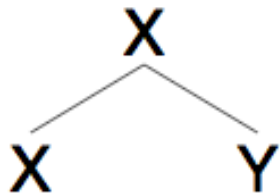# LING 696G: Lecture 2

Sandiway Fong
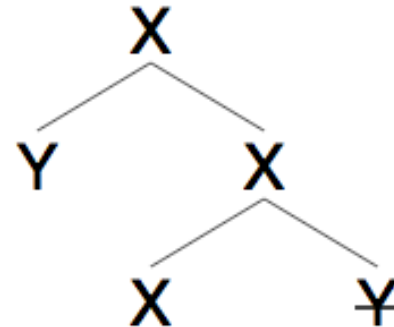
Basics revisited…

Merge

- Merge is free (Chomsky 2004, 2005, 2013, 2015)
  - no feature-driven movement
- Internal Merge (IM) and External Merge (EM) are free
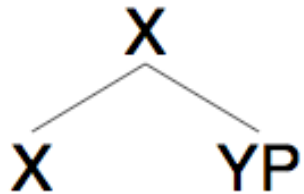 - IM and EM are both freely available*

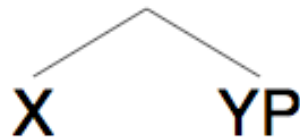External Merge of X with Y   Internal Merge of Y with X

*A Chomsky 2017 lecture (University of Arizona) suggests IM is preferred over EM for minimal search reasons. Also see Shima (2000).
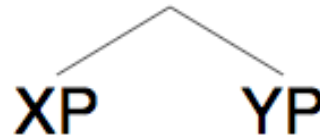
Set Merge: Labeling

(a) Head X labels

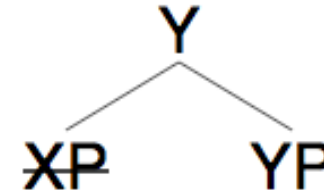(b) Head X is too weak to label unless strengthened

(c) No label

(d) Y labels if XP moves out
- Not all copies of XP are within this Syntactic Object (SO)
- Y is not weak

- External Set Merge is free
- Internal Set Merge is free

Strengthening

- R is weak
- In (a), categorizer X labels
- In (b), phase head y* transmits uPhi (and Case valuing) to R.
  - Agree(R,XP) checks uPhi on R
  - <ɸ,ɸ> labels, as R and XP have identical ɸ-features
  - strengthened R may label {R,XP} (* *represents strengthening*)

(a)

```
      X
     / \
    X   R
```

(b)

```
        y*
       /  \
     y*   <ɸ,ɸ>
          /    \
        XP     R*
              /  \
             R   XP
```
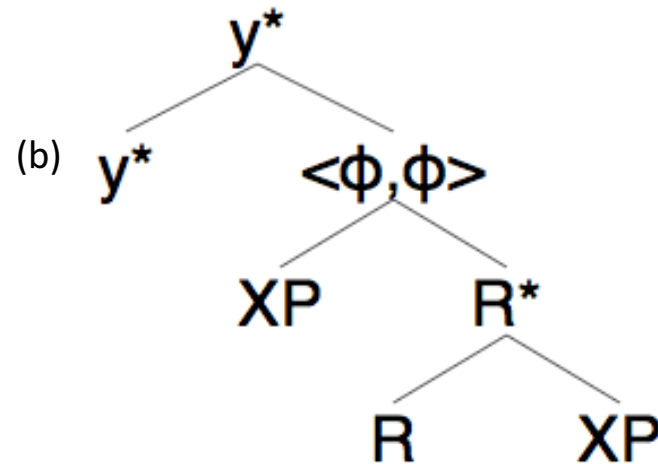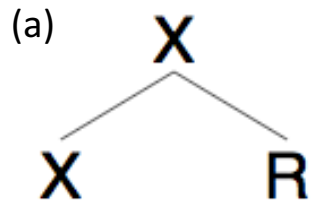
Pair Merge

PM is asymmetric Merge
 Y is on a separate plane (Y not visible to SELECT, nor AGREE, nor labeling).

(a) Y is externally PM'ed with ZP

(b) Y is internally PM'ed with XP

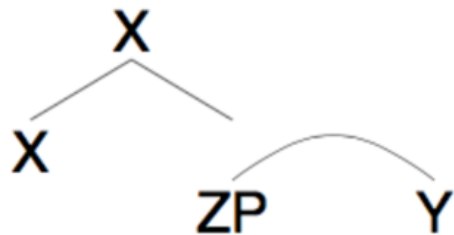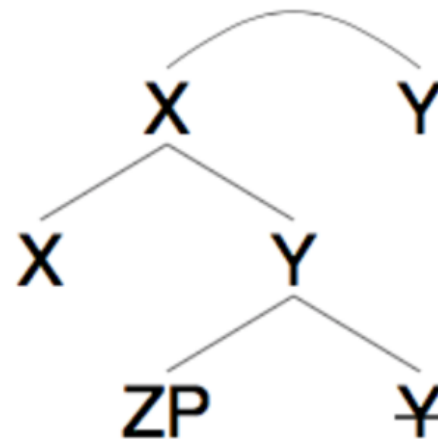Internal and external PM are free (cf. Richards 2009, Epstein, Kitahara, & Seely 2016)

Demo first …

FreeMergeMachine

debug: ⬤ Initial # Merge steps: (1) 1 ⊙————————— 12 [friend,n3sg,@dP2

[⇄Send] [Connect] [Clear Saved] [Save Output] [Clear Output]

Websocket Status: 0... CONNECTED DISCONNECTED
Key: expand
Example: [friend,n!case,{{me,n},'s},n*!case,{the,d}]
SO: friend, Input: [n!case,{{me,n},'s},n*!case,{the,d}]
1▼esm SO: {friend,n!case}, Input: [{{me,n},'s},n*!case,{the,d}]
1 1▼epm SO: <{{me,n},'s},{friend,n!case}>, Input: [n*!case,{the,d}]
1 1 1▼ism SO: {friend,<{{me,n},'s},{friend,n!case}>}, Input: [n*!case,{the,d}]
1 1 1 1▼esm SO: {{friend,<{{me,n},'s},{friend,n}>},n*!case}, Input: [{the,d}]
1 1 1 1 1▼epm *end SO: <{the,d},{{friend,<{{me,n},'s},{friend,n}>},n*!case}>
1 1 1 1 2▶ism SO: {<{{me,n},'s},{friend,n}>,{{friend,<{{me,n},'s},{friend,n}>},n*!case}}, Input: [{the,d}]
1 1 1 1 3▶ism SO: {friend,{{friend,<{{me,n},'s},{friend,n}>},n*!case}}, Input: [{the,d}]
1 1 1 1 4▶ism SO: {{friend,<{{me,n},'s},{friend,n}>},{{friend,<{{me,n},'s},{friend,n}>},n*!case}}, Input: [{the,d}]
1 1 1 1 5▶esm SO: {{▲,n*!case},{the,d}}, Input: []
1 2▶ism SO: {friend,{friend,n!case}}, Input: [{{me,n},'s},n*!case,{the,d}]
1 3▶esm SO: {{friend,n!case},{{me,n},'s}}, Input: [n*!case,{the,d}]

LIs:[friend,n!case,{{me,n},'s},n*!case,{the,d}] Derivation #1			
Step	**Branch**	**Op**	**SO**
1	-	-	friend
2	1	esm	{friend,n!case}
3	1	epm	<{{me,n},'s},{friend,n!case}>
4	1	ism	{friend,<{{me,n},'s},{friend,n!case}>}
5	1	esm	{{friend,<{{me,n},'s},{friend,n}>},n*!case}
6	1	epm	<{the,d},{{friend,<{{me,n},'s},{friend,n}>},n*!case}>

Spellout heads: [the,friend,of,me]
Final output: [the,friend,of,me]
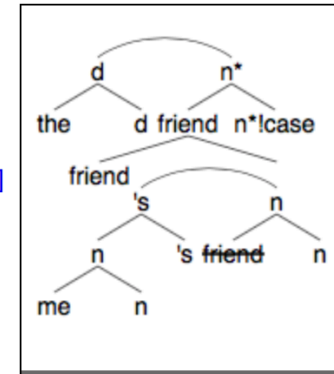
Notes on *The Hunt for a Label* (Oishi, 2015)

- Basic assumptions:
  - Set Merge (SM) + Pair Merge (PM)
  - Root R is visible to LA but too weak to label since it lacks categorial specification
  - Categorizer K is an affix invisible to LA
  - <K,R> Pair-Merge complex is identifiable and can label
- Verbal structure:
  - <v*,V>P: {EA,{<v*,V>,{IA,{V,IA}}}}
- Nominal structure:
  - follows verbal structure as far as possible
  - articles, demonstratives and Saxon genitive NPs are all instances of XP (not heads)
  - indefinites have no D

SM and PM

- {n,author} => {<n,author>,author} (Impossible to create)
- <n,author> (PM prior to SM)

Case for PM of the subject of NP

- {n,Book} => {<n,Book>,Book}
- {the/that/John's, {<n,Book>,Book}}   (SM)
- <the/that/John's, {<n,Book>,Book}>   (PM)
- Prenominal XPs can't move:
  - *the will sell {the,{<n,book>,book}} well
  - SM: search algorithm can't target spec?
  - PM: adjunct not visible to search
- Pied-pipe {<n,R>,..} when moved:
  - which book did John read which book
  - *which did John read which book
- Label should be<n,R>: PM derivation preferred

Subject of NP

- *the enemy's destruction of the city*
  - <{the enemy's},{<n,destroy>,{destroy,{(of) the city}}}>
  - label is <n,destory>

- *the destruction of the city*
  - <the,{<n,destroy>,{destroy,{(of) the city}}}>
  - label is <n,destory>

- *destruction of the city*
  - {<n,destroy>,{destroy,{(of) the city}}}   (no subject of NP present)

- PM works for 1st two cases

- specified subject of NP is [+definite]

- SM unlabelable if subject of NP is a non-head (assume no feature sharing)

Specificity and Extraction

Extractability of a wh-phrase from within NP

Specificity scale: indef < def < possessive

- Who did you see pictures of (indef)
- Who did you see the pictures of (def) has
- *Who did you see John's pictures of (possessive)

n* and n

- n* (def) selects for d; d inherits features of n* (crucial for labeling?)
- *the book* (<n*,D>P)
  - {<n*,the>,{Book,{the,Book}}}
  - *Book* stays in spec-D
  - D can't label (weak)
  - *Book* extracts; D labels ,{the,Book}
  - {Book,{the,Book}} {X,YP} labeled by what? *Book* is weak. Should crash
  - why extract at all?

- <v*,V>P: {EA,{<v*,V>,{IA,{V,IA}}}}
- {V,IA} no label
- {IA,{V,IA}} no label
- {v*,{IA,{V,IA}}}
  - φ-feature transmission v* to V
  - V strengthened
  - {V,IA} labeled by V
  - {IA,{V,IA}} labeled <φ,φ>
  - transfer means IA can't be extracted?

- n (indef) selects for R
- *author of the book*
  - *author* is a relational noun
  - <n,R>P: {<n,Author>,{Author,(of){<n*,the>,{Book,{the,Book}}}}} (indef)
  - *Author* raises to amalgamate with n
  - *which book did you like the author of*?
- picture of John
  - *picture* is a derived nominal
  - PM?
  - **which person did you like the picture of*?

Derivations

- *the book*
- ESM = External Set Merge, ISM = Internal Set Merge; EPM = External Pair Merge, IPM = Internal Pair Merge
- assume: *the* an XP; n categorizer; form <n,Book> complex
- {n,Book} ESM; unlabeled   (affix n, root Book)
  - {<n,Book>,Book} IPM; labeled   (label: <n,Book>)
    - {the, {<n,Book>,Book}} ESM; unlabeled   (XP-YP)
    - <the, {<n,Book>,Book}> EPM; labeled (label: <n,Book>)
  - {the, {n,Book}} ESM unlabeled   (XP-YP)
- <n,Book> EPM   (label: n)
  - {the, <n,Book>} ESM; labeled   (label: n)
  - <the, <n,Book>> EPM; labeled   (label: n)