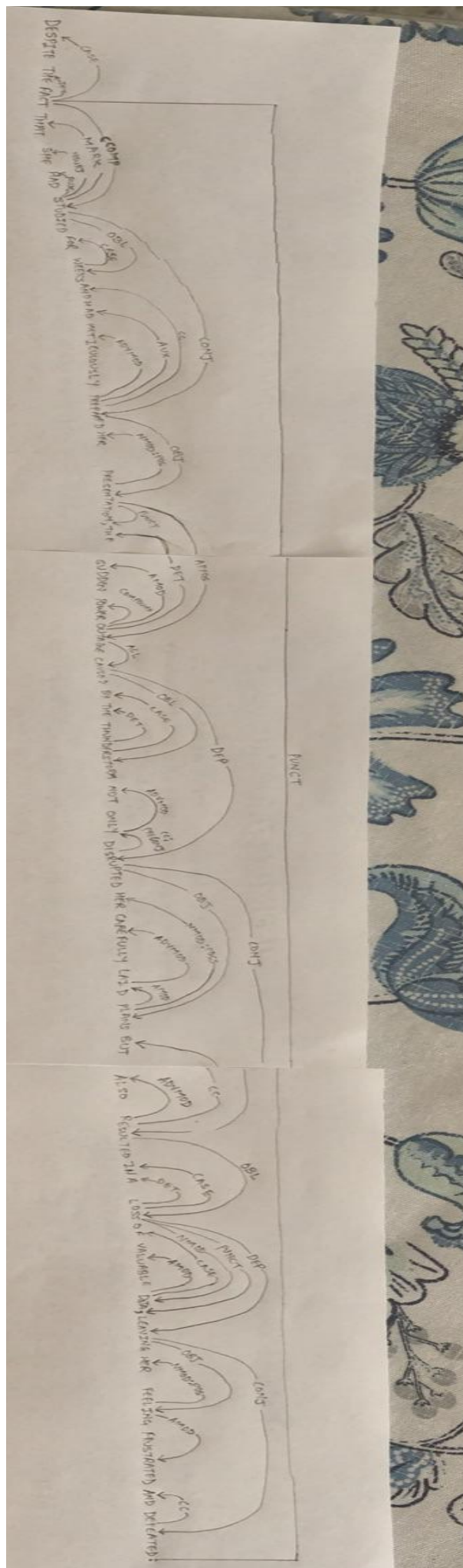
VBG: Verb, gerund or present participle

CC: Coordinating conjunction

RB: Adverb

JJ: Adjective

Dependency parse:



Advmod - adverb modifier An adverb modifier of a word is a (non-clausal) adverb or adverb-headed phrase that serves to modify the meaning of the word.

ccomp: clausal complement A clausal complement of a verb or adjective is a dependent clause with an internal subject which functions like an object of the verb, or adjective.

Case: case refers to the grammatical relationship between a governing word (usually a preposition or a verb) and its dependent noun or pronoun

Det: determiner. A determiner is a relation between the head of an NP and its determiner

Mark: marker

A marker is the word introducing a finite clause subordinate to another clause.

Nsubj: nominal subject

A nominal subject is a noun phrase that is the syntactic subject of a clause. T

Aux: auxiliary

An auxiliary of a clause is a non-main verb of the clause,

Conj: conjunct

A conjunct is the relation between two elements connected by a coordinating conjunction.

Obl: oblique modifier.

It is used to describe any noun phrase or prepositional phrase that functions as an adverbial or modifying phrase in a sentence.

Cc: coordination

A coordination is the relation between an element of a conjunct and the coordinating conjunction word of the conjunct.

Obj: object.

It is used to describe the noun phrase that is the direct object of a verb, meaning the person or thing that is affected by the action of the verb.

Nmod: pos possessive nominal modifier.

It is used to describe a modifier that indicates possession or attribution of the noun it modifies.

Appos: appositional modifier

An appositional modifier of an NP is an NP immediately to the right of the first NP that serves to define or modify that NP

Punct: represents punctuation marks such as commas, periods, and semicolons.

Amod: adjectival modifier

An adjectival modifier of an NP is any adjectival phrase that serves to modify the meaning of the NP.

Compound: A compound is a standard dependency relation in linguistic dependency parsing that represents a nominal modifier consisting of two or more words that form a single concept.

Alc:

Dep: dependent

A dependency is labeled as dep when the system is unable to determine a more precise dependency relation between two words.

Obl: a standard dependency relation in linguistic dependency parsing that represents an oblique nominal or adverbial that modifies the verb or predicate in a sentence.

Cc:preconj

It is a standard dependency relation in linguistic dependency parsing that represents the coordinating conjunction that appears before the first element in a coordination phrase. The function of "CC:preconj" is to indicate that the conjunction modifies the entire coordination structure rather than just one of its elements.

Conj: conjunct

A conjunct is the relation between two elements connected by a coordinating conjunction, such as "and", "or", etc.

Obj: direct object of a verb.

The direct object is a noun phrase or pronoun that refers to the entity that is affected by the action of the verb.

Nmod:poss: possessive noun modifier.

A possessive noun modifier is a noun phrase that modifies another noun phrase by indicating possession or ownership.

SRL Parse:

Despite the fact that she had studied for weeks and had meticulously prepared her presentation, the sudden power outage caused by the thunderstorm not only disrupted her carefully laid plans but also resulted in a loss of valuable data, leaving her feeling frustrated and defeated.

Predicate: Despite

- Arg1: fact

Predicate: studied

- Arg0: she
- Arg1: weeks
- ArgM-TMP: that

Predicate: prepared

- Arg0: she
- Arg1: presentation
- ArgM: meticulously

Predicate: caused

- Arg0: sudden power outage
- Arg1: disruption
- ArgM-LOC: by
- ArgM-TMP: caused by the thunderstorm

Predicate: disrupted

- Arg0: sudden power outage
- Arg1: plans
- ArgM: carefully laid

Predicate: loss

- Arg0: valuable data

Predicate: leaving

- Arg0: she
- Arg1: feeling
- Arg2: frustrated and defeated

In this SRL parse:

Each predicate (i.e., verb) is listed along with its numbered arguments and modifiers.

For each predicate, the numbered arguments are defined as follows:

Arg0: The agent or doer of the action (i.e., the subject of the sentence).

Arg1: The direct object or patient of the action.

Arg2, Arg3, etc.: Other arguments of the verb, such as beneficiaries or instruments.

The modifiers are also listed:

ArgM-TMP: Temporal modifier

ArgM-LOC: Location modifier

ArgM-ADV: Adverbial modifier

ArgM-ADJ: Adjectival modifier

The numbered arguments and modifiers are related to each verb in terms of how they contribute to the meaning of the sentence. For example, the argument "she" is the agent of the actions "studied" and "prepared", indicating that she is the one who performed these actions. Similarly, the argument "her carefully laid plans" is the direct object of the action "disrupted", indicating that her plans are what was affected by the disruption.

Write a paragraph briefly summarizing the pros/cons of each parse type (your opinion) for your sample sentence.

There are three types of parses for the given sentence - constituency, dependency, and SRL parses - each with its own strengths and weaknesses.

Constituency parses are useful for analyzing the grammatical structure of a sentence by identifying the constituent phrases and their relationships. This type of parse provides a clear visualization of the hierarchical structure of the sentence, which can be helpful in understanding the overall meaning of the sentence. The disadvantage of constituency parses is that it does not capture the full range of relationships between words in a sentence.

Dependency parses, on the other hand, are useful for capturing the syntactic relationships between words in a sentence. This type of parse provides a more detailed representation of the relationships between words and their functions, which can be helpful in analyzing the semantics of the sentence. However, dependency parses may not capture the full range of relationships between phrases in a sentence. Another disadvantage is the more complicated the sentence gets (like our example) the more complicated and difficult to read the diagrammatic representation gets.

SRL parses are particularly useful for identifying the semantic roles of each argument in a sentence. This type of parse provides a more detailed representation of the meaning of the sentence by identifying the roles that each argument plays in relation to the predicate. However, SRL parses may not capture the full range of relationships between words and phrases in a sentence.

In my opinion, the SRL parse is the most useful for the given sentence as it provides the most detailed and informative representation of the meaning of the sentence. It identifies the roles that each argument plays in relation to the predicate and provides information on the various modifiers that affect the meaning of each predicate. While the constituency and dependency parses are useful for analyzing the grammatical and syntactic structure of the sentence, they do not provide as much information on the semantic relationships between words and phrases in the sentence.