Fun with Syntax

the story so far:

- phrase structure rules

NP-->(DetP) (AP) N (PP)
IP--> NP I VP

...

the story so far:

- phrase structure rules

~~NP-->(DetP) (AP) N (PP)~~
~~IP--> NP I VP~~

...
XP--> (WP) X'
X'--> (YP) X'
X'--> X (ZP)

the story so far:

- phrase structure rules

XP--> (WP) X'   **X-bar schema**
X'--> (YP) X'
X'--> X (ZP)

fill in variables freely...
X=N, W=Det, Y=A or P, Z=P...

the story so far:

- phrase structure rules

XP--> (WP) X'   **X-bar schema**
X'--> (YP) X'
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fill in variables freely...
   X=N, W=Det, Y=A or P, Z=P...
...subject to various conditions:

Projection Principle

the story so far:

- phrase structure rules

XP--> (WP) X'   **X-bar schema**
X'--> (YP) X'
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fill in variables freely...
X=N, W=Det, Y=A or P, Z=P...
...subject to various conditions:

Projection Principle, **Head Direction Parameter**...

the story so far:
- phrase structure rules
- movement operations:

head-movement
Will you __ put rocks in the soup?

the story so far:
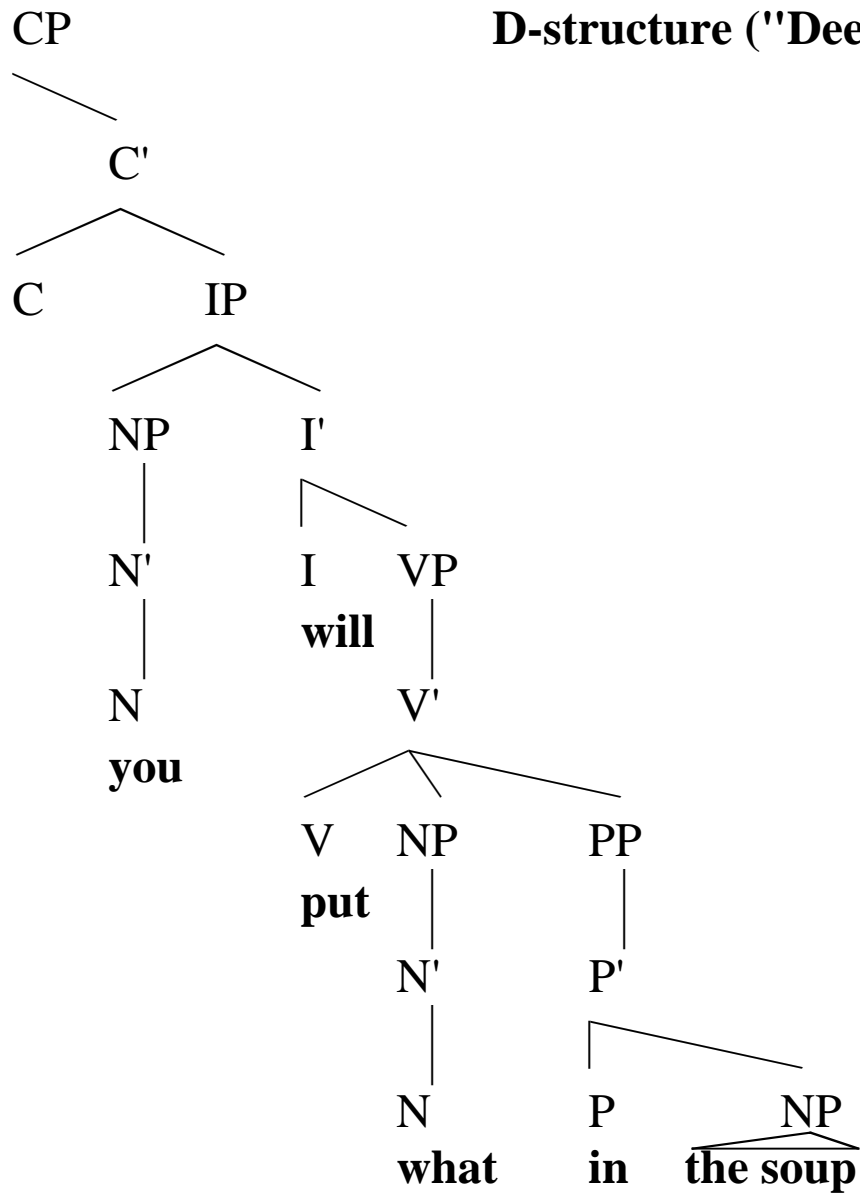- phrase structure rules
- movement operations:

head-movement
Will you ___ put rocks in the soup?

wh-movement
what will you put ___ in the soup?

D-structure ("Deep Structure")

```
CP
 \
  C'
 /  \
C    IP
    /  \
  NP    I'
   |   /  \
  N'  I    VP
   |  will  |
   N        V'
  you      / \
         V   NP      PP
        put  |        |
            N'       P'
             |      /  \
             N     P    NP
           what   in  the soup
```

Wh-movement

CP
C'
C   IP
NP   I'
N'   I   VP
will
N   V'
you
V   NP   PP
put
N'   P'
N   P   NP
what   **in**   **the soup**

Head-movement

CP
- NP
  - N'
    - N
    - **what**
- C'
  - C
  - IP
    - NP
      - N'
        - N
        - **you**
    - I'
      - I
        - **will**
      - VP
        - V'
          - V
            - **put**
          - PP
            - P'
              - P
                - **in**
              - NP
                - **the soup**
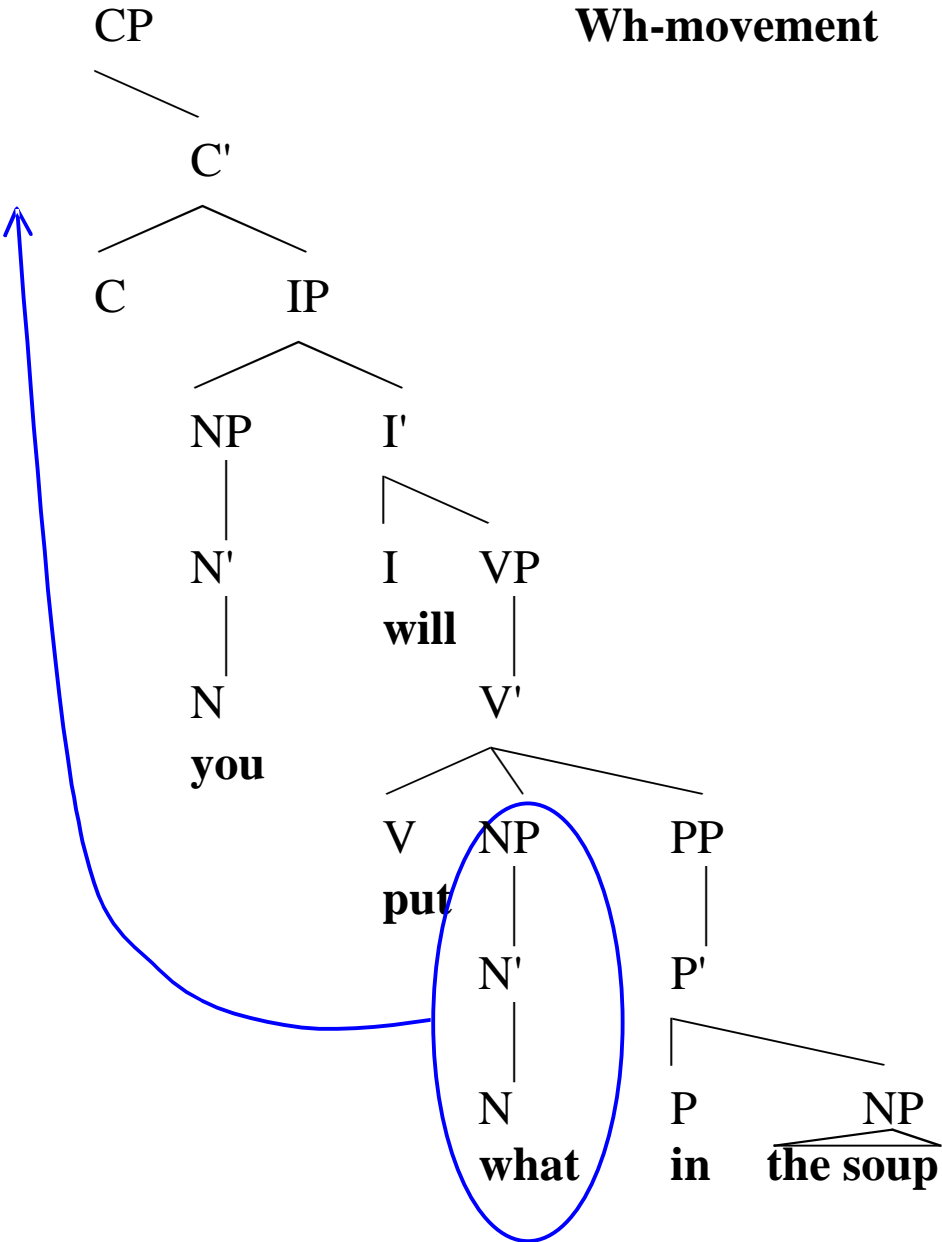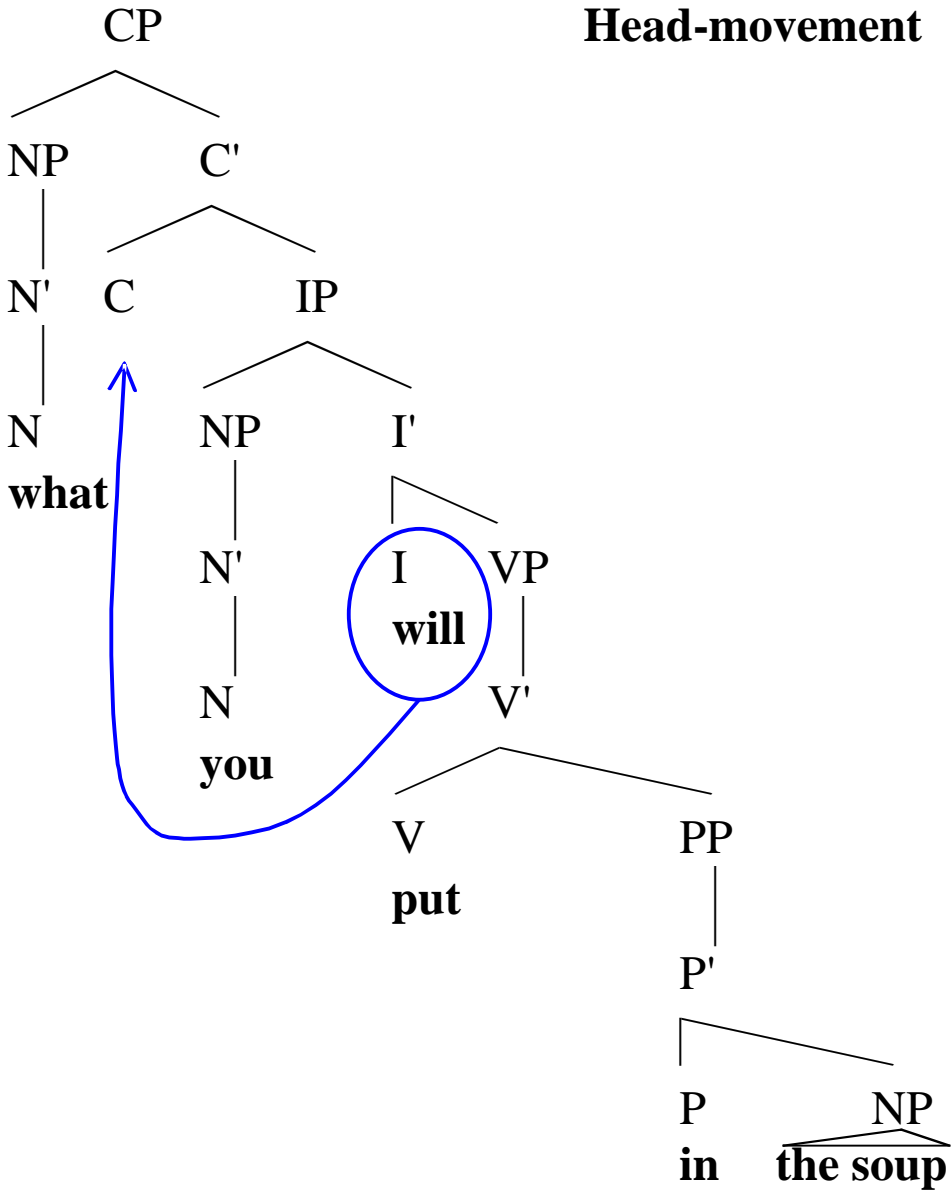
S-structure ("Surface Structure")

```
                    CP
             _____/_____
           NP              C'
           |          _____/\_____
           N'      C+I              IP
           |       will        ____/\____
           N                 NP           I'
         what                |         ___/\___
                             N'       I       VP
                             |                |
                             N                V'
                           you            ___/\___
                                        V          PP
                                       put         |
                                                   P'
                                               ___/\___
                                              P         NP
                                              in     the soup
```
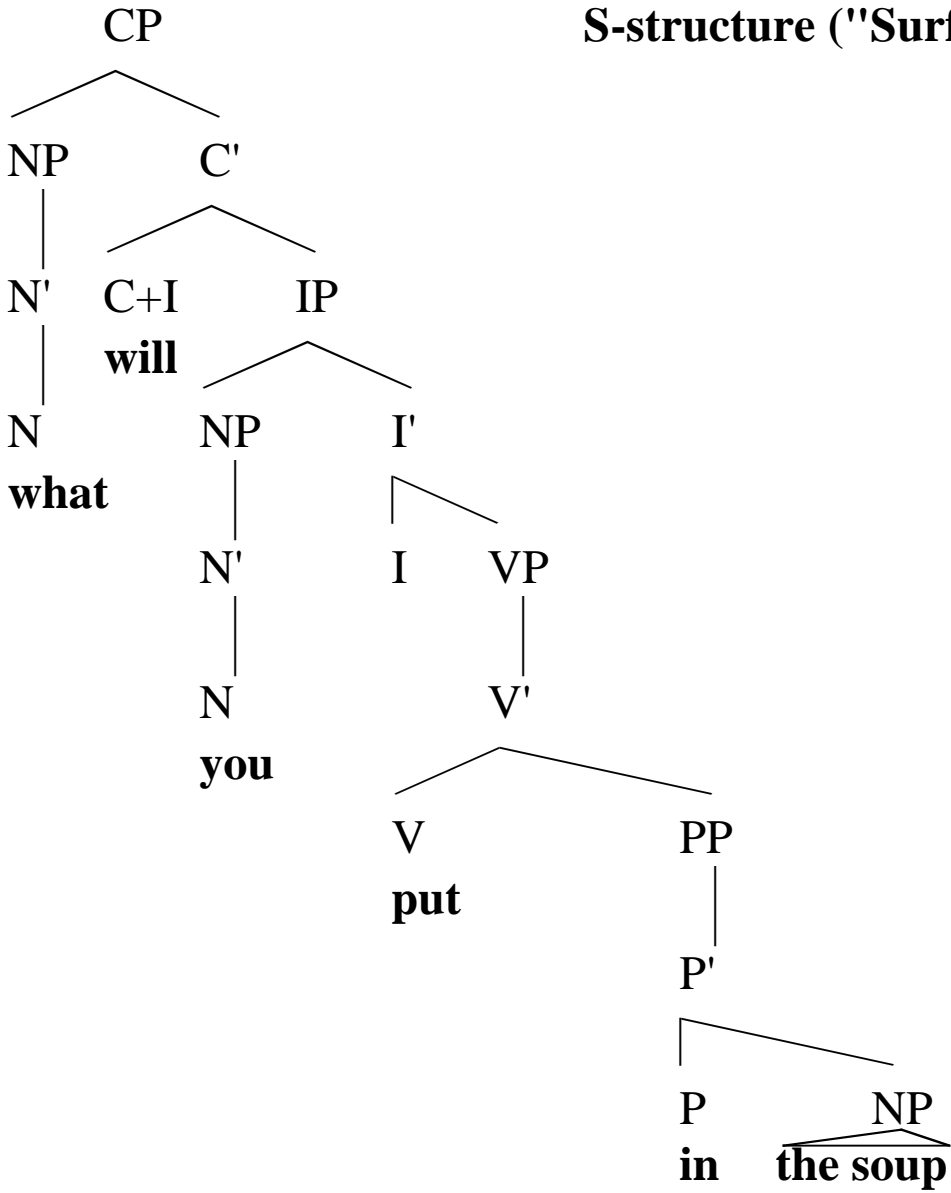
the story so far:
- phrase structure rules
- movement operations:

<u>head-movement again</u>
Will you __ put rocks in the soup?

the story so far:
- phrase structure rules
- movement operations:

head-movement again
Will you __ put rocks in the soup?
Should you __ put rocks in the soup?
Can you __ put rocks in the soup?

the story so far:
- phrase structure rules
- movement operations:

head-movement again
Will you __ put rocks in the soup?

You **-d** have rocks in your head.
You **-Ø** have rocks in your head.

the story so far:
- phrase structure rules
- movement operations:

<u>head-movement again</u>
Will you __ put rocks in the soup?

"had" (**"Affix Hopping"**)

You **-d** have rocks in your head.
You **-Ø** have rocks in your head.

the story so far:
- phrase structure rules
- movement operations:

head-movement again
Will you __ put rocks in the soup?

-d   you __ have rocks in your head?
-Ø   you __ have rocks in your head?

the story so far:
- phrase structure rules
- movement operations:

head-movement again

Will you __ put rocks in the soup?

Do+d you __ have rocks in your head?
Do+Ø you __ have rocks in your head?

("Do-insertion")

<u>projection principle</u> revisited:

All and only the sisters of a head must be selected by the head.

<u>projection principle</u> revisited:

    All and only the sisters of a head must be selected by the head.

I devoured **<u>the kumquats</u>**
I put **<u>the kumquats</u> <u>in a bowl</u>**
*He fainted **<u>the idea</u>**
*He devoured

What happens when a head doesn't select for a sister?

....well, then it doesn't have a sister.

He fainted.

Notice, however, that there's nothing comparable in subject position.

*Rained.
It rained.

Notice, however, that there's nothing comparable in subject position.

*Rained.
It rained.
*Seems that John has died.
It seems that John has died.

These **<u>it</u>**s don't seem to be ordinary ones...

<u>It</u> squeezed John.
<u>It</u> seems that John has died.

Extended projection principle:

    All and only the sisters of a head must be selected by the head....

...oh, and Spec IP must be filled.

(...if there's nothing else to fill it, you can insert an **<u>expletive</u>** like **it**--which doesn't mean anything, but allows you to satisfy the Extended Projection Principle)

Another use for the Extended Projection Principle?

The snake squeezed John.
John was squeezed.

I put the kumquats in a bowl.
The kumquats were put in a bowl.

Another use for the Extended Projection Principle?

The snake squeezed John.
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The kumquats were put in a bowl.

-->same reasoning that prompted us to posit wh-movement leads us to suspect movement here...
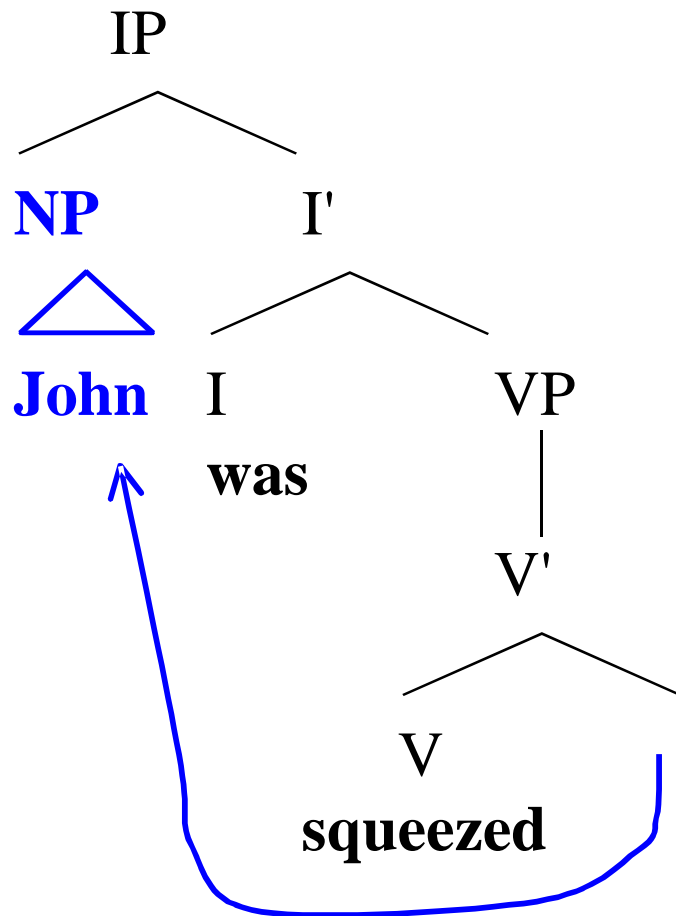
D-structure:

was squeezed John

EPP forces movement:

was squeezed **John**

S-structure:

John was squeezed

NP-movement:

a new kind of movement,
driven by the EPP.

```
              IP
            /    \
         NP       I'
         /\      /   \
       John    I       VP
            was         |
                        V'
                       /  \
                      V
                  squeezed
```

NP-movement:
    a new kind of movement,
      driven by the EPP.

another instance of NP-movement:

It seems [that John is sick]

John seems __ to be sick

another argument for NP-movement:
idioms

- lots of V-XP idioms:

kick the bucket	'die'
buy the farm	'die'
spill the beans	'reveal a secret'
yawn in Technicolor	'vomit'

- ...but there are no XP-V idioms:

  the armadillo bit...

- ...but there are no XP-V idioms:

  the armadillo bit...

- this isn't because subject can't be part of an idiom:

  the cat is out of the bag
  the shit has hit the fan

IP
NP — I'
John
I — VP
-ed
V'
V — NP
bought
the farm

IP
NP — I'
the shit
I — VP
-ed
V'
V — NP
hit
the fan

*

```
              IP
          /        \
        NP           I'
       /  \         /   \
      /____\       I      VP
the armadillo             |
              -ed         V'
                        /    \
                       V      NP
                      bit      /\
                              /__\
                             John
```
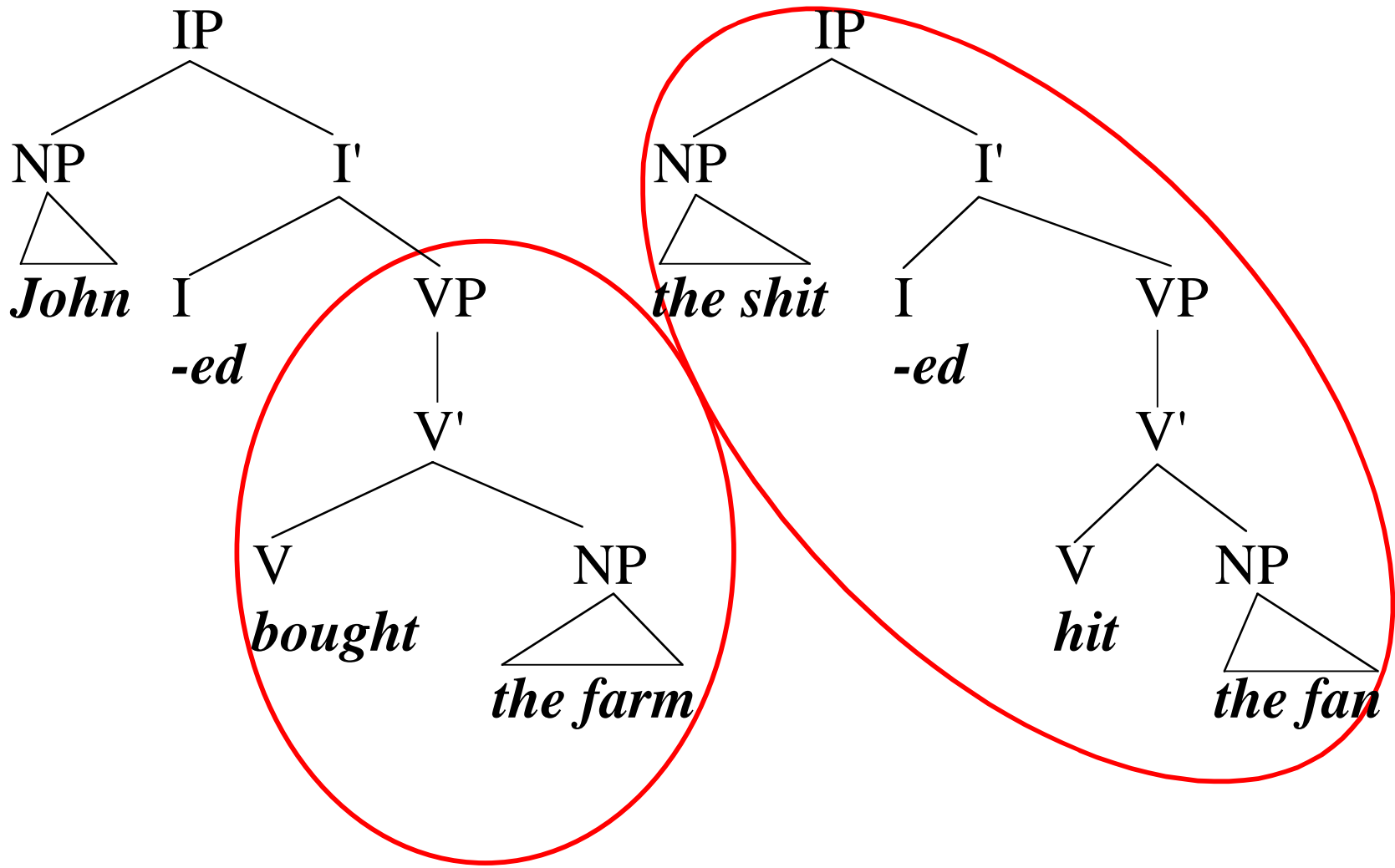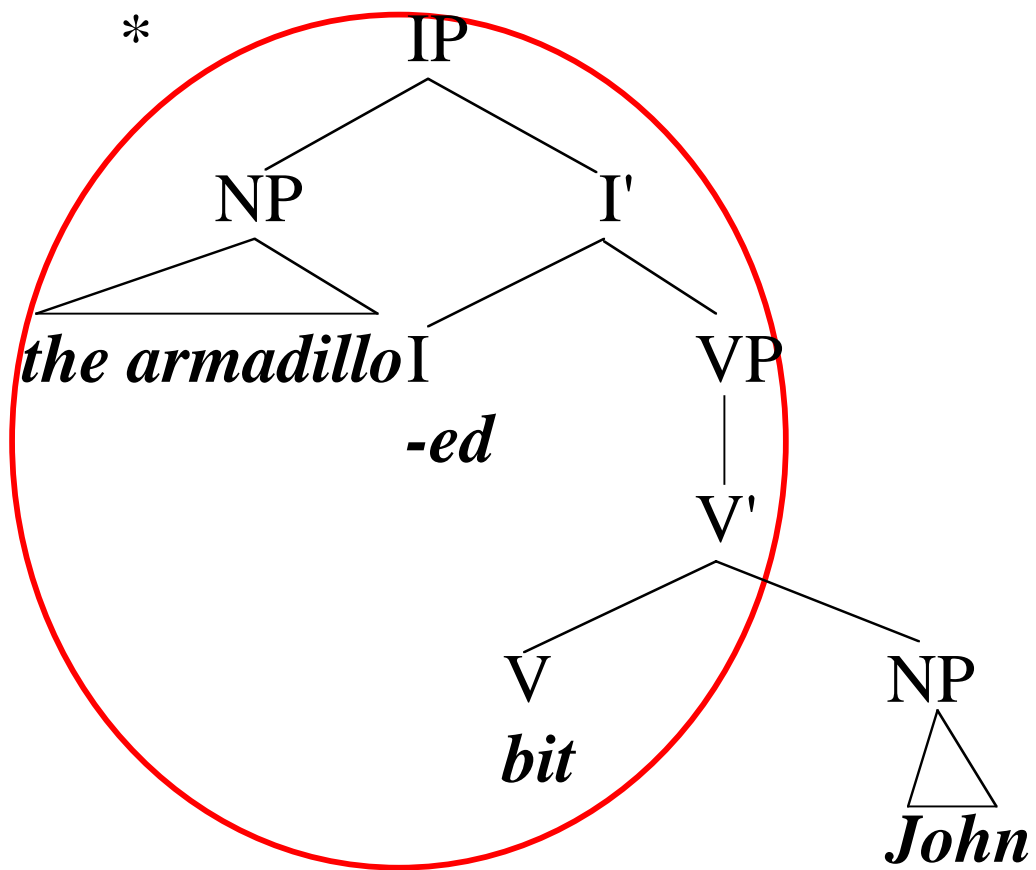
-->idioms must be **_constituents_**.

so what about....

The shit hit the fan.

so what about....

The shit hit the fan.

The shit seemed to hit the fan.

so what about....

The shit hit the fan.

constituent

The shit seemed to hit the fan.

constituent?

The shit seemed to be likely to hit the fan.

constituent?!

-->idioms must be constituents **in Deep Structure**.

D-structure

      seemed [the shit to hit the fan]

NP-movement

      seemed [**the shit** to hit the fan]

S-structure

the shit seemed [to hit the fan]

Movement types:

- head-movement:
will you ____ eat these kumquats?

- wh-movement:
what is she eating __ ?

- NP-movement:
the cat seems [__ to be out of the bag]

Common ground:

- Head movement constraint

He will have eaten all the kumquats by the time we get there.
will he   have eaten all the kumquats by the time we get there?
*have he will   eaten all the kumquats by the time we get there?

--> given a choice between two moveable heads,
move the higher one.

Common ground:

- NP-movement:

__ seems [John to like kumquats]

John seems [__ to like kumquats]

*   *kumquats* seem [John to like __]

-->given a choice between two moveable NPs,
      move the higher one.

Common ground:

you gave *what to whom*?

What   did you give __ *to whom*?

*To whom did you give *what* __?

-->given a choice between two moveable wh-phrases, move the higher one.
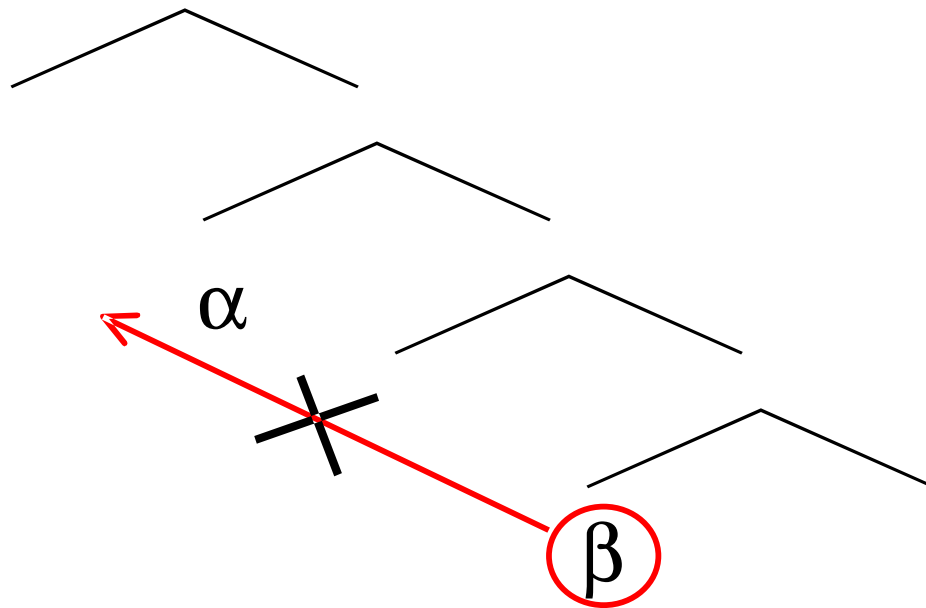
Shortest Move:

Make movement paths as short as possible.
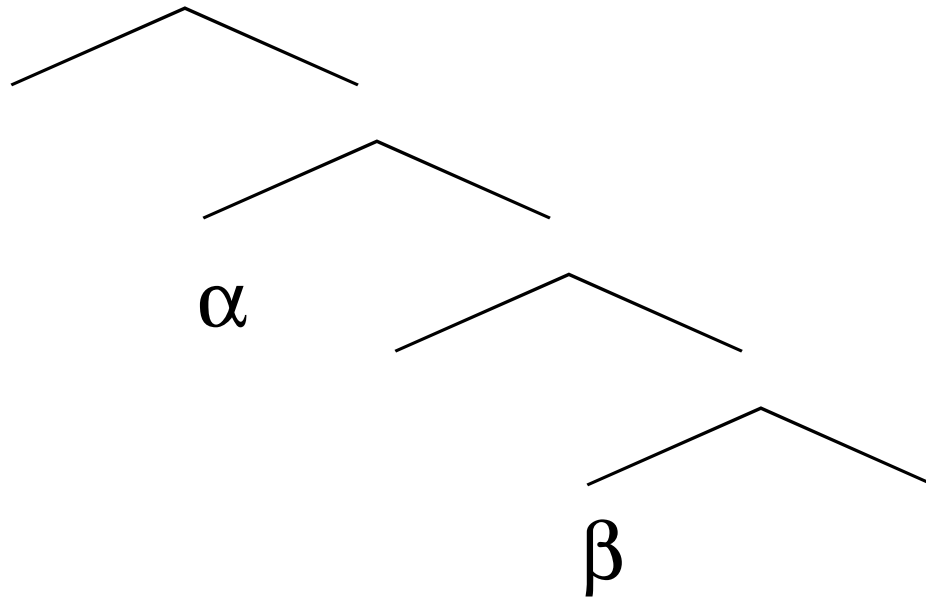
α

β

Shortest Move:

Make movement paths as short as possible.
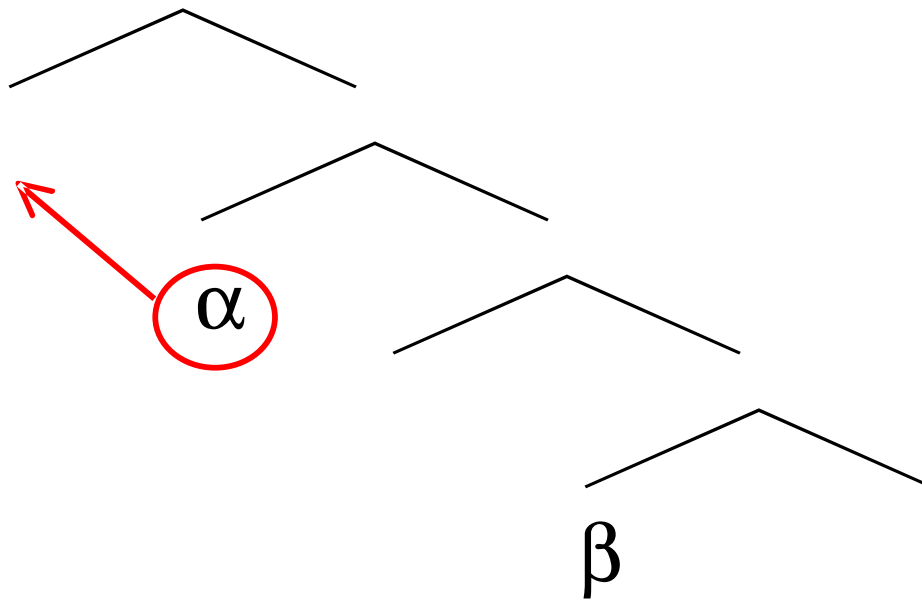
Shortest Move:

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Shortest Move:

Make movement paths as short as possible.

(given a choice between two movement paths, pick the one that crosses the fewest nodes (where 'cross' is defined as 'go from being dominated by to not being dominated by'))

The timing of movement interactions: CED effects

Who did you buy [a book about __]?
Who did [friends of __] buy a book?

The timing of movement interactions: CED effects

Who did you buy [a book about __]?
* Who did [friends of __] buy a book?

CED (Condition on Extraction Domains):
You can't move out of something
in Spec IP.

Who was [a book about __] bought?

* Who was [a book about __] bought?

a result of two operations:

was bought [a book about who]

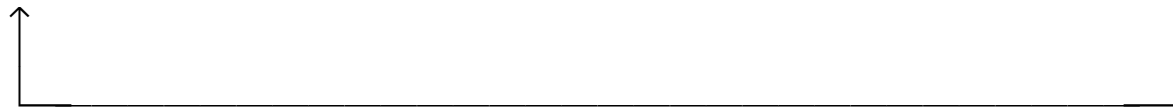**NP-movement**:

[a book about who] was bought __

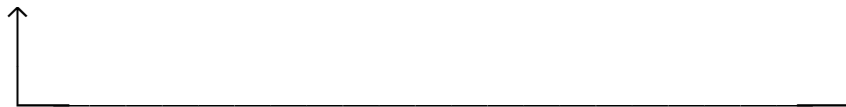a result of two operations:

was bought [a book about who]

NP-movement:

[a book about who] was bought __

wh-movement:

Who was [a book about __] bought __ ?

-->*CED: no extraction from Spec IP

But why not do the operations in the opposite order?

was bought [a book about who]

wh-movement:

who   was bought [a book about __]

But why not do the operations in the opposite order?

was bought [a book about who]

wh-movement:

who was   bought [a book about __]

NP-movement:

Who was [a book about __] bought __ ?

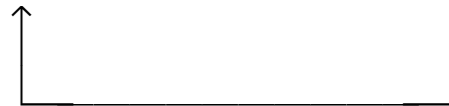But why not do the operations in the opposite order?

was bought [a book about who]

wh-movement:

who was   bought [a book about __]

NP-movement:

Who was [a book about __] bought __ ?

Here CED wasn't violated--should be okay?

Apparently we need to prevent wh-movement from taking place before NP-movement.

But <u>how</u>?

to be continued....