Shortest Move

Superiority

Chomsky 1973 pp.245-246

1) John knows [who [ t saw what]
2) *John knows [what [who saw t]

3) *What books does [John know [to whom [ (PRO) to give t t ]]
4) *To whom does [John know [what books [(PRO) to give t t ]]

5) "... wh-Movement cannot move a wh-phrase across a wh-subject (just as it cannot move a
wh-phrase across a wh-COMP)."

6) No rule can involve X, Y in the structure
   ...X ... [a ... Z ... -WYZ ... ] ...
   where the rule applies ambiguously to Z and Y and Z is superior to Y

7) Superior (informal): "closer to the root of the tree"
8) Superior (more formal): A is superior to B if every major category dominating A dominates B
   as well but not conversely.

9) John knows [what books [ (PRO) to give t to whom ]]
10) John knows [to whom [ (PRO) to give what books t ]]

11) John knows [what [ (PRO) to give t to whom ]]
12) John knows [to whom [ (PRO) to give what t ]]

Possibly cf.
13) *John knows [who(m) [(PRO) to give what to t ]]


14) Shallowness: An operation must be the shallowest  p. 258
15) α is shallower than β if and only if the depth of α is properly included in the depth of β. p. 260
16) Depth: The depth of a Move-α operation affecting α is the union of the depth of α in the input of the operation and the depth of α in the output, where the depth of α is the set of maximal projections which dominate α.  p. 258

<<This led to the 'Attract' view of movement, by which the movement of α is to satisfy the needs of the head β to which it moves.>>
Whom₁ did John persuade t₁ [(PRO) to visit whom₂]  
Whom₂ did John persuade whom₁ [(PRO to visit t₂)]

(17) Whom₁ "has failed to make the shortest move". [Not quite accurate]
(18) "... Movement of whom₂ to [Spec, CP] is longer in a natural sense (definable in terms of c-command) than movement of whom₁ to this position."

Similarly for wh-islands:

(21) *What did you wonder where John put  
(22) [cp What₁ did [ip you wonder [cp where₂ [ip John put t₁ t₂]]]]

(23) Where is closer to the matrix C than what is, so where is an intervener preventing what from moving. [And where is for some reason frozen in place.]

and 'Superraising':

(24) *John seems that [it is likely [t to be arrested t]]

(25) It intervenes between matrix subject position and John preventing the latter from moving. [Even though it is frozen in place.]

Relativized Minimality  Rizzi (2001), simplifying and updating Rizzi (1990)

(26) Y is in a Minimal Configuration (MC) with X iff
there is no Z such that
(i) Z is of the same structural type as X, and
(ii) Z intervenes between X and Y
<<Intervention is standardly defined in terms of c-command.>>

In the following, the intervener is in **bold**:

RM and head movement:

(27)a. They have left.  
   b. Have they <have> left?  
(28)a. They could have left.  
   b. *Have they could <have> left?  
   c. Could they <could> have left?

RM and A-movement:

(29)a. It seems that it is likely that John will win.  
   b. It seems that John is likely to win.  
   c. John seems to be likely to win.  
   d. *John seems that it is likely to win.
RM and Ā-movement:

(30)a. How many people do you consider __ intelligent?
   b. How intelligent do you consider John __?

(31)a. ??How many people do you wonder whether I consider intelligent?
   b. *How intelligent do you wonder whether I consider John __?