1 Naive CFGs miss case phenomena

(1)  
  a. * her will suffocate him in the forest  
  b. she will suffocate him in the forest  

- a case of over-generation  
- her,she both category Pronoun  
- DP → Pronoun “any pronoun can occupy any DP position” – is not quite true

Only the **nominative** case pronoun is acceptable in subject position (1) and only the **accusative** case pronoun is acceptable in object position (2).

(2)  
  a. * she will suffocate he in the forest  
  b. she will suffocate him in the forest

Case can be viewed as “assigned” to DPs in much the same way as theta roles. Only sometimes is it morphologically marked (i.e. 2ndPersonNominative ≈ 2ndPersonAccusative)

<table>
<thead>
<tr>
<th>nominative</th>
<th>accusative</th>
<th>genitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>me</td>
<td>my</td>
</tr>
<tr>
<td>you</td>
<td>you</td>
<td>your</td>
</tr>
<tr>
<td>he</td>
<td>him</td>
<td>his</td>
</tr>
<tr>
<td>she</td>
<td>her</td>
<td>her</td>
</tr>
<tr>
<td>we</td>
<td>us</td>
<td>our</td>
</tr>
<tr>
<td>they</td>
<td>them</td>
<td>their</td>
</tr>
</tbody>
</table>

**Specifier of T bears nominative case**  
**Complement of V bears accusative case**

**case filter**: only trees satisfying these rules are generated. more specifically, the case (e.g. of subject DPs) depends on the finiteness of the enclosing clause.

(3)  
  a. The chair indicated [TP[+finite] I NOM should teach LIN401 next semester ]  
  b. The chair wanted [TP[−finite] me ACC to teach LIN401 next semester ]

analyze this alternation as a syntactic **dependency** between T and T’s specifier.

2 Dependency

**syntactic dependency** A dependency exists between positions $p$ and $q$ if replacement of the $p^{th}$ word requires a corresponding replacement of the $q^{th}$ word to preserve language membership.

Example: number agreement. *eat* selects a plural (but not singular) subject.

(4)  
  a. the rats eat the cheese  
  b. * rat eat the cheese
there is an agreement dependency between the 5th word rat/rats and the 10th word eat/eats

(5)  
   a. the cheese that the rats that the cat saw eat stinks 
   b. * the cheese that the rat that the cat saw eat stinks  (rats → rat)  
   c. the cheese that the rat that the cat saw eats stinks  (eat → eats)

3 Long-distance dependencies

There is a dependency between which child and the underlined spot in (6)

(6) Which child do you think _ ate all the cookies?

Replacement of the underlined blank with “some child” requires deletion (i.e. replacement with nothing) of the fronted wh-phrase.

(7) a. * Which child do you think some child ate all the cookies?  
    b. Do you think some child ate all the cookies?

Likewise

s-selection  ? Which planet do you think ate all the cookies? (planets don’t eat cookies)

c-selection  * Which [VP getting happy ] do you think ate all the cookies? (VP not acceptable as complement)

agreement in the present tense, verb morphology shows number agreement:

* Which children do you think eats all the cookies? (plural ≠ singular)  
* Which child do you think eat all the cookies? (singular ≠ plural)

The dependency can hold of arbitrarily-large phrases:

(8)  
   a. Which child of strong cookie-eating stock do you think ate all the cookies?  
   b. Which child of strong cookie-eating stock and opportunistic bent do you think eat all the cookies?  
   c. Which child of strong cookie-eating stock sizable tummy and opportunistic bent do you think ate all the cookies?

and can span arbitrarily long distances:

(9)  
   a. Which child does the father think ate all the cookies?  
   b. Which child does the somewhat confused man in the plaid jacket think ate all the cookies?  
   c. Which child does the somewhat confused man in the plaid jacket fumbling around in an empty cookie jar think ate all the cookies?
4 Transformations account for long-distance dependencies

1. Generate deep structure $\tau_{\text{input}}$ using CFG (like (7)-b.)
2. Check to make sure case, s/c-selection and agreement requirements are satisfied
3. Create a new, surface structure $\tau_{\text{output}}$ where complement wh-DP is now in specifier of CP.

$\tau_{\text{input}} =$

```
CP1
    C
    \underline{Do}
    DP
      \underline{you}
    T'
      T
        \underline{PRESENT}
        V
          CP2
            DP
              which child
            VP
                ate all the cookies
```

$\tau_{\text{output}} =$

```
CP1
    DP
      \underline{which child}
    C'
      C
        \underline{do}
        DP
          \underline{you}
        T'
          T
            \underline{PRESENT}
            V
              \underline{think}
              CP2
                DP
                  \underline{which child}
                VP
                    ate all the cookies
```

shorthand: lowercase $t$ for ‘trace’ of movement
Which child do you think $t$ ate all the cookies
Different positions, same wh-movement transformation:

<table>
<thead>
<tr>
<th>deep structure</th>
<th>surface structure</th>
<th>launching site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did you put the cookies in which jar t?</td>
<td>Which jar did you put the cookies in t?</td>
<td>complement of P</td>
</tr>
<tr>
<td>The child did eat the cookies how</td>
<td>How did the child eat the cookies t?</td>
<td>adjoined to VP</td>
</tr>
<tr>
<td>Do you think the child gave what to Mom and Dad</td>
<td>What do you think the child gave t to Mom and Dad</td>
<td>1st complement of V</td>
</tr>
</tbody>
</table>

Such transformations can be viewed as “checking” a WH feature on the moving DP at its landing site the specifier of CP. Similarly, case assignment (to subject position) can be viewed as T “checking” a NOM feature on the subject DP. So many other phenomena are amenable to explication in terms of movement:

<table>
<thead>
<tr>
<th>relativization</th>
<th>input</th>
<th>output</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[s the girl called the mailman]</td>
<td>[DP the girl who t called the mailman]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>topicalization</th>
<th>input</th>
<th>output</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I want to see him managing the Cubs</td>
<td>Him, I want to see t managing the Cubs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>passive</th>
<th>input</th>
<th>output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ritchie Blackmore recorded <em>Machine Head</em> in 1972</td>
<td><em>Machine Head</em> was recorded in 1972 by Ritchie Blackmore</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>dative shift</th>
<th>input</th>
<th>output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bert handed the juice to Ernie</td>
<td>Bert handed Ernie the juice</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>particle movement</th>
<th>input</th>
<th>output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary stood up her date</td>
<td>Mary stood her date up</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>extraposition</th>
<th>input</th>
<th>output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Several people who were wearing hats came in</td>
<td>Several people came in who were wearing hats</td>
<td></td>
</tr>
</tbody>
</table>