Ellipsis and Identity: Reflections on "Guess Who?"
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I. Sloppy identity

(49) Harold scratched his arm and so did I.

Most speakers find that (49) can mean either that the speaker scratched Harold's arm, or that the speaker scratched his own arm. That is, (49) seems to have to be derivable from either (50a) or from (50b).

(50) a. Harold$_1$ scratched his$_1$ arm and I$_j$ scratched his$_1$ arm too.
   b. Harold$_1$ scratched his$_1$ arm and I$_j$ scratched my$_j$ arm too.

The problem is, of course, that the two verb phrases in (50b) are not strictly identical, so any theory in which (49) can be derived from (50b) must contain a definition of "sloppy" identity, in which it is specified exactly what differences can be disregarded. A very preliminary definition was given in Ross (1967) §5.2, in which it was suggested that two otherwise identical strings which differed only in commanded pronouns (as is the case with scratch his$_1$ arm and scratch my$_j$ arm in (50b)), could be regarded as identical for the purposes of deletion.

(1) The footnote makes it clear that this command requirement involves command by the antecedent of the pronoun, as proposed by Ross (1967), p. 207 of 1986 published version.

(2) "Constituents are identical if they have the same constituent structure and are identical morpheme-for-morpheme, or if they differ only as to pronouns, where the pronouns in each of the identical constituents are commanded by antecedents in the nonidentical portions of the phrase-marker.'

(3) This phenomenon is of interest since Ross (1967), p.60 had observed that mere formal identity doesn't suffice:

(4) "It has been realized for a fairly long time that the notion of identity which is required in the theory of grammar must include identity of reference."

(5) Wasow (1972), p.130 suggests that sloppy identity is not needed. He gives a case where gender identity fails and only strict identity is possible, according to his judgment (and I tend to concur; see also Sag (1976)):

(6) a. John is less worried about his thesis than Bill is [Sloppy reading OK.]
   b. Mary is less worried about her thesis than Bill is [According to Wasow, only strict. her ≠ his]

(7) What is needed, then, is "morphological identity".
In fact, Ross's (49) above seems to behave similarly for many speakers, with the sloppy reading relatively inaccessible (contra Ross's report), contrasting with Harold scratched his arm and so did Bill.

Oku (1998) presents more such examples, where there is mismatch of some $\phi$-features and sloppy identity is degraded:

(a) John said that he was going to France, and Bill and Mary did $[\text{VP } e]$, too.
(b) John said that he was going to France, and you did $[\text{VP } e]$, too.

To the extent that this is so, there is no "morphological sloppy identity" (though later we will see some apparent exceptions discussed by Oku).

Oku is also concerned with the fact that the degraded sloppy readings are not entirely impossible, and offers an intriguing proposal, based on a kind of repair by ellipsis and a subset feature copy notion very reminiscent of the 'nondistinctness' ellipsis requirement of Chomsky (1965). (Oku couches his approach in terms of LF copy, but it is actually neutral between LF copying and PF deletion, as far as I can tell.)

For Oku, as far as syntax is concerned "a pronoun is a set of $\phi$-features and the categorial feature D." p.101 This extends ideas of Burzio (1991).

a. his = (3rd person, masculine, singular, D)
b. her = (3rd person, feminine, singular, D)

The subset copy principle: a (proper) subset of the antecedent features can construct the contents of a phonologically missing element under LF Copy. <Or, symmetrically, a (proper) subset of the antecedent features can be deleted under (almost) identity.>

Stated in terms of deletion, this is almost exactly the proposal of Chomsky (1965):

"what is involved in determining legitimacy of deletion is not identity but rather nondistinctness in the sense of distinctive feature theory..." p.181

On the face of it, we simply have distinct sets in (15). But Oku offers the following ingenious suggestion:

"... under the subset copy principle, LF Copy of his $\{\text{3rd person, masculine, singular, D}\}$ can, in principle, give a set of features $\{\text{3rd person, singular, D}\}$ without the feature $\{\text{masculine}\}$, because the latter is a proper subset of the former. Now, the resulting set of features is not identical to the set of features of her (i.e., $\{\text{3rd person, feminine, singular, D}\}$), but it does not conflict with it, either. Therefore, I claim that the "defective" set of features $\{\text{3rd person, singular, D}\}$ can function as a pronoun bound by Mary at LF shown in (54), although there is no overt pronoun corresponding to this feature specification in English." p.101

Oku then explores possible reasons that the resulting examples are not perfect, at least for some speakers. I will not explore that issue here.

Viewed as deletion instead of as LF copying, Oku's basic idea would be that the ellipsis target contains a pronominal item that contains a proper subset of the features of the corresponding part of the antecedent (so is nondistinct from it), but that has no possible phonological realization in English, causing the derivation to crash. But once deletion takes place, it need not be phonologically realized; the crash is avoided.

Three years later, Kennedy and Lidz (2001) give a conceptually parallel account of a certain surprising paradigm of strict readings under 'comparative stripping', and in terms
of PF deletion. They propose that the paradigm involves a long distance anaphor, an item that does not occur overtly in English, in the ellipsis site, the kind of situation referred to by Abels (2018) as "ineffability caused by morphological gaps". Without ellipsis, we would get a PF crash, but the crash is avoided if the phonologically impossible item is rendered invisible to phonology.

(24) Regardless, we still seem to need referential sloopy identity, which was Ross’s fundamental point.

(25) Or maybe we don’t. Reinhart (1983) argues that since pronouns can be bound variables (necessary since when they have quantifiers as their antecedents pronouns clearly aren’t referential) we can have total identity, even on 'sloppy’ interpretations:

(26) a. Felix hates his neighbours and so does Max
b. Felix (λx (x hates x's neighbours)) and
   Max (λx (x hates x's neighbours))

(27) "To obtain [this reading], we need to assume that the first conjunct ... contains some open formula x hates x's neighbours which is satisfied by Felix in the first conjunct and by Max in the second, i.e. that some variable binding operator is involved, which is captured by the lambda representation ... So, in this reading ... which is labelled 'sloppy identity', following Ross (1967) [sic], the pronoun is interpreted as a bound variable." p.62

(28) "What has gone unnoticed in the studies of sloppy identity is that, in fact, it obeys precisely the same conditions as quantified NP anaphora ... The antecedent must c-command the pronoun for the sloppy identity interpretation to be obtained." p.63

(29) Or maybe it hadn’t gone entirely unnoticed. The following are passages from Lasnik (1976).

(30) "In general, it appears that the NP's in question [quantificational expressions] can only be related to the pronouns when the NP both precedes and kommands the pronoun." p.18

(31) "By and large, it appears that deletion under sloppy identity ... is only possible when the antecedent of the deleted pronoun both precedes and kommands the pronoun." p.20

(32) [X kommands Y iff every cyclic node (S or NP) dominating X also dominates Y. This is an extension of the original command of Langacker (1969) (just S). C-command of Reinhart (1976) is a further extension, to all nodes. It is equivalent to Klima (1964)'s in construction with.]

II. ‘Vehicle change’ - another kind of sloppy identity

(33) Fiengo and May (1994) present several paradigms where two expressions with the same reference but different form count as identical for ellipsis.

(34) Mary will admire John, and he thinks that Sally will [vp e], too.

(35) a. Mary will admire John, and he thinks that Sally will [vp admire John], too.
   b. Mary will admire John, and he thinks that Sally will [vp admire him], too.

(36) In (34), the object in the elliptical VP can be coreferential with John, yet (35)a would violate Binding Condition C. So we need (35)b instead.

(37) Fiengo and May propose that under LF copying, the [-pronoun] feature of an R-expression can change into [+pronoun], as long as the indexical structures remain identical. They call this "vehicle change".

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Again, the same result could be obtained under deletion: a [+pronoun] expression can be deleted under identity with a [-pronoun] correlate.

Oku points out that there is a crucial stipulative property of vehicle change in that it is not clear why there is no instance of vehicle change which changes an R-expression into the corresponding reflexive:

a. *Mary will admire John, and he will \[vp e\], too.

b. Mary will admire John, and he will \[vp [admire himself]\], too.

Oku argues that this absence follows from his subset copy principle (again, essentially the nondistinctness requirement of Chomsky (1965)).

a. R-expression; \{φ-features, R-features, D\}

b. pronoun; \{φ-features, D\}

"... the set of features composing the pronoun he is a subset of features composing the word John." p.108

Therefore the latter can be copied as the former. [Or, equivalently, the former can be deleted under nondistinctness from the latter.]

"... the feature \{±pronoun\} is not a primitive feature in syntax, but rather is a descriptive cover term. That is, a nominal expression composed only of φ-features and the D-feature derivatively has the property of [+pronoun], and a nominal expression composed of features, R-features, and the D-feature derivatively has the property [-pronoun], which will be relevant with respect to the Binding Conditions."

"In this system, we do not have to stipulate that the feature [-pronoun] can change into the feature [+pronoun]. The change from [-pronoun] to [+pronoun] is an epiphenomenon derived from the change from a set \{φ-features, R-features, D\} into a corresponding set \{φ-features, D\}."

An R-expression cannot be copied as a reflexive since the features of the latter do not constitute a subset of the features of the former. (40) illustrated this.

Similarly, a pronoun generally cannot be copied as a reflexive:

*Bill blamed him, and John did \[vp blame himself\], too

The account is the same.

The effect of all of this is the appearance that ellipsis regarded as deletion can sometimes remedy a Condition C violation but not a Condition B violation. I will return to one apparent exception to the latter point.

III. Derivational identity?

Ross (1969) gives some examples where finite and non-finite versions of clauses seem to participate in antecedent-target ellipsis relations. He speculates that these variants "should be absolutely identical at some point in derivations ..." p.275

Interestingly, Chomsky (1965), in his discussion of nondistinctness, had been assuming a rather similar derivational approach, for agreement features.

Exploring recoverability of deletion, Chomsky first suggests that "... an erasure operation can use the term X to delete Y just in case X and Y are identical". p. 145
Chomsky then considers the notion ‘identity’, indicating that it might be taken to mean “strict identity of feature composition”. (p. 177) But he then gives a pair of examples showing that this cannot be quite right:

a. John is more clever than Bill
b. these men are more clever than Mary

Assuming a clausal source for comparatives, (57)a works as expected, with is clever deleted under complete identity. But, Chomsky observes, in (57)b the trigger for deletion of is clever seems to be are clever, which is not fully identical. The problem is even more evident in the French analogue, where the deleted adjective is not completely identical to its antecedent, differing in the feature ± plural, like the copula:

ces hommes sont plus intelligents que Marie

Based on this, Chomsky makes the intriguing suggestion that features added by agreement rules do not have the same status as features that are inherent parts of lexical items:

"... in the case of Adjectives and the copula (also Verbs, which take part in similar rules) the inflectional features that are added by agreement transformations are apparently not considered in determining whether the item in question is strictly identical with some other item.”  p. 180

Further, "what is involved in determining legitimacy of deletion is not identity but rather nondistinctness in the sense of distinctive feature theory... Thus consider ... the case of ["I know several more successful lawyers than Bill"] ... The Predicate-Nominal of the latter is not singular, in the base structure; rather, it is unspecified with respect to number exactly as the nasal is unspecified with respect to point of articulation in the lexical representations of the formatives king, find, lamp, etc. Hence, it is not identical with the corresponding nominal element of "I know several lawyers"; it is, rather, nondistinct from it, and the example suggests that this is sufficient to permit deletion.”  p. 181

There are a couple of ways to implement this: Either mark these added features as ignorable, or, as hinted at by Ross for the phenomenon he mentioned, pay attention to a stage of the derivation before the features were added (which seems to be inherent in the immediately preceding quote). The latter might involve some globality since at least some deletion processes follow at least some transformations. Of course, Ross (1969) embraced globality.

Another instance of such derivational identity is hinted at in Chomsky (1955) and made explicit in Sag (1976). Sag points to an argument by Quirk et al. (1972) that verb phrase deletion does not require strict identity of verbal inflectional form. Some examples:

a. John understands the situation and surely Peter should [understand the situation]
b. His friends already belong to the club and he will [belong to the club] soon.
c. Bob entered the competition and Paul may [enter the competition]

However, as Sag notes, prior to Affix Hopping we have strict identity between the verb in antecedent and target. [Another possibility is to rely on nondistinctness, if the bare form of a verb has a subset of the features of an inflected form. See Lasnik (1997) for a possible problem with this latter approach.]
(67) One could also appeal to nondistinctness (or derivational identity) in yet another kind of situation:

(68) As you all know, Ross (1969) famously discusses island remediation. There is very interesting debate now about whether such exists (I believe it does) but I will not enter into that debate here. Rather, I will briefly examine the technical implementation of remediation by Chomsky (1972), a technical counter-argument by Lakoff (1972), and a reply in the terms we have been considering.

(69) Chomsky proposed that * (# in Chomsky’s presentation) is assigned to an island when it is crossed by a movement operation (the complex NP in (74)). An output condition forbidding * in surface structures accounts for the deviance of standard island violations.

(70) If a later operation (Sluicing in this case) deletes a category containing the *-marked item, the derivation is salvaged.

(71) For Chomsky (1972), the condition banning * applies at surface structure. The results are the same if, instead, it is a PF condition, as suggested by Lasnik (1995), Lasnik (2001a).

(72) a (*) I don't know which children he has plans to send to college
b. He has plans to send some of his children to college, but I don't know which ones

Chomsky (1972), p.72.

(73) [3 notes here: 1) I am presenting the tree in terms of more modern categories; 2) the island Chomsky presents (Complex NP with infinitival complement to the head N) is a very weak one is the first place, but the analysis can be replicated for any island; 3) Chomsky’s account, like virtually all recent ones, does not actually account for the data as reported by Ross - that island violations are improved but not completely repaired, by Sluicing.]

(74) I don't know
    CP
        NP
            which children
        IP
            NP
                he
            I
                VP
                    V
                    NP*
                        has plans to send t to college

(75) “It is important to note that [the # introduced in Chomsky’s derivation] must be 'invisible' with respect to deletion under identity, since when Sluicing applies, the deleted portion of the tree will contain this element, while the deleting portion will not.”
Lakoff (1972), p.81.

(76) Here again, nondistinctness, instead of complete identity, could salvage the analysis.

[Brief digression:
(77) Lakoff notes that in Chomsky's approach, "a new element is introduced..." That is, # (or
*) had been metalinguistic notation, but on Chomsky’s account it becomes linguistic notation. Lakoff’s point is presumably that there is some cost connected with this. But we could, anachronistically, turn it into a minimalist objection, in terms of Inclusiveness.

(78) Kitahara (1999) gives an argument reminiscent of this modernization of Lakoff’s against an approach like Chomsky's (though for a slightly different phenomenon - ECP reduction to mere Subjacency via deletion of *-marked trace à la Chomsky (1991), Chomsky and Lasnik (1993)):

(79) "... a *-feature, which is not a lexical feature – since it appears nowhere in the lexicon – ... enters into a derivation as the output of certain movements. ...this assumption violates the Inclusiveness Condition."  p.79

(80) Technical, semi-serious, solution to the Inclusiveness problem (for either phenomenon): Everything is 'born' with a ✓. When a violation occurs, the ✓ is erased. A representation with an item lacking a ✓ in the output is unacceptable. The relevant deletion in the Sluicing instances will now conform to nondistinctness.

End of digression]

IV. A bit more on binding theory and vehicle change

(81) Earlier we saw that a reflexive cannot be treated as equivalent to an R-expression or a pronoun for the purposes of LF copy/Deletion under nondistinctness.

(82) But sometimes it can, at least for some speakers.

(83) *John injured him
(84) *John believes him to be a genius
(85) *Mary injured him and John did too
(86) %Mary believes him to be a genius and John does too

(87) Peculiarly, it looks as if a reflexive does count as equivalent to a pronoun in (86), at least for some speakers, but does not for any speakers in (85).

(88) Suppose Postal (1966), Postal (1974) was right (contra Chomsky (1973)) that the relevant structural configuration for Condition B obviation is based on the notion clause-mate. (For related discussion, see Lasnik (2002) and Ausin (2001).)

(89) And suppose that weak objective pronouns must cliticize onto the verb, as proposed by Oehrle (1976)

(90) The detective brought him in
(91) *The detective brought in him  Chomsky (1955)
(92) I gave it to Mary
(93) *I gave Mary it

(94) Finally, suppose cliticization demands structural locality as well as string locality. Then it is possible that in (86) him stays in the lower clause. This evades a Condition B effect. The resulting failure to cliticize would cause a PF violation, but in (86) the failure is repaired by ellipsis, as the would-be clitic is gone. This, of course, demands that as far as the syntax is concerned, raising is optional. See Lasnik (2001b) for several arguments that this is so, at least for some speakers.
In (85), on the other hand, the pronoun and its antecedent are clause-mates all along, so deletion doesn’t help. The cliticization requirement will invariably be satisfied but Condition B will invariably be violated.

There is a potential technical problem here. The antecedent has the ECM subject raising while the target clause has the corresponding subject unraised. Possibly the derivational identity mentioned earlier could be at work here. [Another question is how the optionality is to be implemented. Consideration of that would take us too far afield.]

V. A bit more on ineffability and morphological gaps

Halle (1973) observes that there are various defective paradigms with respect to inflection:

"... in Russian there are about 100 verbs (all, incidentally, belonging to the so-called 'second conjugation’) which lack first person singular forms of the nonpast tense. Russian grammar books frequently note that such forms as [(99)] 'do not exist’, or 'are not used’, or 'are avoided’." p.7

Abels (2018) makes the important observation that ellipsis (stripping in this case) 'repairs' such violations. (Abels provides non-defective verbs for comparison.)

The ineffability of I {make a fuss | rustle}., caused by a morphological gap, is repaired by ellipsis."
(105) a. Mary has permission to access the records and Bill should have permission to access the records by tomorrow
b. Mary has permission to access the records and Bill should have permission to access the records by tomorrow

(106) a. *Mary may access the records and Bill should may access the records by tomorrow
b. *Mary may access the records and Bill should may access the records by tomorrow

(107) a. Mary has the ability to write Fortran programs, and John will have the ability to write Fortran programs by next semester
b. Mary has the ability to write Fortran programs, and John will have the ability to write Fortran programs by next semester

(108) a. *Mary can write Fortran programs, and John will can write Fortran programs by next semester
b. *Mary can write Fortran programs, and John will can write Fortran programs by next semester

(109) Thus, it seems that the bare forms of English modals really don’t exist. They don’t merely lack morpho-phonological realizability.

VI. Conclusion?
Well, I don’t know any way to tie all of these ideas and observations about ellipsis and identity together, so in lieu of an actual conclusion I will declare that we have learned a huge amount about ellipsis in the last 50 years. But we have also uncovered a huge number of puzzles that are at least as hard as the original ones. The search for answers promises to bring more decades of research just as exciting as the past five.
And almost none of this would have been possible without "Guess Who?".
References


