

## GAPPING AND RNR: DIRECTIONALITY THROUGH BASE-GENERATION

Ed Zoerner

University of California, Irvine

The sentences in (1) provide simple examples of Gapping and Right-Node Raising (RNR; a/k/a Backward Conjunction Reduction) constructions, respectively:

1. a. Robin cooks beans, and Kim rice
- b. Robin cooks, and Kim eats, rice

This work addresses two puzzles that such constructions pose. First, as Koutsoudas (1971) shows, languages either exhibit both Gapping and RNR, or neither. An account which takes Gapping as deletion (e.g. Sag 1976) and RNR as movement (e.g. Postal 1974) fails to capture this fact; Neijt (1979) shows that efforts to conflate Gapping and RNR into a single deletion rule fail because the transformations target different sites and leave different remnants. Ideally, though, Gapping and RNR should succumb to a unified analysis; this is the first puzzle.

Second, although under a deletion account both Gapping and RNR obey a Directionality Constraint (DC; as in Tai 1969 and Ross 1970), in which identical elements on a left branch delete forward as in (1a) but identical elements on a right branch delete backward (as in 1b), nothing a priori motivates the DC. The DC has descriptive but not explanatory power; the second puzzle, then, is to realize its effects through prior principles.

I propose to solve these puzzles by claiming that Gapping and RNR result neither from deletion nor optional movement, but by direct phrasal coordination of what I call Relation Phrases (RPs). RPs conform to X-bar theory. They contain a Relator (usually NP) in [SPEC, RP]; a Relation (usually V°) in R°; and a Relator (usually NP or PP) in [COMP, R°]. RPs are only licensed by coordinating conjunctions, which I take as &° heads of full &P phrases (similar to Munn (1992)). RPs crucially have only two out of their three positions phonetically realized; the closest c-commanding term external to the coordination of RPs binds the empty elements and thereby completes the relation. When an RP-coordination occupies [COMP, V°], Gapping constructions result; when it stands in stead of a V°, RNR constructions result. The underlying structures of (1a) and (1b) under this idea become:

2. a. [<sub>V</sub> cooks [<sub>&P</sub> [<sub>RP</sub> Robin e beans] and [<sub>RP</sub> Kim e rice]]]
- b. [<sub>V</sub> [<sub>&P</sub> [<sub>RP</sub> Robin cooks e] and [<sub>RP</sub> Kim eats e]] rice]

In both forms, the NP 'Robin' raises to [SPEC, IP] for Case purposes (I argue that such Case requirements override the Coordinate Structure Constraint), rendering the correct word order. No deletion nor optional movement takes place. The first puzzle now has an account; languages with RP show both Gapping and RNR; languages without RP can show neither. The presence/absence of RP in a language falls out not from a stipulated parameter, but from more general considerations. Note that RNR constructions require an RP-coordination in a V° position; the analysis therefore correctly predicts that languages which do not permit V°-coordination (e.g. Chinese) also disallow RNR (and hence Gapping) constructions.

Accepting the RP-analysis also renders the directionality effects; together with previously understood movement requirements, it generates all and only the correct orders of Gapping and RNR constructions in both head-initial and head-final languages. Consider first Gapping; Maling (1972) shows that only four of the logically possible six word orders of Gapping ever occur:

3. a. SVO+SO                      b. SO+SOV                      c. SOV+SO
- d. VSO+SO                     e. \*SO+SVO                    f. \*SO+VSO

The word order of (3a) arises as shown in (2a) when the closest Relator NP raises to [SPEC, IP]. The order of (3b) represents the canonical case in verb-final languages, such as Japanese (German and Dutch optionally show this pattern in subordinate clauses as well). Base-generation of

coordinated RPs directly produces the correct word order, as in the Japanese example:

4. [v. [<sub>&P</sub>[<sub>RP</sub> Robin-wa sakana-o e] (shi), [<sub>RP</sub> Kim-wa gohan-o e]] tabeta]  
 -TOP fish-OBJ (and) -TOP rice-OBJ ate

The word order of SOV+SO (3c) can appear in subordinate German and Dutch clauses. In these verb-final constructions, the &' constituent consisting of the conjunction head and complement RP undergoes optional extraposition (akin to PP-over-V in Koster (1973)). Head-final languages which do not allow such extraposition generally will not allow SOV+SO, but German and Dutch do. Note that &' constituents (but not [Comp, &°] ones) can in fact undergo similar optional extraction in English, as in the following sentence (from Munn (1992)):

5. John bought [<sub>&P</sub> a book t<sub>i</sub>] yesterday, [<sub>&</sub> and a newspaper]<sub>i</sub>

The analysis also predicts the word order of VSO+SO in (3d); it occurs optionally in head-initial languages that do not have a strong requirement that [SPEC, IP] be filled, such as Spanish. Again, RP-coordination directly gives the correct word order, as in the Spanish example:

6. [v. comió [<sub>&P</sub>[<sub>RP</sub> Robin e los frijoles], y [<sub>RP</sub> Kim el arroz]]]  
 ate-3s the beans and the rice

Here, the NP 'Robin' need not raise at PF (in Spanish 'Comió Robin los frijoles' is fine), but does so at LF; hence the singular verbal morphology.

Under the RP-analysis, neither a head-initial nor head-final language can ever produce the unattested word order of \*SO+SVO in (3e). Consider the respective attempts to do so:

7. a. [v. V [<sub>&P</sub>[<sub>RP</sub> S e O] and [<sub>RP</sub> S e O]]  
 b. [v. [<sub>&P</sub>[<sub>RP</sub> S O e] and [<sub>RP</sub> S O e]] V

From (7a), nothing can motivate the leftward movement of both the first RP and the conjunction necessary to derive \*SO+SOV. From (7b), Fukui's (1993) Parameter Preservation Value prevents rightward movement of the second Object across the verb.

The analysis also correctly excludes the last conceivable Gapping word order of \*SO+VSO. In (6a), the first RP can move for Case purposes; this, however, does not produce SO+VSO, since the & is not in the proper position. Concerning (6b) again, rightward movement of the second RP again violates Fukui's PPV.

The RP-analysis also correctly limits the possible word orders in RNR constructions. Consider again (2b), repeated below:

8. [v. [<sub>&P</sub>[<sub>RP</sub> Robin cooks e] and [<sub>RP</sub> Kim eats e]] rice]

In head-initial languages, the Relator NP in the first RP raises as stated before for Case purposes; otherwise no principles will force movement and hence the construction remains unchanged. Head-final languages allow two options of RNR-like constructions; they both result from the initial structure shown in the Japanese example below:

9. [v. sakana-o [<sub>&P</sub>[<sub>RP</sub> Robin-wa katta], Kim-wa tabeta]  
 fish-OBJ -TOP bought -TOP ate

Base-generation of coordinated RPs directly yields the grammatical word order; nothing dictates movement since all NPs have Case-marking. Some Japanese consultants accept a variation of (8):

10. Robin-wa sakana-o katta, Kim-wa tabeta

This word order can occur should the initial subject undergo scrambling. Otherwise, no other factors motivate movement from the structure given in (9); hence no other possible word orders result.

The RP-analysis presents a unified analysis for Gapping and RNR constructions, a conceptually desirable step given their co-occurrence; in fact, Gapping and RNR become mere taxonomic artifacts. Furthermore, the need to stipulate any Directionality Constraint now disappears; independent movement rules dictate all and only correct word orders in both Gapping and RNR-type constructions.