

## Conceptions of the Cycle

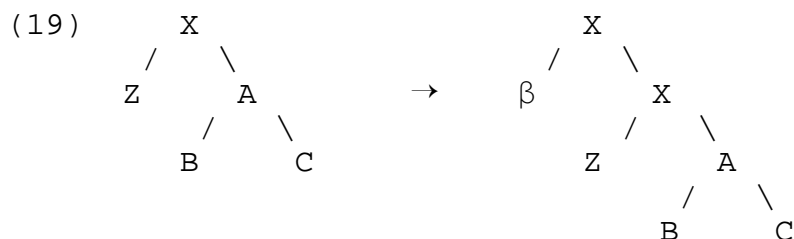
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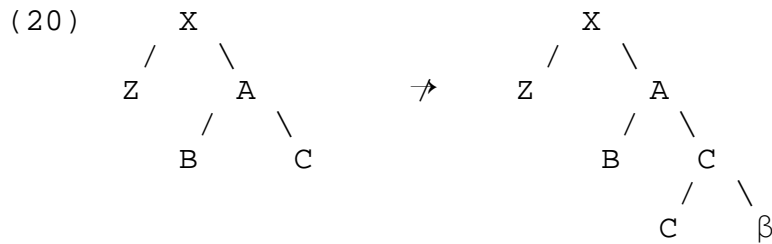
### I. The development of the Cyclic Principle

- (1) "... there are no known cases of ordering among generalized transformation although such ordering is permitted by the theory of Transformation-markers." Chomsky (1965, p.133)
- (2) "... there are no really convincing cases of singulary transformations that must apply to a matrix sentence before a sentence transform is embedded in it..."
- (3) Thus, instead of generalized transformations, we have recursion in the base, with transformations applying cyclically, first operating on the most deeply embedded clause, then the next most deeply embedded, and so on, working 'up the tree'.
- (4) Thus, singulary transformations apply to constituent sentences 'before' they are embedded, and to matrix sentences 'after' embedding has taken place.
- (5) "The ordering possibilities that are permitted by the theory of Transformation-markers but apparently never put to use are now excluded in principle." Chomsky (1965, p.135)
- (6) Curiously, it was almost 3 decades before it became clear that there was no real argument against generalized transformations in Aspects. It was not recursion in the base that excluded the unwanted derivations: It was the cyclic principle.
- (7) The 'Insertion Prohibition': "...no morphological material ... can be introduced into a configuration dominated by S once the cycle of transformational rules has already completed its application to this configuration (though items can still be extracted from this constituent of a larger 'matrix structure,' in the next cycle of transformational rules)." Chomsky (1965, p.146)
- (8) "The Insertion Prohibition ... is a step toward a stricter interpretation of the cycle: it asserts that once a stage of the cycle has been passed, we cannot introduce material into it from the outside ..." Chomsky (1973, p.243)
- (9) "To further sharpen the notion 'transformational cycle,'

suppose that we impose the general condition [(10)]"

- (10) The Strict Cycle Condition: No rule can apply to a domain dominated by a cyclic node *A* in such a way as to affect solely a proper subdomain of *A* dominated by a node *B* which is also a cyclic node
- (11) As far as I can tell, (10) simply makes explicit what was implicit in the Aspects presentation. If it had not been, the unused derivations would not actually have been excluded.
- (12) "... transformational rules, e.g., [Move NP and Move *wh*-phrase], meet the condition of the (strict) cycle ..."  
Chomsky (1977, p.73)
- (13) Chomsky (1993), in the course of his minimalist critique of all of syntactic theory, argues that deep structure should be eliminated and generalized transformations reinstated. He notes that in Aspects "Elimination of generalized transformations in favor of cyclic base generation [sic] is ... justified in terms of explanatory adequacy. But the questions under discussion then do not arise in the far more restrictive current theories." Chomsky (1993, p.215)
- (14) We then have 'bottom-up' creation of a phrase marker by generalized transformations. There is no 'base'.
- (15) The derivation is constrained by an 'extension condition': "... GT and Move  $\alpha$  extends *K* to *K\**, which includes *K* as a proper part." Chomsky (1993, p.190)
- (16) "...[(15)] yields a version of the strict cycle..."
- (17) One further consequence? "...the binarity of GT comes close to entailing that X-bar structures are restricted to binary branching ..." p.191 [Note, though, the presupposition.]
- (18) The Extension Condition: "operations preserve existing structure." Chomsky (2000, p.136)





(21) The original tree is a sub-tree of the derived tree in derivation (19) but not in derivation (20).

(22) {X, ZA, ZBC} → {X, βX, βZA, βZBC}

(23) {X, ZA, ZBC} → {X, ZA, ZBC, ZBCβ}

(24) Surprisingly, with the 'low' attachment, the original structure is a subset of the derived one, while with the 'high' attachment, it is not.

(25) More generally, the higher the attachment site, the more radically the set is altered.

## II. Successive cyclicity and A-movement

(26) John seems [ to be certain [ to win]]

(27) "If the rule of NP-movement that yields [(26)] applies successive cyclically ... then the rule will observe subjacency." Chomsky (1977, p.74)

(28) John was believed to have been killed

(29) John INFL be believed [<sub>s</sub> t' INFL have been killed t]

(30) "In the case of sentence [(29)], we are led by the projection principle [sic] to assume that the rule Move-α applies twice, leaving the two traces t and t', successively." Chomsky (1981, p.44)

(31) they are likely [t' to appear to each other [t to be happy]]

(32) "The GF- $\bar{\theta}$  filled by medial traces such as t' in [(29)] may ... be relevant to LF; for example in the sentence [(31)], ... where the medial trace serves as the antecedent of *each other*, which requires an antecedent in the same clause in such sentences in accordance with binding theory ..." Chomsky (1981, pp.44-45)

(33) It actually isn't completely clear that the antecedent must be in the same clause, given the binding theory in Chomsky (1981), or those in Chomsky (1973) and Chomsky (1986) for that matter.

- (34) And there is an argument in the literature that A-movement is **not** successive cyclic.
- (35) Epstein and Seely (1999) present the following argument: successive cyclic A-movement creates a chain. According to Chomsky (1995), a chain is a set of 'occurrences' where each occurrence is defined in terms of sisterhood. Since each intermediate trace position is a Spec of some X, its sister is X', an intermediate projection of X. But it is widely assumed that syntactic operations can't target intermediate projections. Therefore the needed chain links can't exist.
- (36) Possible responses:
- (37) Is it completely clear that syntactic operations can't target X'? I actually believe that the assumption is correct, but it is interesting to note that very little actual evidence has been offered in the literature.
- (38) Given bottom-up GT derivations, at the point where the intermediate positions will be created, the moving DP will be targeting a maximal projection.
- (39) And there is some evidence for a clause-mate requirement (stronger than the Tensed Sentence Condition of Chomsky (1973) or the Governing Category requirement of Chomsky (1981) and Chomsky (1986)). [See also Postal (1966), Postal (1974).]
- (40) Condition A [from Lasnik (2002)]:
- (41)a Jack made himself out to be immoral  
b ?\*Jack made out himself to be immoral
- (42)a They made each other out to be honest  
b ?\*They made out each other to be honest
- (43) ?Jack called up himself
- (44) ?They called up each other
- (45) John appears to Mary [ to seem to himself/\*herself [ to be the best candidate]] [pointed out to me in this connection by Adolfo Ausín; also attributed to Danny Fox, via David Pesetsky, in Castillo et al. (1999)]
- (46) Condition B:
- (47) \*John<sub>i</sub> injured him<sub>i</sub>
- (48) \*John<sub>i</sub> believes him<sub>i</sub> to be a genius
- (49) \*Mary injured him<sub>i</sub> and John<sub>i</sub> did too
- (50) ?Mary believes him<sub>i</sub> to be a genius and John<sub>i</sub> does too

- (51) Weak pronouns must cliticize onto the verb. Oehrle (1976)
- (52) The detective brought him in
- (53) \*The detective brought in him Chomsky (1955)
- (54) Failure to cliticize in (50) is repaired by ellipsis.
- (55) In (49), on the other hand, the pronoun and its antecedent are clause-mates independent of cliticization.
- (56) \*John<sub>i</sub> is believed [ to seem to him<sub>i</sub> [ to be a genius]]

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