Problem Set 2: ABCDE

Due September 17 at midnight. Submit on IVLE > Files > Student Submission > PS2.

Note: This assignment does *not* have to be written as a short paper, unlike Part 2 of PS1.

In this problem set, we study the "language" ACBDE. ABCDE has five words:

(1) **Lexicon of ABCDE:**

    a. A = [A; uC]

    b. B = [B]

    c. C = [C]

    d. D = [D; uA, uC*]

    e. E = [E; uB, uC]

For example, the word *A* has the categorial feature A and has one uninterpretable selectional feature: uC. A sentence of ABCDE is grammatical if it can be built from the words A, B, C, D, E using the operations in (2–4), and ends with no unchecked uninterpretable features. (Here the trees in (2–4) are *ordered*: the left daughter is pronounced before the right daughter.)

(2) **Merge**(α, β):   (read: 'merge β to α')

For any syntactic objects α, β, where α bears an unchecked selectional feature F, and β bears a matching categorial feature, call α the head and

  a. check the feature F on α: ~~F~~;

  b. let the label γ be the unchecked features of α; and

  c. return $\underset{\alpha\ \ \beta}{\overset{\gamma}{\wedge}}$ if α is a head and $\underset{\beta\ \ \alpha}{\overset{\gamma}{\wedge}}$ otherwise.

(3) **Adjoin**(α, β):   (read: 'adjoin β to α')

For any syntactic objects α, β, where neither α nor β has any unchecked selectional feature, call α the host and return $\underset{\alpha\ \ \beta}{\overset{\gamma}{\wedge}}$ or $\underset{\beta\ \ \alpha}{\overset{\gamma}{\wedge}}$, where the label $\gamma = \alpha$.

(4) **Move**$_{\text{phrase}}(\alpha, \beta)$ (read: 'α attracts β')

If α is a projection with a feature F, β a maximal projection with a matching feature F, and α contains β, and F is strong (marked F*) on α or β or both, then

  a. check the strong features F* on α and/or β: ~~F*~~;

  b. mark β in α as deleted: ~~β~~ (call this a trace); and

  c. return $\underset{\beta\ \ \alpha}{\overset{\gamma}{\wedge}}$ where the label γ includes all unchecked features of α.

Your task is to consider the sentences in (5–11) below. For each sentence in (6–11), (i) determine whether or not it is a grammatical sentence of ABCDE and — if it is grammatical — (ii) draw its tree, <u>numbering each node</u> and showing relevant features, and (iii) give the sequence of Merge, Adjoin, and Move$_{phrase}$ steps which derive the sentence. See the example answer for (5) below.

(5) A B C (see example below)

(6) C E B

(7) C B D A

(8) A B C D

(9) A C E B

(10) C D B A

(11) C D A E B

Example:

(i) Sentence (5) *A B C* is a grammatical sentence of ABCDE.

(ii)

$$A_5$$

$A_4[\text{u}\cancel{C}]$ C_3

B_2 C_1
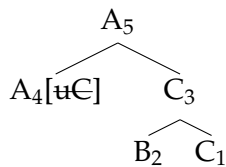
(iii) 2 steps:

1. C_3 = Adjoin(C_1, B_2)
2. A_5 = Merge(A_4, C_3)

A_5 has no unchecked uninterpretable features and is pronounced *A B C*, so we're done.