

Remnants and Recoverability

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1 Introduction

This talk addresses two questions that involve the relation between ellipsis and movement, both of which have been, and currently are, analyzed as deletion rules.

The first question is a theoretical one:

What is the right characterization of “recoverability”?

- Why do we need such a notion?
- How does it play out in different contexts, in particular movement and ellipsis?
- How should it be formalized? Is it a “real” constraint, or is it a by-product of other constraints (e.g., the licensing conditions on deletion, as in Sag 1976 or the interaction of “faithfulness” constraints)?
- How should it be implemented in the grammar? Does recoverability require nonautonomy of the syntax? (Should we care?)

The second question is more empirical:

What is the right account of “remnant ellipsis” (RE)?

- Assuming that at least some examples of RE involve movement of the remnant(s) out of the elided constituent, why does ellipsis (deletion) license movements that are otherwise impossible?
- (1) a. The Red Sox tallied more errors than [cr runs_i [~~fr they tallied errors_i~~]]
b. *The Red Sox tallied more errors than [cr runs_i [~~fr they tallied errors_i~~]]
c. The Red Sox tallied more errors than [cr they tallied runs]

My (modest) goal is to present:

1. A (relatively complete) answer to question 2

- RECOVERABILITY is a syntactic constraint.
- Well-formedness is calculated in terms of optimal constraint satisfaction.
- RECOVERABILITY \gg STAY
- Therefore, movement in RE is licensed because the output best satisfies the relevant constraints: STAY may be violated to satisfy RECOVERABILITY.

2. Some (very partial) answers to question 1

- If the analysis of RE is correct, then recoverability is a grammatical constraint.
- RECOVERABILITY can be formalized as....
- RECOVERABILITY can be checked locally:
 - In ellipsis, because of the “E-feature” (Merchant 1999)
 - In movement, because of the copy operation (Chomsky 1965)

2 Remnant Ellipsis

Remnant ellipsis: constructions in which some constituent (IP, VP, NP) is deleted AND at least one XP that normally occurs inside the elided constituent remains in the phonological representation.

(2) [XP₁ ... XP_n [~~fr VP/VP' ... t₁ ... t_n ...~~]]

Examples: gapping, pseudogapping, stripping, bare argument ellipsis, sluicing in covert *wh*-movement languages, multiple sluicing in single *wh*-movement languages, ...?

2.1 The problem

The standard analysis of RE is that the remnant XP(s) are raised out of the IP/VP/NP, which is then deleted under (LF) identity with some antecedent IP/VP/NP (see e.g. Sag 1976; Kuno 1981; Pesetsky 1982).

The central problem with this analysis is that it requires movements that are often ungrammatical without ellipsis, and apparently theoretically unmotivated.

2.1.1 Gapping

At least two remnants; no clausal material.

- (3) a. I suspect they have more to fear from us than we from them. (From *Mars Attacks*)
b. ...than we₁ [~~from them~~]₂ [~~fr t₁ have to fear t₂~~]
c. ??...than we from them have to fear.

- (4) a. At times, for longest hours, without a single hail, they stood far parted in the starlight; Ahab in his scuttle, the Parsee by the mainmast; but still fixedly gazing upon each other: *as if in the Parsee Ahab saw his foretorn shadow, in Ahab the Parsee his abandoned substance.* (From *Moby Dick*)
b. ...[in Ahab]₁ [~~the Parsee~~]₂ [~~his abandoned substance~~]₃ [~~fr t₂ saw t₃ t₁~~]
c. *...in Ahab the Parsee his abandoned substance saw.

- (5) a. The whole thing felt like the flight to Egypt, with her playing both the woman and the child, and me my namesake and the donkey. (From *Watermark*, by Joseph Brodsky)
b. ... me₁ [~~my namesake and the donkey~~]₂ [~~fr t₁ playing t₂~~]
c. *... me my namesake and the donkey playing.

2.1.2 Pseudogapping

One (or more) remnant(s); auxiliary verb.

- (6) a. It took me as long to second as it had Conrad to lead. (From ‘Out of Thin Air’, by David Roberts, *National Geographic Adventure* 1.3)
- b. ...as it had Conrad₁ [PRO to lead]₂ [~~VP~~ ~~take~~ ~~t₁~~ ~~t₂~~]
- c. *...as it had Conrad to lead taken.
- (7) a. It took me as long to climb the face as it had Conrad.
- b. ...as it had [~~VP~~ ~~take~~ ~~t₁~~ ~~to~~ ~~climb~~ ~~the~~ ~~face~~]₁ Conrad₁
- c. *...as it had taken to climb the face Conrad.

2.1.3 Stripping

One remnant; no clausal material.

- (8) a. John bought a more expensive car for his daughter than for his wife.
- b. ...than [for his wife]₁ [~~for~~ ~~the~~ ~~daughter~~ ~~t₁~~]
- c. *...than for his wife he bought.
- (9) a. Gregory gave more Bs to the students than As.
- b. ...than As₁ [~~for~~ ~~the~~ ~~gave~~ ~~t₁~~ ~~to~~ ~~the~~ ~~students~~]
- c. *...than As he gave to the students.
- d. ...than he gave As to the students.

3 Two accounts of remnant ellipsis

3.1 Across the board movement

One way to solve the problem of remnant movement is to make it disappear. At first glance, this appears to be the strategy developed by Johnson (1996), who reanalyzes gapping as across-the-board movement of a verb or verb(al) phrase.

- (10) a. Some ate natto, and others rice.
- b. [_{NP} Some₁ ate₂ [_{VP} t₁ t₂ natto] and [_{VP} others t₂ rice]]
- (11) a. The whole thing felt like the flight to Egypt, with her playing both the woman and the child, and me my namesake and the donkey.
- b. [_{PP} with [_{NP} her₁ [_{VP} playing₂ [_{VP} t₁ t₂ both the woman and the child] and [_{VP} me t₁ my namesake and the donkey]]]]

Examples like the comparative in (3a) are a bit trickier. Not only do they require a conjunction-analysis of the comparative clause, an issue of some contention (see Lechner 2000, for recent discussion), they also require across the board movement of VPs, rather than simple verbs.

- (12) a. I suspect they have more to fear from us than we from them.

- b. ... [_{NP} they₂ [_{VP} have more to fear t₄]₁ [_{NP} [_{PP} [from us]₄ [_{NP} t₂ t₁]]] than [_{PP} we₃ [_{NP} [from them]₄ [_{NP} t₃ t₁]]]]]

Assuming these issues can be worked out, the strength of the ATB analysis is that it explains many of the most puzzling properties of gapping in an elegant way (see Johnson 1996 for full discussion) — essentially by denying that gapping involves ellipsis at all!

But does it solve the problem of remnant movement? I don’t think so. As shown in (12b), in order to account for cases like (12a), in which more than just a verb is gapped, Johnson needs to assume a conjunct-internal scrambling operation — i.e., remnant movement. So the central question we started out with ends up just being restated: why does ATB-movement of VP license XP movement out of that VP that would normally be impossible?

An additional puzzle for the ATB analysis comes from examples like those in (13), originally discussed in Hankamer 1979, which show that the remnants in gapping must be non-identical to the parallel elements in the antecedent clause (cf. the examples in (14)).

- (13) a. *John plays tennis with Sally, and Harry tennis with Sue.
- b. *John ate the rice, and Harry the rice.
- (14) a. John plays tennis with Sally, and Harry squash with Sue.
- b. John ate the rice, and Harry the beans.

As Johnson notes, gapping is subject to a constraint requiring the remnants to be in a contrastive focus relation with their correspondents in the antecedent, a condition that is not met in the Hankamer examples.

On a Johnson-style analysis, then, the data in (13) must be explained in terms of general properties of focus/parallelism. This predicts that the non-gapped structures corresponding to (13a) and (13b) should also be degraded.

This seems to be (mostly) true for (13b), but it is definitely *not* true for (13a).

- (15) a. John plays tennis with Sally, and Harry plays tennis with Sue.
- b. ?? John ate the rice, and Harry ate the rice.

3.2 Leaving the verb(s) behind

Lasnik 1999 develops an approach to pseudogapping that represents a different solution to the remnant movement problem. Lasnik proposes that pseudogapping involves ordinary A-movement to case positions, but that the verb remains in the V_T, which is then deleted.

- (16) a. The Red Sox tallied more errors than they did runs.
- b. ...than [_{NP} they₁ [_{VP} did [_{As_{OP}} runs₂ [~~VP~~ ~~t₁~~ ~~did~~ ~~t₂~~]]]]]

Normally this sort of derivation would be impossible, because the main verb — or at least its formal features — would have to raise out of VP in order to license object shift. Lasnik suggests that in fact only the formal features of the verb move in pseudogapping, *because they can*:

- Normally movement of features only violates generalized pied-piping, which is a PF-constraint.

- Because the source of the violation (the verb) is deleted, no such violation is incurred (cf. Kennedy and Merchant 2000).

Lasnik's analysis could conceivably be extended to gapping, though we would need to explain why the normal requirement that T⁰ be morphologically realized can be violated here.

- (17) a. The Red Sox tallied more errors than the Yankees, runs.
 b. ...than [_{NP} the Yankees]₁ [_{TP} \emptyset [_{AS^{TOP}} runs]₂ [_{VP} ~~*t*~~ ~~*t*~~]]]

There are (at least) two problems with Lasnik's analysis. The first is that it ends up requiring pretty much everything to move to case positions, since pretty much any XP can be a remnant in RE. This seems to make the role of case assignment essentially vacuous.

- (18) a. It took me as long to second as it had Conrad to lead.
 b. ...as [_{NP} it had [_{AS^{TOP}} Conrad]₁ [_{AS^{TOP}} PRO to lead]₂ [_{VP} ~~*taken*~~ ~~*t*~~ ~~*t*~~]]]

The second problem is that it needs to allow "long distance" A-movement in order to deal with cases like (19a); this seems undesirable.

- (19) a. Sue recommended that I buy Microsoft, and Tina did GE.
 b. [_{NP} Tina]₁ did [_{AS^{TOP}} GE]₃ [_{VP} ~~*t*~~ ~~*recommended*~~ [_{CP} ~~*that*~~ I buy ~~*t*~~]]]

However, there are a couple of arguments in Lasnik's favor. First, pseudogapping with unaccusative verbs is not very good, which would follow if such verbs don't actually allow object agreement projections.

- (20) a. ?? Sue was expected to attend Northwestern, and Mary was NYU.
 b. * [_{NP} Mary]₁ was [_{AS^{TOP}} NYU]₂ [_{VP} ~~*expected*~~ [_{NP} ~~*t*~~ ~~*to attend*~~ ~~*t*~~]]]

Second, ECM subjects seem to block pseudogapping:

- (21) a. Mary wants to invest in Apple, and Sue does Microsoft.
 b. [_{NP} Sue] does [_{AS^{TOP}} Microsoft]₂ [_{VP} ~~*t*~~ ~~*want*~~ [_{NP} PRO ~~*to invest in*~~ ~~*t*~~]]]
- (22) a. * Mary wants me to buy Apple, and Sue does Microsoft.
 b. [_{NP} Sue] does [_{AS^{TOP}} Microsoft]₂ [_{VP} ~~*t*~~ ~~*want*~~ [_{NP} ~~*me to buy*~~ ~~*t*~~]]]

Even if these facts are taken as arguments for Lasnik's analysis of pseudogapping, however, they can also be used to show that gapping must be different:

- (23) Sue was expected to attend Northwestern, and Mary, NYU.
 (24) I have these three financial advisors, Mary, Sue and Phil. *Mary wants me to buy Apple; Sue, Microsoft; and Phil, IBM.* What should I do?

3.3 Summary

The two analyses presented here are definitely successful at explaining at least part of the RE data in principled ways, but neither fully resolves the problem of remnant ellipsis.

- Since a Johnson-style analysis does require at least some scrambling of remnants, the central question of why this movement is possible just in gapping remains open.
- A Lasnik-style analysis may account for remnant movement (or rather lack of verb movement) in pseudogapping, but the problem of remnant movement remains for gapping (and stripping).

4 More N than N comparatives

A particularly clear example of the problem of remnant movement comes from *more N than N* comparatives (or more precisely, *more N than N* comparatives) like the following:

- (25) a. The Red Sox tallied more errors than runs.
 b. More linguists attended the meeting than historians.
 c. I gave more apples to Sue than bananas.

- (26) a. The Red Sox tallied more errors than [_{CP} runs]₁ [_{VP} ~~*they tallied*~~ ~~*t*~~]₁]
 b. More linguists attended the meeting than [_{CP} historians]₁ [_{VP} ~~*t*~~ ~~*attended the meeting*~~ ~~*t*~~]₁]
 c. I have more apples to Sue than [_{CP} bananas]₁ [_{VP} ~~*I gave*~~ ~~*t*~~ ~~*to her*~~]₁]

- (27) a. *The Red Sox tallied more errors than [_{CP} runs]₁ [_{NP} they tallied *t*]₁]
 b. *I gave more apples to Sue than [_{CP} bananas]₁ [_{NP} I gave *t* to her]₁]

These facts are problematic for either an ATB or Lasnik-style analysis.

4.1 Evidence for ellipsis

There are several pieces of evidence in favor of a stripping analysis of these constructions.

1. An ellipsis analysis should at least be *possible*, given the fact that (25a)-(25c) all have non-ellided counterparts, and English has an operation of stripping independently.

- (28) a. The Red Sox tallied more errors than they tallied runs.
 b. More linguists attended the meeting than historians attended the meeting.
 c. I gave more apples to Sue than I gave bananas to Sally.

2. As shown in Keenan (1987), if *more N than N* comparatives are analyzed either as in (30a) or (30b) (see Napoli 1985), then they would have to be non-conservative.

- (29) More students than teachers are vegetarians.
 (30) a. [_{NP} more students than]₁ [_{NP} teachers]₁]
 b. [_{NP} more than teachers]₁ [_{NP} students]₁]

(31) *Conservativity*

A D *d* is semantically conservative iff for all Ns *P* and *Q*, [*d P*s] are *Q*s if and only if [*d P*s] are both *P*s and *Q*s.

(32) a. Most students are vegetarians.

b. Most students are both students and vegetarians.

(33) a. More students than teachers are both students and vegetarians.

b. More students than teachers are both teachers and vegetarians.

Keenan takes this as evidence for a “multiply headed” analysis of *more N than N* comparatives, but the problem of conservativity is also solved by an ellipsis analysis.

(34) a. [_{NP} [_P more than [_{CP} teachers_i [_{IP} are vegetarians]]] students]

b. [Some number of students greater than the number of teachers who are vegetarians] are both students and vegetarians.

3. The fact that the *than*-constituent can be postposed from subject position suggests that it is (underlyingly) clausal — simple prepositional phrases do not readily postpose.

(35) a. More students than teachers are vegetarians.

b. More students are vegetarians than teachers.

(36) a. Most students from India are vegetarians.

b. ?? Most students are vegetarians from India.

4. In antecedent-containment contexts, *more N than N* comparatives show a similar distribution to deleted VPs.

(37) a. I received reports on every student you did.

b. * I received Kim’s reports on every student you did.

(38) a. I received reports on more students than teachers.

b. * I received Kim’s reports on more students than teachers.

Crucially, (38a) has a reading that (38b) does not have: the number of students than I received reports on is greater than the number of teachers than I received reports on. (38b) only has a reading in which the comparison is local to the NP.

5. The main verb agrees with the first noun, never the second noun.

(39) *Italian*

- a. Più ragazze che ragazzi sono partite/*partiti
more girls-FEM than boys-MASC are left-FEM/*left-MASC
'More girls than boys left.'
- b. Più ragazzi che ragazze sono *partite/partiti
more boys-MASC than girls-FEM are *left-FEM/left-MASC
'More boys than girls left.'

6. Case matching effects (cf. Merchant 1999).

4.2 The problem of movement

The data discussed in the previous section provide strong arguments in favor of a stripping analysis of *more N than N* comparatives, but as we have already seen, the necessary movement is impossible if ellipsis does not apply.

(40) a. The Red Sox tallied more errors than [_{CP} runs_i [_{IP} ~~they tallied~~ ~~errors~~]]

b. * The Red Sox tallied more errors than [_{CP} runs_i [_{IP} they tallied ~~errors~~]]

In Kennedy to appear, the impossibility of movement in such examples is accounted for in terms of constraint ranking: movement in comparatives is licensed only if it feeds deletion.

(41) a. DELETE: Omit from the phonological representation.

b. STAY: Do not move.

c. DELETE ≫ STAY

This analysis accounts for the difference between examples of *comparative deletion* like (42) and *comparative subdeletion* like (43).

(42) The Red Sox tallied more errors than the Yankees tallied (*errors).

	DELETE	STAY
a. more errors than [_{CP} [_{IP} the Yankees tallied errors]]	*!	*!
b. more errors than [_{CP} errors [_{IP} the Yankees tallied errors]]	*	*
c. more errors than [_{CP} errors [_{IP} the Yankees tallied errors]]	*	*!
d. more errors than [_{CP} errors [_{IP} the Yankees tallied errors]]	**!	*
e. √ more errors than [_{CP} errors [_{IP} the Yankees tallied errors]]		*

Table 1: *Comparative deletion*

(43) The Red Sox tallied more errors than they tallied runs.

	DELETE	STAY
a. √ more errors than [_{CP} [_{IP} they tallied runs]]	*	
b. more errors than [_{CP} runs [_{IP} they tallied errors]]	*	*!
c. more errors than [_{CP} errors [_{IP} they tallied runs]]	*	*!
d. more errors than [_{CP} runs [_{IP} they tallied runs]]	**!	*

Table 2: *Subdeletion*

This analysis explains quite a few open problems in the syntax of comparatives, but it clearly seems to predict that remnant movement should be impossible. So we’re back to the question we started with: why does ellipsis license remnant movement?

5 Remnants and recoverability

5.1 Remnants are unrecoverable

The answer, I think, has to do with a constraint on RECOVERABILITY. The analysis of comparatives outlined above presupposes a constraint along the lines of (44a)

- (44) a. REC(OVERABILITY): Deletions must be recoverable.
 b. REC \gg DELETE \gg STAY

This is what rules out a candidate representation for subdeletion parallel to the (optimal) (e) candidate in Table 1: such a candidate unrecoverably deletes *runs* from the comparative clause.

- (45) The Red Sox tallied more errors than they tallied runs.

	REC	DELETE	STAY
a. $\sqrt{\text{more errors than [cp runs] [rp they tallied runs]}}$		*	
b. more errors than [cp runs] [rp they tallied #####]		*	*!
c. more errors than [cp #####] [rp they tallied runs]			*!
d. more errors than [cp runs] [rp they tallied runs]		**!	*
e. more errors than [cp #####] [rp they tallied #####]	*		*

Table 3: *Subdeletion revisited*

If RECOVERABILITY is a (highly-ranked) grammatical constraint, then it should interact with other constraints. In particular, we should find contexts in which it forces violations of lower ranked constraints.

- Run-of-the mill subdeletion is one such context: RECOVERABILITY licenses violations of DELETE.
- Remnant ellipsis is another such context: RECOVERABILITY licenses violations of STAY.

- (46) The Red Sox tallied more errors than runs.

	REC	STAY
a. more errors than [cp [rp they tallied #####]]	*!	
b. $\sqrt{\text{more errors than [cp runs] [rp they tallied #####]}}$		*

Table 4: *Comparative stripping*

This analysis extends to all the cases we have considered so far — gapping, pseudogapping and stripping — as well as other cases (like multiple *wh*-remnants in sluicing). Table 5 illustrates the analysis of the gapping example from *Moby Dick*.

- (47) At times, for longest hours, without a single hail, they stood far parted in the starlight; Ahab in his scuttle, the Parsee by the mainmast; but still fixedly gazing upon each other; *as if in the Parsee Ahab saw his forethrown shadow, in Ahab the Parsee his abandoned substance.*

	REC	STAY
a. $\sqrt{\text{[rp in A [rp the Parsee saw his abandoned substance]]}}$	*	
b. $\sqrt{\text{[rp in A [rp the P}_1 \text{ [rp } t_1 \text{ saw his abandoned substance]]]}}$	*!	*
c. $\sqrt{\text{[rp in A [rp the P}_1 \text{ [rp his abandoned substance] [rp } t_1 \text{ saw } t_2 \text{]]]}}$		**

Table 5: *Gapping*

This analysis also explains the Hankamer facts, since only movement necessary for the satisfaction of RECOVERABILITY will be tolerated.

- (48) a. *John plays tennis with Sally, and Harry tennis with Sue.
 b. John plays tennis with Sally, and Harry with Sue.
- (49) John plays tennis with Sally, and Harry squash with Sue.

	REC	STAY
a. $\sqrt{\text{[rp Harry}_1 \text{ [rp tennis}_2 \text{ [rp with Sue}_3 \text{ [rp } t_1 \text{ plays } t_2 \text{ } t_3 \text{]]]]}}$		***!
b. $\sqrt{\text{[rp Harry}_1 \text{ [rp with Sue}_3 \text{ [rp } t_1 \text{ plays tennis } t_2 \text{]]]}}$		**
a. $\sqrt{\text{[rp Harry}_1 \text{ [rp squash}_2 \text{ [rp with Sue}_3 \text{ [rp } t_1 \text{ plays } t_2 \text{ } t_3 \text{]]]}}$		***
b. $\sqrt{\text{[rp Harry}_1 \text{ [rp with Sue}_3 \text{ [rp } t_1 \text{ plays squash } t_2 \text{]]]}}$	*	**

Table 6: *The Hankamer facts*

5.2 Constraining deletion

We now have a new problem: why doesn't DELETE make ellipsis obligatory? Specifically, why are both the RE and non-ellided variants in (50)-(52) grammatical?

- (50) a. In the Parsee Ahab saw his forethrown shadow; in Ahab the Parsee his abandoned substance.
 b. In the Parsee Ahab saw his forethrown shadow; in Ahab the Parsee saw his abandoned substance.
- (51) a. It took me as long to second as it had Conrad to lead.
 b. It took me as long to second as it had taken Conrad to lead.
- (52) a. The Red Sox tallied more errors than runs.
 b. The Red Sox tallied more errors than they tallied runs.

If (52a) and (52b), for example, are compared for well-formedness, then only (52a) should be grammatical, since it best satisfies DELETE.

	REC	DELETE	STAY
a. more errors than [cp [rp they tallied runs]]		***!	
b. $\sqrt{\text{more errors than [cp runs] [rp they tallied #####]}}$		*	*

Table 7: *Unconstrained deletion*

The answer, of course, must be that (52a) and (52b) are (in effect) *not* compared — they must have different inputs. But how can we derive this result in a principled way?

The answer has to do with the syntactic representation of ellipsis, specifically with Merchant’s 1999 proposal that elided constituents bear an “E-feature”, whose semantic interpretation is as in (53).

$$(53) \quad [E] = \lambda p: P \text{ is E-GIVEN}_p$$

$$(54) \quad \text{E-GIVENNESS}$$

An expression ϵ counts as E-GIVEN iff ϵ has a salient antecedent α and, modulo existential type-shifting:

- a. α entails F-clo(ϵ), and
- b. ϵ entails F-clo(α).

Where F-clo(X) is the result of replacing F(ocus)-marked parts of X with existentially bound variables of the appropriate type.

$$(55) \quad \text{a. } [\epsilon \text{ the Red Sox tallied more ERRORS}] \text{ than } [\text{cp runs } [\text{TP} \text{ they tallied } \text{*****}]]$$

$$\text{b. } \text{F-clo}(\alpha) = \exists x[\text{the Red Sox tallied } x]$$

$$\text{c. } \text{F-clo}(\epsilon) = \exists x[\text{the Red Sox tallied } x]$$

In Merchant 1999, the E-feature is interpreted differently at the two interfaces: at LF, it introduces the identity requirement in (53); at PF, it triggers deletion (non-insertion of lexical material).

In the framework I’ve outlined here, however, the discourse/semantic properties of the E-feature are all we need (and we need them anyway):

- A constituent that bears the E-feature is *recoverable*.
- The grammar favors representations that maximize deletion (i.e., that best satisfy DELETE).
- Therefore, a constituent that bears the E-feature must be deleted (all other things being equal).
- In contrast, a constituent that does not bear the E-feature may not be deleted (all other things being equal), because doing so would violate recoverability — no information is supplied to the discourse/semantic component indicating that the content of the constituent is already present in the (linguistic) discourse.

	REC	DELETE
a.	...	*!
b.	✓
a ¹ .	✓ ...	*
b ¹	*!

Table 8: *Ellipsis*

In other words: *deletion of a constituent XP is obligatory whenever XP is grammatically marked as redundant*

	REC	DELETE	STAY
a.	✓ more errors than [cp [p they tallied runs]]	***	
b.	more errors than [cp runs [TP they tallied *****]]	*!	*
c.	more errors than [cp [TP they tallied *****]]	*!	
a ¹ .	more errors than [cp [TP] they tallied runs]]		**!*
b ¹ .	✓ more errors than [cp runs [TP] they tallied *****]]		*
c ¹ .	more errors than [cp [TP] they tallied *****]]	*!	

Table 9: *Constrained deletion*

5.3 Movement and recoverability

If this analysis is on the right track, then it suggests a new way of thinking about the relation between ellipsis and movement: both involve recoverable deletions, but the nature of the recoverability is different in the two cases:

- In ellipsis, by the E-feature (or some equivalent).
- In movement, by the copy operation.

That is, elements of movement chains are recoverable *by virtue of being copies*.

This analysis does not say anything about *which* copie(s) should be deleted — upstairs or downstairs ones — this is presumably determined by a separate mechanism/feature/parameter.

Since the way in which recoverability ends up being satisfied in the two cases is different, we might expect that the licensing requirements for deletion in the two cases are different (e.g., being a literal copy vs. being E-GIVEN; cf. Williams 1977; Kennedy 1998).

6 Characterizing recoverability

Chomsky (1965, p. 144) characterizes recoverability as follows (cf. Hankamer 1979).

$$(56) \quad \textit{Recoverability 1965}$$

A deletion operation can eliminate only a dummy element, or a formative explicitly mentioned in the structure index (for example, *you* in imperatives), or the designated representative of a category (for example, the *wh*-question transformations that delete Noun Phrases are in fact limited to indefinite Pronouns ...), or an element that is otherwise listed in the sentence in a fixed position.

This requires a “global” approach to recoverability. The analysis I’ve outlined here involves a more “local” sort of recoverability, but it is clearly directly connected to the final clause of Chomsky’s characterization:

$$(57) \quad \textit{Recoverability 2000 (prototype)}$$

A constituent X satisfies RECOVERABILITY iff X is syntactically marked as redundant.

This doesn’t seem quite right yet, but the idea is that it should be possible to evaluate RECOVERABILITY for any XP without having to look elsewhere in the sentence/discourse (and that this is preferable to initiating a search); clearly the E-feature and the formal structure of chains allows us to do this.

7 Conclusion

Remnants

- The possibility of movement in remnant ellipsis follows from the interaction of two ranked constraints: RECOVERABILITY and STAY.
- Remnant movement is optimal because not to move would violate RECOVERABILITY.
- Only unrecoverable remnants may move.

Recoverability

- Recoverability regulates deletion:
 - in ellipsis, through the E-feature,
 - in movement, through the copy operation.
- Recoverability is calculated locally, by checking the grammatical features of individual constituents.

Questions

- What about deaccenting?
- What about the precedence constraint on ellipsis?
- Do we really need the E-feature?
- Is RECOVERABILITY a single constraint?

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