On Ellipsis: The PF Approach to Missing Constituents
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In this talk, I will attempt, in a preliminary way, to take up the challenge presented by Culicover and Jackendoff (2005) (henceforth C&J) to all approaches to ellipsis that attribute syntactic structure to ellipsis sites. Mainly for reasons of time, I will limit my discussion to one of the most intensively investigated ellipsis constructions - Sluicing. C&J observe that some of the traditional arguments for internal structure (of the Sluicing remnant in this instance) indicate merely that the remnant is a clause, though one containing just a DP, for instance. One of those arguments, originally due to Ross (1969) and reiterated by Levin (1982), is based on agreement properties. Even when the Sluicing fragment is plural, agreement is invariably singular, indicating that the fragment is not just a DP.

(1)   We were supposed to do some problems for tomorrow, but which problems isn't (*aren't)
        clear
Compare
(2)   We were supposed to do some problems for tomorrow, but which problems we were
        supposed to do isn't (*aren't) clear

Another class of arguments for internal structure involve so-called connectivity effects. Such effects are straightforward with a classical movement and deletion account of Sluicing, for example. A representative instance is

(3)   They found some pictures of themselves, but I don't know exactly how many pictures of
        themselves

With respect to connectivity, C&J counter-argue that such effects are also found in constructions with no plausible movement analyses, such as clefts. One of the main connectivity effects they mention is one alluded to by Ross, and explored in great detail by Merchant (2001) - Case matching. In overtly Case inflected languages (such as German), the Case of the survivor is just what the Case of the fronted WH expression would have been in the non-elliptical form.

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(4)    Er will  jemandem   schmeicheln, aber sie wissen nicht,
       he wants someone.DAT flatter      but they know    not
        *wer /    *wen /     wem
         who.NOM   who.ACC   who.DAT
       'He wants to flatter someone, but they don't know who.'

(5)    Er will  jemanden    loben, aber sie wissen nicht,
       he wants someone.ACC  praise but they know    not
        *wer /     wen /    *wem
         who.NOM   who.ACC   who.DAT
       'He wants to praise someone, but they don't know who.'
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Compare

(6)   Er will  jemandem    schmeicheln, aber sie wissen nicht,
      he wants someone.DAT flatter      but they know    not
       *wer /    *wen /    wem       er schmeicheln will
        who.NOM   who.ACC  who.DAT   he flatter       wants
       'He wants to flatter someone, but they don't know who he
          wants to flatter.'

(7)   Er will  jemanden    loben, aber sie wissen nicht,
      he wants someone.ACC praise but they know    not
       *wer /    wen /    *wem      er loben  will
        who.NOM   who.ACC  who.DAT  he praise wants
       'He wants to praise someone, but they don't know who he
      wants to praise.'
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This Case matching is overwhelmingly pervasive. Merchant reports that it holds in every language with overt case-marking on wh-phrases he has examined - German, Greek, Russian, Polish, Czech, Slovene, Finnish, Hindi, Hungarian, and Basque. Merchant, like Ross befrore him, concludes on the basis of such facts that movement and deletion must be involved.

Consider now C&J's suggestion that such connectivity could be handled in the way connectivity is handled in clefts. The difficulty with that suggestion is that clefts generally **don't** show Case connectivity. Much more often, there is a specific invariant Case for the pivot in a cleft, usually nominative. For example, as mentioned, Greek has case matching in Sluicing. Yet cleft pivots are invariably nominative, as Merchant notes.

(8)   I astinomia anerkrine   enan apo tous Kiprious prota, ala dhen ksero
       the police   interrogated one$_{acc}$ from the Cypriots first but not I.know
       {*pjos   / pjon}.
       which$_{nom}$ / which$_{acc}$
       {pjos   itan / *pjon itan}.
       which$_{nom}$ it was / which$_{acc}$ it was

Turkish shows the same pattern, as reported by Ince (2005).

(9)   A: Dün   Ahmet   biri-ni   ara-di.
          yesterday Ahmet-nom   one-acc   call-pst-3s
          'Yesterday Ahemt called someone.'

       B: Kim-i ?
            who-acc
            'Who?

(10)   Ahmet-in oku-dugu   kitap(dir).
       A.-gen   read-comp book-nom-(is)
       'It's a book that Ahmet read.'
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Craenenbroeck (2004) observes the same thing in the Dutch dialects (such as the Waubach dialect) that overtly mark Case on wh-pronouns.

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(11) A: 't Kumt   murrege  inne    noa 't  fees
        it comes tomorrow someone to  the party
     B: Wea?  /  *Wem?
        who_nom /  who_acc
     A: Someone is coming to the party tomorrow. B: Who?

(12)
     A: Ich han  inne    geziëe. B: *Wea?  /  Wem?
         I  have someone seen          who_nom /  who_acc
     A: I saw someone.  B: Who?

(13) Wea   / *Wem   is dat  dea noa 't   fees    kemp
     who_nom /  who_acc is that REL  to  the  party comes
     Who is it that is coming to the party?
(14) Wea   / *Wem   is dat  dea-s-te    geziëe has
     who_nom /  who_acc is that REL-AGR-you  seen   have
     Who is it that you saw?
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C&J allude to another kind of potential argument for internal structure, observing that obedience to constraints on movement "would be impressive evidence of the reality of the invisible structure". They are specifically discussing Ross-type island constraints (I will return to these) but clearly the point should be more general. And, in fact, we do see substantial obedience to (at least certain) movement constraints. Merchant massively documents conformity to the parametric prohibition of P-stranding. In languages that allow P-stranding (such as English), the survivor of Sluicing can be the bare object of a preposition; in languages that don't (such as Greek) it can't.

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(15)  Peter was talking with someone, but I don't know who

(16)  I   Anna milise me   kapjon, alla dhe ksero *(me) pjon
      the Anna spoke  with someone  but not I.know  with who
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As reported by Merchant, other languages that behave like English are Frisian, Swedish, Norwegian, Danish, and Icelandic. Languages like Greek that don't allow P-stranding are much more common. Merchant gives data from seventeen additional languages patterning with Greek, including German, Russian, Persian, Catalan, Hebrew, and Basque. This massive correlation (Merchant's Form-identity generalization II) is "the single strongest possible argument for the [movement and] deletion approach". In C&J's words, it is "impressive evidence". I do have to note that the correlation, though extremely strong, is not perfect. Merchant discusses some minor deviations in the languages he discusses. And I know of one major deviation. Almeida (2005) reports that Brazilian Portuguese simply does not conform. Portuguese is a strongly non-P-stranding language, yet a Sluicing survivor can be the apparent bare object of a preposition, unlike the situation in the languages documented by Merchant.

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(17)  A    Maria dançou com  alguém
      the Maria danced with someone
(18)  Com  quem que  a    Maria dançou t
      with whom that the Maria danced
(19) *Quem que  a    Maria dançou com  t
      who  that the Maria danced with

(20)  A    Maria dançou com  alguém,  mas eu não lembro   com quem
      the Maria danced with someone  but I  NEG remember with who
(21)  A    Maria dançou com  alguém,  mas eu não lembro   quem
      the Maria danced with someone  but I  NEG remember who
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Perhaps it will turn out that there is more than one kind of P-stranding constraint, but at the moment that's just wishful thinking.

Another movement constraint that seems to be maintained under Sluicing is Superiority (though there are a number of possibly interfering factors). Stjepanovic (2003), developing ideas of Boskovic (2002), discusses several properties of wh-movement in Serbo-Croatian, a multiple wh-fronting language. One property is apparent presence of Superiority effects, as seen in the following example from Boeckx and Lasnik (in press).

(22)   Ivan i Marko   ne znaju …
        Ivan and Marko   neg know
        a. ko je šta   kupio
          who is what bought
         'Who is buying what?'
        b. *šta je ko kupio
        'Ivan and Marko don't know who bought what'

This effect is preserved under Sluicing:
(23)   A: (Somebody bought something, but)
        B: a. Ivan i   Marko ne znaju ko   šta
              Ivan and Marko neg know who what
           b. *Ivan i Marko ne znaju šta ko
               Ivan and Marko neg know what who
        'but Ivan and Marko don't know who what'

Merchant gives similar examples from Bulgarian, another multiple wh-fronting language.

(24)   a. Koj kogo e   vidjal
          who whom AUX seen
         'Who saw whom?'
        b. *Kogo koj e vidjal

(25)   a. Njakoj   e   vidjal njakogo, no ne znam   koj kogo
           someone AUX seen   someone but not I.know who whom
        b. *Njakoj   e   vidjal njakogo, no ne znam   kogo koj
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But there is a big problem, as noted by Merchant and reiterated by C&J - insensitivity of Sluicing to standard island constraints. This phenomenon was first noticed by Ross (1969), but with a slight difference from modern reports. Here are Ross's examples.

(26)   I believe that he bit someone, but they don't know who (I believe that he bit)
(27)a *I believe the claim that he bit someone, but they don't know who I believe the claim that he bit [Complex NP Constraint, noun complement]
   b(??)I believe the claim that he bit someone, but they don't know who
(28)a *Irv and someone were dancing together, but I don't know who Irv and were dancing together [Coordinate Structure Constraint]
    b(??)Irv and someone were dancing together, but I don't know who
(29)a *She kissed a man who bit one of my friends, but Tom doesn't realize which one of my friends she kissed a man who bit   [Complex NP Constraint, relative clause]
    b(??)She kissed a man who bit one of my friends, but Tom doesn't realize which one of my friends
(30)a *That he'll hire someone is possible, but I won't divulge who that he'll hire is possible [Sentential Subject Constraint]
    b (??)That he'll hire someone is possible, but I won't divulge who

The judgments in parentheses are Ross's. Note that those judgments indicate some sensitivity to islands with Sluicing, though lessened from non-elliptical analogues. That would actually constitute an argument **for** movement and deletion, though the improvement still would have to be explained. [Takahashi (1994) makes just such an argument for movement and deletion.] However, most recent researchers on the topic report that the Sluiced versions are perfect. [I am not considering here the 'Sprouting' cases.] So the question arises of why there are no island effects, if indeed there was movement. Merchant's proposal, identical in relevant respects to that of Chomsky (1972), is that the violations in most of these instance are PF ones. If the portion of the structure containing the violation is eliminated before the PF interface, then the deviance is eliminated. C&J challenge this: "To say that the constraint is phonological, and therefore only holds for 'pronounced' structures, is sophistic, since it has yet to be determined that the invisible structure actually exists ..."

Merchant actually winds up arguing that only some of the classical island constraints are PF ones. For example, he claims that relative clauses are **LF** islands, based on facts like

(169)   *They want to hire someone who speaks a Balkan language, but I don't know which (Balkan language) they do [~~VP want to hire someone who speaks~~ *t*]

The island is gone at PF, erased by VP Ellipsis, but the example is still seriously degraded. The Sluicing version, according to Merchant, only **appears** to be good.

(31)   They want to hire someone who speaks a Balkan language, but I don't know which (Balkan language) [~~IP they want to hire someone who speaks~~ *t*]

The Sluicing example is reanalyzed (along the lines of Baker and Brame (1972)) as involving a derivation with no island at all:

(32)   They want to hire someone who speaks a Balkan language, but I don't know which
         (Balkan language) [~~IP~~ ~~she should speak~~ *t*]

Lasnik (2001b) argues that these 'short' sources are not always available, and also shows that the
generalization is even more surprising than indicated by Merchant. First, we find the same
apparent failure of repair with Merchant's PF islands:

(33) *Sally asked if somebody was going to fail Syntax One, but I can't remember who she did
     [~~ask if *t* was going to fail Syntax One~~]   [if-trace]
cf.
(34) Sally asked if somebody was going to fail Syntax One, but I can't remember who [~~she did~~
      ~~ask if *t* was going to fail Syntax One~~]

Further, parallel 'failure of repair' obtains even when there was no violation in the first place.
Extraction out of an embedded clause is typically fine and Sluicing is just as good, but VPE is
bad again:

(35)   They said they heard about a Balkan language, but I don't know which Balkan language
          they said they heard about
(36)   They said they heard about a Balkan language, but I don't know which Balkan language
(37)   *They said they heard about a Balkan language, but I don't know which Balkan language
          they did

Similarly for extraction out of an object NP:

(38)   They heard a lecture about a Balkan language, but I don't know which Balkan language
          they heard a lecture about
(39)   They heard a lecture about a Balkan language, but I don't know which Balkan language
(40)   *They heard a lecture about a Balkan language, but I don't know which Balkan language
          they did

Even short movement of a direct object shows rather similar behavior:

(41)   They studied a Balkan language but I don't know which Balkan language they studied
(42)   They studied a Balkan language but I don't know which Balkan language
(43)   ??They studied a Balkan language but I don't know which Balkan language they did

Fox and Lasnik (2003) propose that we actually are dealing with island effects here, but islands
in a much more general sense, roughly that of Chomsky (1986), where all XPs are potential
movement barriers. For the ill-formed VPE cases above, which contrasted with the Sluicing
examples, the fact that VPE deletes a smaller portion of the structure than Sluicing (IP ellipsis)
then could be relevant.

        But first, a prior question: Why can an indefinite antecede a WH-trace? An old idea: a
WH expression combines an interrogative and an indefinite. (See, among many other references,
Stockwell et al. (1973, p.606). The 'trace' is the indefinite.

(44) Fred said that Mary talked to a certain girl, but I don't know which girl <~~Fred said that Mary talked to t~~>

Suppose, following Chung et al. (1995), that the indefinite must be bound by existential closure in a way that is parallel to the _wh_-dependency in the sluiced clause. And suppose (contra Merchant (2001)), that formal parallelism is required for ellipsis. This is satisfied since the variables in the antecedent and the elided clause are bound by parallel operators and from parallel positions. Now notice that in the structure shown, there are no intermediate traces in the elided portion (in angle brackets), indicating that there were no intermediate landing sites in the movement. If there had been successive movement, under not unreasonable assumptions the relevant portions of the antecedent and the ellipsis site would not be parallel, and this would prevent ellipsis. This seems to be problematic under the assumption that successive cyclic movement is required by considerations of locality. But as discussed earlier, considerations of locality are nullified under deletion (island repair, as in the proposal of Chomsky (1972) or Lasnik (2001a)).

But why is there no 'repair' with VPE? VPE involves deletion of a smaller constituent than the clause that is elided in sluicing (VP vs. TP):

(45) which girl [$_{TP}$ he T [$_{AspP}$ did $<_{VP}$ ~~say that I talked to g(girl)~~>]]
(46) *Fred said that Mary talked to a certain girl, but I don't know which girl he did

The unacceptability of VPE follows if we assume that one of the two remaining maximal projections, possibly AspP or TP, is an 'island' that must be circumvented by adjunction or repaired by deletion. Since the island is not deleted, the escape hatch is required, and a violation of Parallelism is unavoidable.

Since this account of the contrast between VPE and sluicing relies crucially on the fact that there is movement in the elided constituent but not in the antecedent constituent, a prediction is that if the antecedent clause is replaced with a clause that involves movement, both VPE and sluicing would be possible.

(47)a I know which book John said that Mary read, but YOU don't know which one
   b ?I know which book John said that Mary read, but YOU don't know which one he did.

Compare:
(48)a I know that John said that Mary read a certain book, but I don't know which one.
   b *I know that John said that Mary read a certain book, but I don't know which one he did.

Judgments are subtle but seem to go in the predicted direction. To the extent that this is so, it reinforces the idea that parallelism is implicated in at least certain instances of ellipsis, hence provides another argument for internal structure in the ellipsis site.

The final question of C&J I will mention is the hardest: Why should it matter whether the offending syntactic configuration is overt or invisible? I don't have a full answer at this point, but I think an idea of Fox and Pesetsky (2005) is quite promising. Fox and Pesetsky propose that successive cyclicity, in particular movement to the left edge for escape, is forced by cyclic

linearization of syntactic structure. At the end of each cycle, all linear relations are determined. If on a later cycle, any of these relations are contradicted, phonological realization fails. Most overly long movements will cause such failure. However, if deletion eliminates all linear order statement conflicts, nothing stands in the way of phonological realization - thus, the phenomenon of repair by ellipsis. I hope to be able to work out more of the details of this in the next few months.

<div align="center">References</div>

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