The organization of transformational grammar

We have been developing a sentence-grammar that derives acceptable word-orders using two different kinds of rules.

**merge** These rules license an initial set of daughter-parent and daughter-sister relationships that we can depict using a tree. Merge respects subcategorization.

**move** Directed “transformations” re-arrange phrases within a phrase structure, or introduce a bounded amount of new material (e.g. *do*-insertion).

The initial phrase structure defined by ‘merge’ is known as **deep structure** — a kind of underlying form. The final structure, to which no more movements are applicable, is known as **surface structure**. Intermediate stages of the transformational derivation may bear a resemblance to structures found elsewhere in the language (or in other languages). Nonetheless, the essential scientific role of these intermediate stages is to simplify the theory. Such intermediate stages are analogous to intermediate lines of derivation or partial results in an algebra problem like [1]

\[
y = x^2 - 7x + 12 \\
y = (x - 3)(x - 4) \\
y = 0 \text{ just in case } x = 3 \text{ or } x = 4
\]

The following six steps illustrate a more complete derivation, on our grammar so far, of the acceptable English sentence *Which girl do you love?*

1. Merge licenses the combination of [*V* love] and [*NP* which girl] to yield the X’ structure depicted on the right.

   ![Tree diagram](image)

   Attachment at the single-bar level indicates the complementhood of the NP.

   This structure is consistent with the transitive subcategorization frame of love, [*NP*]
2. Merger with the subject is also allowed by X’ theory if we postulate an empty inflection.

3. Merge an empty complementizer C that has the +Q interrogative feature.

4. *-insertion applies, filling the empty inflection node.
5. I-to-C movement applies, motivated by +Q. A trace \((t)\) marks the launching site

6. Wh-movement applies, transporting \([\text{NP which girl}]\) to the specifier of CP. The launching site is indicated by a distinct trace, \(t_2\)
1 French Verb raising

In English, adverbs precede main verbs.

(2) He \([\text{Adv} \text{ often}] \ [\text{v} \text{ arrives}] \text{ late}\).

(3) She \([\text{Adv} \text{ carefully}] \ [\text{v} \text{ words}] \text{ her letters}\).

French seems to impose the opposite requirement – that adverbs come after their verbs. Examples like (4) attest to the acceptability of this ordering. The examples in (5) have been twisted into the English-like ordering and are unacceptable to French native speakers.

(4) a. Il \([\text{Adv} \text{ souvent}] \text{ en retard}\)
    he arrives often late

b. Elle \([\text{Adv} \text{ soigneusement}] \text{ ses lettres}\)
    she carefully her letters

(5) a. *Il souvent arrive \text{ en retard}\)

b. *Elle soigneusement formule ses lettres

This observation is at odds with the fact that elsewhere in the grammar of French XP-specifiers appear to precede X′. For instance, French determiners come before common nouns:

(6) les chaussures
    the shoes

(7) la voiture
    the car

The word-by-word translations in (8) show that English auxiliary verbs pattern with their French counterparts; they come before the adverb. We have been analyzing auxiliary verbs as inflectional elements that head entire sentences.

(8) a. Il \([\text{I} \text{ est } \text{ souvent invité}]\)
    he is often invited

b. Elle \([\text{I a } \text{ soigneusement formulé ses lettres}]\)
    she has carefully worded her letters

(9) a. He \([\text{I does } \text{ often arrive late}]\)

b. She \([\text{I will } \text{ carefully word her letters}]\)

It is possible to maintain that French specifiers precede their heads under the additional assumption that verbs in that language obligatorily raise from V to I (figure 5.23 overleaf).

This assumption immediately derives the fact that French Y/N questions front the main verb (example 10) while English Y/N questions front the auxiliary (example 11).

(10) [v Manges] tu du chocolat?
    eat you chocolate
    “Do you eat chocolate?”

(11) [v Will] you eat chocolate?
However, the inversion movement must be ordered after V-to-I raising in the transformational derivation to correctly derive the French word order.

It’s not so farfetched to think that V-to-I movement could be operative in English, too. Recall that English auxiliary verbs permit n’t-suffixation whereas main verbs do not. Examples (12) and (13) exercise the inversion transformation that derives Y/N questions in English, namely I-to-C movement.

(12) a. The children should go to bed.
   b. [ Shouldn’t ]3 the children t3 go to bed?

(13) a. The children have gone to bed.
   b. [ Haven’t ]4 the children t4 gone to bed?

A reasonable analysis of cases like (14a) would locate the modal should in the inflection node and relegate have to a VP-shell surrounding gone to bed.

(14) a. The children shouldn’t [VP have [VP gone to bed ] ].
   b. * The children should haven’t gone to bed

If have is merged in as a V, then it must be moved to I in order to undergo inversion – the promised case of V-to-I in English.
2 Passive

You may have been counciled against using passive voice (example 16) by well-meaning individuals such as high-school teachers. Use the active voice instead, they say (example 15).

(15) a. The kids consumed free lunches.
    b. John praised a student.

(16) a. Free lunches are consumed by the kids.
    b. A student was praised by John.

(17) a. *Free lunches are consumed the kids
    b. *A student was praised John

It is not a coincidence that each main verb e.g. consume, praise appears in exactly two different subcategorization frames, active: [NP] and passive: [PP by]. It would be redundant to separately indicate, for every verb in the lexicon, that both frames are possible. A parsimonious alternative uses a transformation to derive the passive from the active. This passive transformation adds the passive morphology, including some form of be, sets up a prepositional by-phrase, and swaps the subject NP with the object NP. The need for both an object and a subject as inputs to this movement rule immediately derives the non-passivability of intransitive verbs such as occur.

(18) a. A mess occurred
    b. *The janitor occurred a mess
    c. *A mess was occurred (by the janitor)

3 Homework

Turn in answers to questions 11 and 12 at the end of O’Grady chapter 5 pp197.