Meinhard Benedict Capucao
3/02/23
CS 4395.001

Write a fairly complex sentence. The sentence should have at least 12 tokens. More points are awarded for sentences with more than one clause.

"A few days before the trade deadline, the Dallas Mavericks traded for Kyrie Irving, making them a contender in the Western Conference."
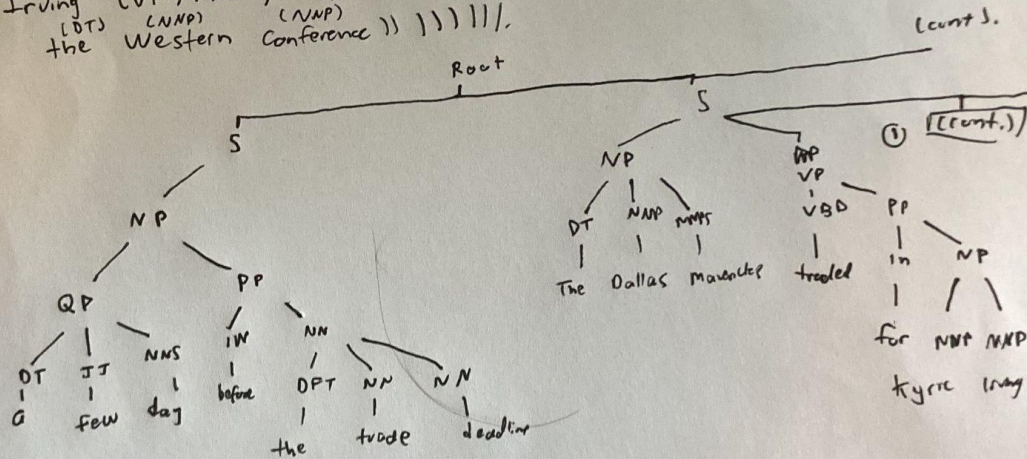
Hand draw (no copy/paste) a PSG tree of the sentence, labeling POS. Briefly define all phrase terms that appear such as: S, SBAR, NP, VP, PP, etc.

A few days before the trade deadline, the Dallas Mavericks
traded for Kyrie Irving, making them a contender in
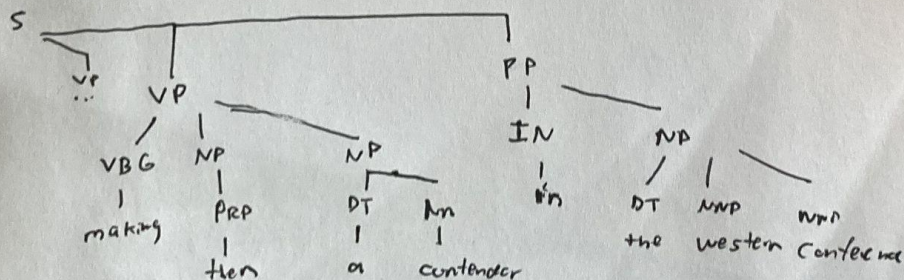the Western Conference.

1. PSG Tree

(to help) (S (AP (NP (QP A few days)(before (NP the trade deadline)),
[DET] [JJ] [NNS] (IN) (DET) (NN)
(DT) (NNP) (NNPS) (VBD) (NN) (DET) (NN) (NN)
(S (NP the Dallas Mavericks) (VP traded for (PP for (NP Kyrie
(NNP) (VBG) (COT) (NN) (IN)
Irving (VP , making (NP them) (NP a contender) (PP in (NP
(DT) (NNP) (ARP) (NNP)
the Western Conference)))))))). (cont).

Root

S

NP

QP PP

DT JJ NNS IN NN

a few day before DPT NN NN

the trade deadline

S

NP VP
VP
DT NNP NNPS VBD PP

The Dallas Mavericks traded in NP

for NNP NNP

Kyrie Irving

① (cont.)

S

VP PP

VBG NP NP IN NP

making PRP DT NN in DT NNP NNP

then a contender the western Conference

Hand draw (no copy/paste) a dependency parse of the sentence, labeling dependency relations (but not POS). Briefly define all dependency relations that occurred in the parse. You can use the Stanford Dependencies Manual that is uploaded to Piazza.

Timeline Overview

By: meinhard Benedict Capuceno

2. Dependencies 💀 (there's a lot).

A few days before the trade deadline, the Dallas Mavericks traded for Kyrie Irving, making them

DT JJ NNS IN DT NN NN DT NNP NNPS VBD IN NNP NNP VBG PRP
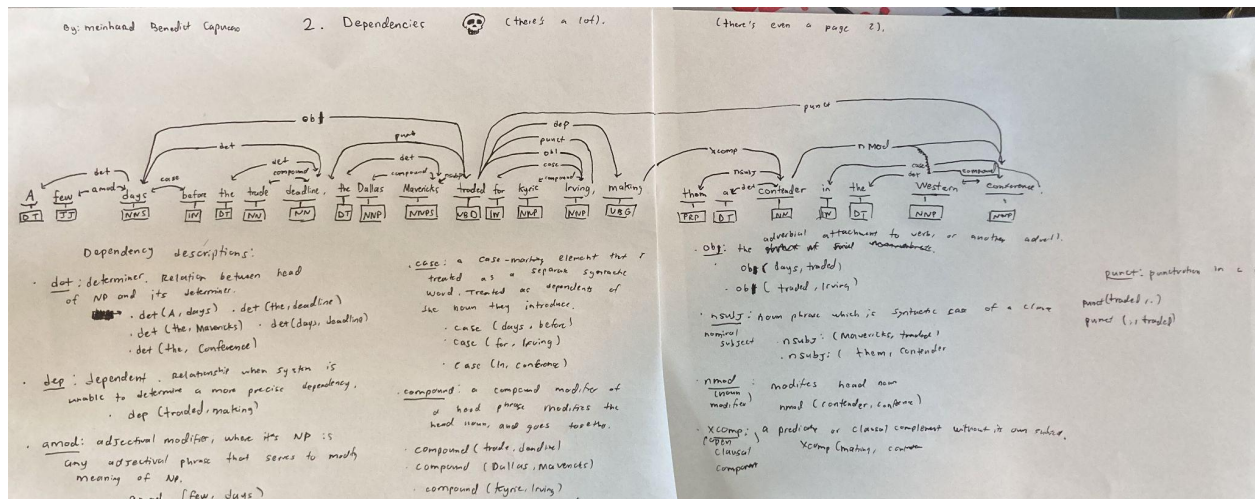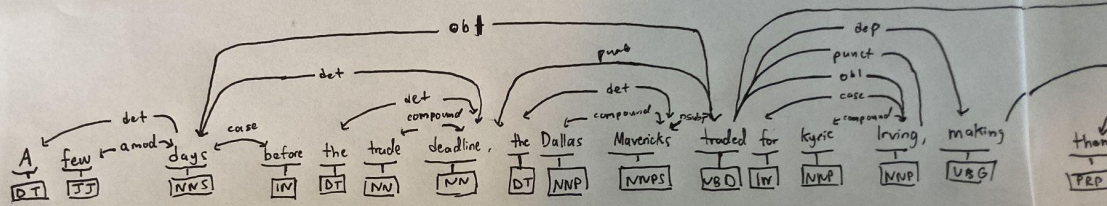
Dependency descriptions:

- **det**: determiner. Relation between head of NP and its determiner.
  - det (A, days) · det (the, deadline)
  - det (the, Mavericks) · det (days, deadline)
  - det (the, Conference)

- **dep**: dependent. Relationship when system is unable to determine a more precise dependency.
  - dep (traded, making)

- **amod**: adjectival modifier, where it's NP is any adjectival phrase that serves to modify meaning of NP.
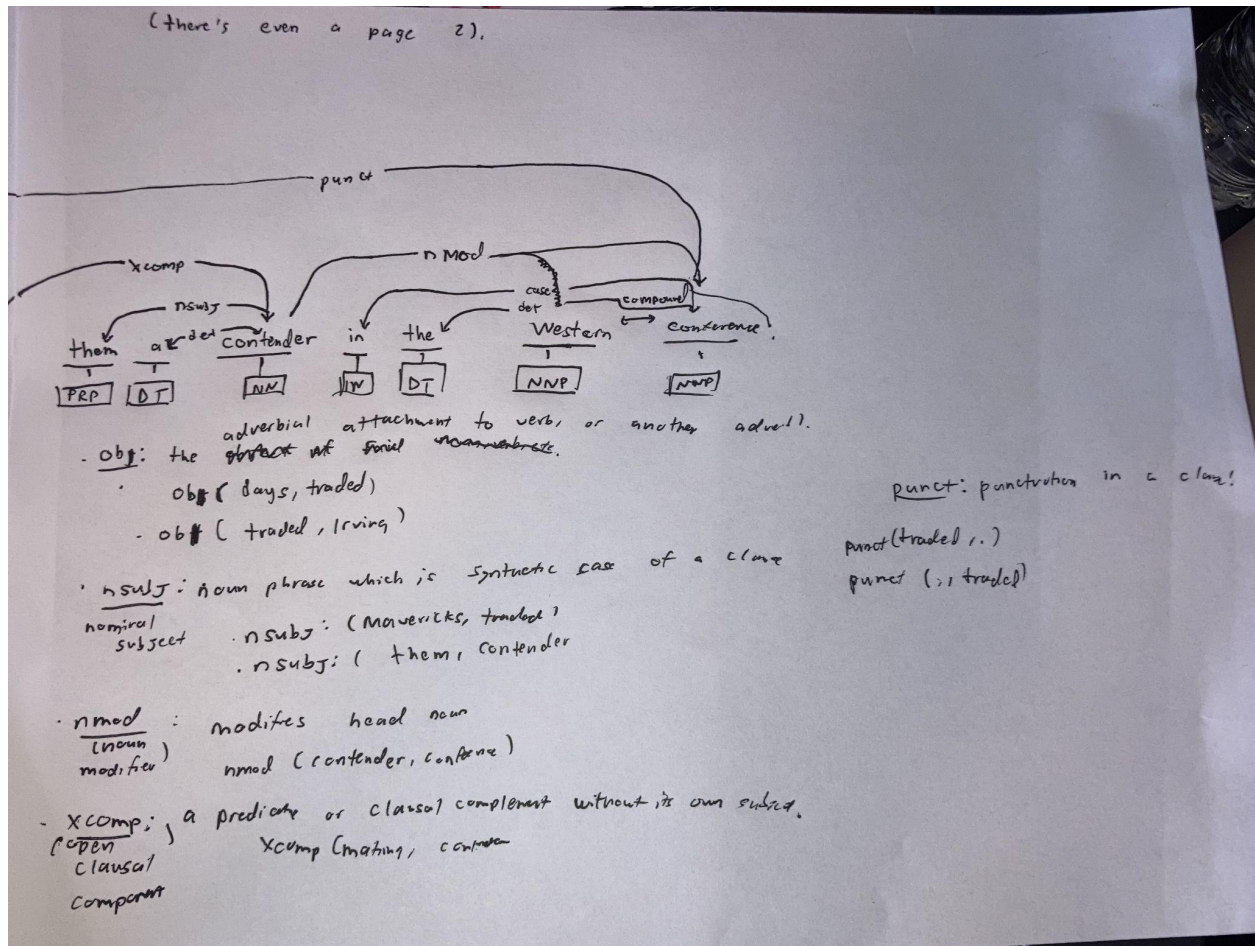 - amod (few, days)

- **case**: a case-marking element that is treated as a separate syntactic word. Treated as dependents of the noun they introduce.
  - case (days, before)
  - case (for, Irving)
  - case (in, conference)

- **compound**: a compound modifier of a head phrase modifies the head noun, and goes together.
  - compound (trade, deadline)
  - compound (Dallas, Mavericks)
  - compound (Kyrie, Irving)
  - compound (Western, Conference)

PT 1

(there's even a page 2).

punct

xcomp

n Mod

case
det

compound

nsubj

them   a   det Contender   in   the   Western   →   Conference .

| PRP | DT | | NN | IN | DT | | NNP | | NNP |

adverbial attachment to verb, or another adverb).

- obj: the object of serial movements.

  obj (days, traded)

- obj (traded , Irving)

Punct: punctuation in a clause!

punct (traded , .)
punct (;, traded)

· nsubj : noun phrase which is syntactic case of a clause

nomiral
subject   · nsubj : (Mavericks, traded)

  · nsubj: (them, Contender

· nmod :   modifes   head noun
(noun)
modifier   nmod (contender, conferene)

- xcomp: a predicate or clausal complement without its own subject.
(open
clausal   xcomp (mahing, conrce

Component

PT 2

For the SRL parse, list the predicate, all arguments (numbered) and modifiers (TMP, LOC, etc.) for each verb in the sentence. Briefly discuss the numbered arguments and their

relation to each verb. List each modifier and briefly define what it is. Refer to the list of arguments in the class slides.

Used (https://demo.allennlp.org/semantic-role-labeling) to help.

"A few days before the trade deadline, the Dallas Mavericks traded for Kyrie Irving, making them a contender in the Western Conference."

Verbs: traded, making,

<u>for **traded:**</u>

A few days before the trade deadline, the Dallas Mavericks traded

ARGM-TMP	ARG0	V

for Kyrie Irving, making them a contender in the Western Conference

ARG-PNC	ARGM-ADV

Predicate: traded
All arguments: ARG0
- ARG0, "the Dallas Mavericks", is the agent of the situation. They are the ones performing the trade, which makes them the one doing the action.

All modifiers: ARG-TMP, ARG-PNC, ARGM-ADV

- ARG-TMP, "A few days before the trade deadline", is when the action happened. The Dallas Mavericks *traded* for Kyrie Irving a few days before the deadline.
- ARG-PNC, "for Kyrie Irving", is the motivation for an action. The reason why the Dallas Mavericks got in the trade was **for** Kyrie Irving.
  - Note: In the generator, this said that "for Kyrie Irving" was an ARG-03. However, it assumed that Kyrie was the beneficiary because of the way the sentence was structured. With context, however, the PNC-modifier fits a lot more.

- ARGM-ADV modifies the entire sentence most of the time, but don't fall under common sentence modifiers. Namely, temporal, focus sensitive, sentential, and intensional. In this case, the phrase "making them a contender in the Western Conference" gives context to

the trade and what the trade achieves, which doesn't fall under any of the above modifiers but does modify the meaning of the entire sentence. It helps answer "what did the trade" achieve in an indirect way through cause and effect.

- Source: https://verbs.colorado.edu/~mpalmer/projects/ace/PBguidelines.pdf

<u>for **making:**</u>

A few days before the trade deadline, the Dallas Mavericks traded

ARG0	V

for Kyrie Irving, making them a contender in the Western Conference

V	ARG1

Predicate: making

All arguments: ARG0m

- ARG0, "the Dallas Mavericks", is the agent of the situation. The trade will be *making* them a contender in the Western Conference.
- ARG1, "them a contender in the Western Conference", is the passive actor in the situation. It still refers to the Dallas Mavericks, but they passively become a contender because of the direct action of the trade.

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

Which is the best one?

All these methods of parsing are beneficial in their own ways, so let's go through them one by one.

PSG trees split up the tree into clauses, and breaks each part of the sentence down into their phrase and word levels. This tree system allows readers to easily identify each word type in the sentence, and go up to see what type of clauses and phrases each word belongs to. This is useful to see if words fall under multiple phrase types, since for example a word can be both in a verb phrase and a prepositional phrase. The disadvantage, however, is no context. We can't get further

detail for each phrase. Also, in my opinion, reading big PSG trees (like mine) can be confusing to iterate through.

Dependency parses are useful in determining the relationships between words and how they relate to each other. This helps in understanding overall sentence construction and structure. Through this, we can tell subject / object relationships, determiners, compound words, and more. It's important to know how certain words and their placement can change the meaning of other words in the sentence. This parse won't be able to tell phrase types (only word types), and doesn't give further information than the relationships and *dependence* of words in the sentence.

Lastly, we have an SRL parse, which assigns semantic goals of phrases in a sentence. Here, there isn't much detail, and labels without description means that one must know a resource to look at tag meanings. However, I prefer this the most since it helps with understanding and clarity. In my example, I'm able to know the main subject, the verbs, and how they interact. I can also tell how different modifiers and arguments in the sentence give context. The cons is not being able to assign word types of phrases beyond the verbs used.

Therefore, my personal favorite and the one I think is most useful for human understanding is the SRL parse. The other two are useful as well, and give different types of information.