# Revisiting syntactic identity conditions

Jason Merchant
University of Chicago
merchant@uchicago.edu

1 The question: Over what kind of linguistic representation are the identity conditions on ellipsis stated?

(1)   1. syntactic (generally LF)
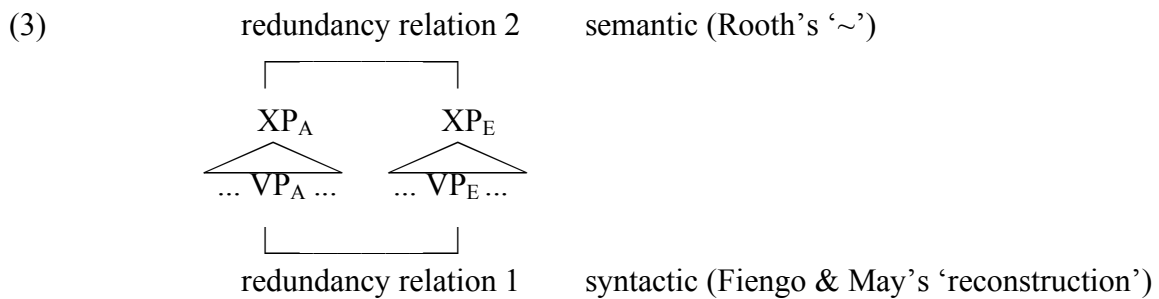   2. semantic (truth conditions)
         3. something in between?

Comparing representations
Granularity:
(2)   Fine $\longleftarrow$ ————————————————— $\longrightarrow$ Coarse

        LFs $\uparrow$ Truth conditions
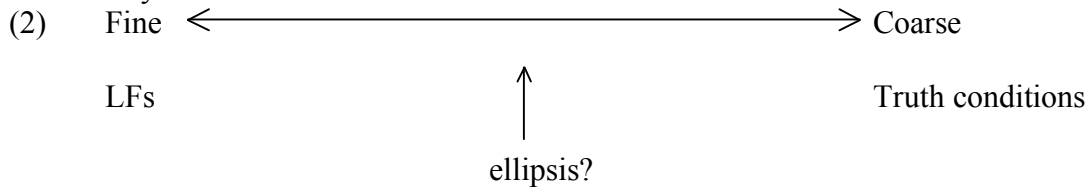
                              ellipsis?

2 LF syntactic identity

Sag 1976, Rooth 1992, Fiengo and May 1994:

(3)   redundancy relation 2   semantic (Rooth's '~')

                     XP_A XP_E
                  ... VP_A ...   ... VP_E ...

                     redundancy relation 1   syntactic (Fiengo & May's 'reconstruction')

(4)   Rooth's hypothesis:

        "ellipsis should be possible exactly in configurations where
        a.   a verb phrase can be **syntactically reconstructed**, and
        b.   some phrase identical with or dominating the reconstructed phrase can be
                related by the ~ relation to some phrase identical with or dominating the
                reconstruction antecedent ... ." Rooth 1992:18

        $XP_A \sim XP_E$, in Rooth's terms.

- Why a notion of 'deletion is okay as long as it's recoverable/redundant' (even as cashed out in (4b)) is not enough:

DEACCENTING ≠ DELETION

(5) a. Abby was reading the book while BEN *was reading*.
     b. Abby left the party because BEN *left*.
     c. Abby sang her hymn louder than BEN *sang*.

'Implicational bridging'
(6) a. Abby called Chuck an idiot after BEN *insulted him*.
     b. Abby left the party because BEN *took off*.

(7) $[\![$ Abby was reading the book $]\!]^o \to [\![$ Abby was reading $]\!]^o$ and
     $[\![$ Abby was reading $]\!]^o \in [\![$ BEN$_F$ was reading $]\!]^f$

(8) *Abby was reading the book* entails $\exists x.x$ **was reading**

(9) a. Abby was reading the book while BEN was.
     b. Abby left the party because BEN did.
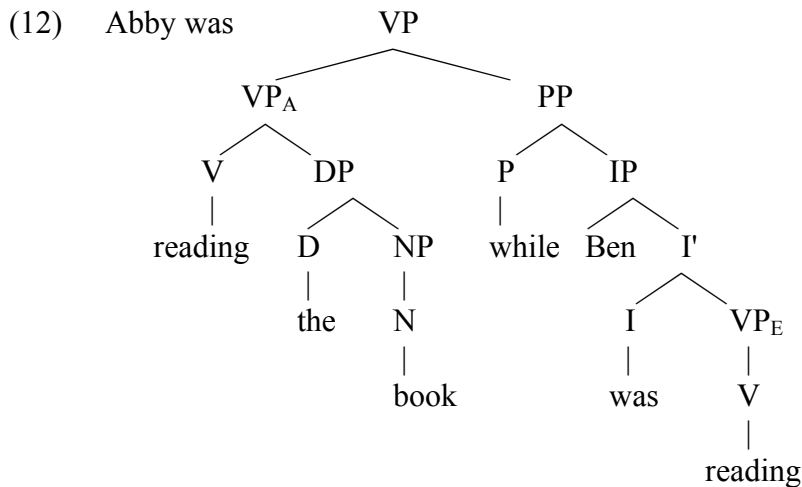   c. Abby sang her hymn louder than BEN did.
(10) a. Abby called Chuck an idiot after BEN did.
     b. Abby left the party because BEN did.

(11) **Isomorphism condition on ellipsis** (modeled on Fiengo & May 1994)
     Let E be a(n LF) phrase marker.
     Then, E can be deleted only if there is a(n LF) phrase marker A, A distinct from E, such that A = E.

2.1 Pros of LF isomorphism

(12) Abby was

In (12), $N(VP_A) = \{VP, V, DP, D, NP, N\}$ but $N(VP_E) = \{VP, V\}$. Since $N(VP_A) \neq N(VP_E)$, deletion is not allowed, by the condition (11).

2.2   Cons of LF isomorphism

2.2.1   'Vehicle change' (and Ross's 'sloppy identity')

Vehicle change = The equivalence between (potentially complex) R-expressions and pronouns under ellipsis as in (13). (Fiengo & May 1994, Dalrymple 1992)

(13)   a.   They arrested Alex$_3$, though he$_3$ thought they wouldn't.
        b.   They arrested [the guy who lives over the garage]$_3$, though he$_3$ thought
                  they wouldn't.
(14)   They arrested Alex$_3$, though he$_3$ didn't know why.

Principle C violation:
(15)   a.   *He$_3$ thought they wouldn't arrest [the guy who lives over the garage]$_3$.
        b.   *He$_3$ thought they wouldn't arrest Alex$_3$.
        c.   *He$_3$ didn't know why they arrested Alex$_3$.

- *Vehicle change* is the name of a **problem**, not of a **solution**.

(16)   I craned my neck after you did <crane your neck>.

2.2.2   Deleted infinitives

(17)   Decorating for the holidays is easy if you know how!
        a.   ≠ * ... how [decorating for the holidays]
        b.   = ... how [to decorate for the holidays]
(18)   a.   I'll fix the car if you tell me how.
        b.   ≠ ... how [I'll fix the car]
        c.   = ... how [to fix the car]
(19)   a.   "I can't play quarterback: I don't even know how."
                          [Bart, *The Simpsons*, 'Homer coaches football' episode]
        b.   Close the window! Do I have to tell you how?
        c.   Eat (something), if you can figure out what!

2.2.3   'Modality' switches

(20)   I remember meeting him, but I don't remember when [I met him].
(21)   Ich hätte   ja   gern jemandem geholfen, wußte aber nicht, wem. < Klein 1993
        I   have.SUBJ PRT PRT someone   helped   knew.1s but   not   who
        'I would've gladly helped someone, but I didn't know who.'
        a.   ≠ ... wem ich (ja   gern) geholfen hätte.
                       who I   PRT PRT helped   have.SUBJ

b.   ≠ ... * wem [zu helfen]
              who   to help

c.   = ... wem [ich helfen sollte]
              who   I   help   should

(22) Bill mentioned his plans to do away with someone, but he didn't mention who [~~he has plans to do away with~~]. < Ross 1969:275

(23) John seems to be happy and I can guess why [~~John is happy~~]. < Horn 1978:165

2.2.4   *Contrast sluices*

(24)   a.   She has five CATS, but I don't know how many DOGS.
      b.   There are nine women in the play, but I don't know how many men.
      c.   We know which streets are being re-paved, but not which avenues.
      d.   I know how many women are in the play, but I don't know how many men.

(25) She has [five CATS]$_F$, but I don't know how many DOGS [$_{IP}$ ~~she has t~~].

2.2.5   *Malagasy sluicing (Potsdam to appear)*

(26)   nandoko zavatra i Bao fa   adinoko   hoe
      paint.ACT thing   Bao   but forget.PASS.1s COMP
      inona <Op_i no   nolokoin' i Bao t_i
      what   PRT paint.PASS Bao
      'Bao painted something but I forget what was painted by Bao.'
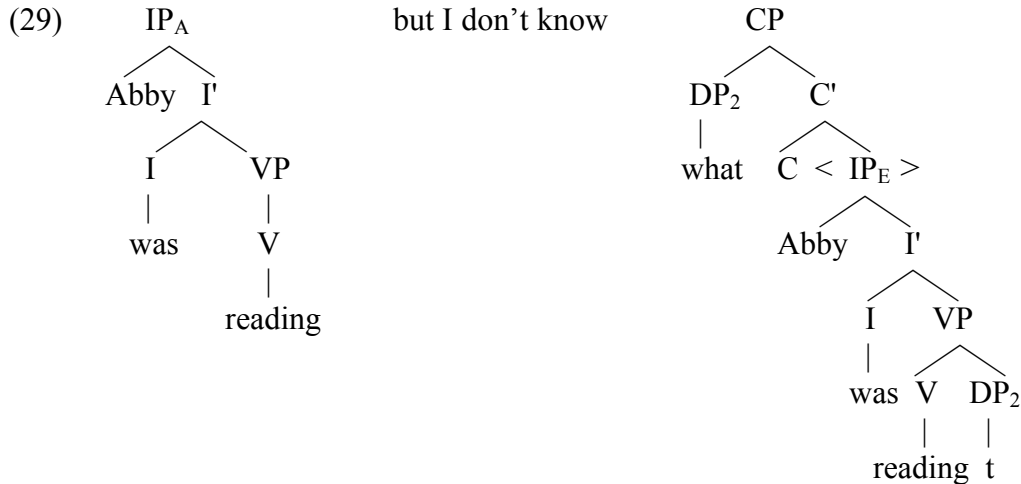
2.2.6   *Implicit correlates*

> Ross 1969, Levin 1982, Lobeck 1995, Ginzburg 1992, Chung Ladusaw and McCloskey 1995, Romero 1997

With an overt correlate (underlined)
(27)   a.   Jack bought <u>something</u>, but I don't know what.
      b.   <u>A few people</u> called, but I can't tell you how many exactly.
      c.   <u>Beth</u> was there, but you'll never guess who else.

With an implicit correlate
(28)   a.   Abby was reading, but I don't know what.
      b.   Ben called — guess when!
      c.   Jack called, but I don't know {when/how/why/where from}.
      d.   Sally's out hunting — guess what!
      e.   A car is parked on the lawn — find out whose.

(29) IP$_A$ but I don't know   CP

Abby I'   DP$_2$ C'
                             |
   I   VP   what   C < IP$_E$ >
   | |
  was   V   Abby   I'
          |
       reading   I   VP
                                       |
                                      was V   DP$_2$
                                            | |
                                         reading t

N(IP$_A$) (= {IP, DP, I', I, VP, V}) ≠ N(IP$_E$) (= { IP, DP, I', VP, V, DP}).

3 Semantic identity

(30) **e(lliptical)-GIVENness**
An expression E counts as e-GIVEN iff E has a salient antecedent A and, modulo ∃-type shifting,
i.   A entails F-clo(E), and
ii.   E entails F-clo(A)

('FAME', Focus-assisted mutual entailment, as dubbed by Elbourne 2005)

(31) **Focus condition on ellipsis**
An XP α can be deleted only if α is e-GIVEN.

3.1   Pros of semantic identity

3.1.1   'Vehicle change'

(32)   a.   They arrested Alex$_3$, though he$_3$ thought they wouldn't.
       b.   They arrested [the guy who lives over the garage]$_3$, though he$_3$ thought they wouldn't.
(33)   They arrested Alex$_3$, though he$_3$ didn't know why.

R-expressions in antecedents can license the deletion of pronouns in ellipsis sites.

(34)   a.   <[$_{VP}$ arrest [him]$_3$]>
       b.   <[$_{IP}$ they arrested [him]$_3$]>

(35)   a.   F-clo(VP$_A$) = they arrested alex
       b.   ∃-clo(IP$_E$) = they arrested x$_3$ (where g(x$_3$) = alex)

(36)   I λx.craned x's neck after you did <λy.crane y's neck>.

3.1.2   Deleted infinitives

(37)   [$_{DP}$ [$_{VP}$ Decorating for the holidays]] is easy if you know how [$_{IP}$ ~~to decorate for the holidays~~]!
(38)   a.   F-clo(VP$_A$) = pro_{arb} decorates for the holidays
        b.   ∃-clo(IP$_E$) = pro_{arb} decorates for the holidays

3.1.3   'Modality' switches

(39)   I$_1$ remember [$_{DP}$ [$_{VP}$ PRO$_1$ meeting him]], but I don't remember when [~~I met him~~].
(40)   a.   F-clo(VP$_A$) = x_1 meet him   (where here g(x_1)=speaker)
        b.   ∃-clo(IP$_E$) = I met him

3.1.4   Contrast sluices

(41)   She has [five CATS]$_F$, but I don't know how many DOGS [$_{IP}$ ~~she has t~~].

(42)   a.   ∃-clo(IP$_E$) = ∃x.she has x
        b.   F-clo(IP$_A$) = ∃x.she has x

3.1.5   Malagasy sluicing (Potsdam to appear)

(43)   nandoko zavatra i Bao fa   adinoko   hoe
        paint.ACT thing   Bao   but forget.PASS.1s COMP
        inona <Op$_i$ no   nolokoin' i Bao t$_i$
        what   PRT paint.PASS Bao
        'Bao painted something but I forget what <was painted by Bao>.'
(44)   a.   ∃-clo(IP$_E$) = ∃x.x was painted by Bao
        b.   F-clo(IP$_A$) = ∃x.Bao painted x

3.1.6   Implicit arguments

(45)   Abby was reading, but I don't know what [~~Abby was reading t$_{what}$~~].
(46)   a.   F-clo(IP$_A$) = ∃x.Abby was reading x
        b.   ∃-clo(IP$_E$) = ∃x.Abby was reading x

3.2   Cons of semantic identity

3.2.1   Non mutually entailed adjuncts (or, Daddy, is there always a reason why?)

(47) Chung 2005:
        a.   He finished the project, but we don't know with whose help.
        b.   *He finished the project, but we don't know whose help.
(48)   A: 1 is an integer.   B: Why?

3.2.2 Argument structure alternations

(49) a. * She served the soup, but I don't know who(m).   (< Chung et al. 1995)
       b. (cf. She served the soup, but I don't know to whom.)
       c. She served the students, but I don't know what.

(50) a. *serve₁*: server < <u>meal</u> (diner) >   (Levin and Rappaport 1988)
                           DP   PP*to*
       b. *serve₂*: server < <u>diner</u> (meal) >
                           DP   DP

(51) a. I served₁ the food, but there were no guests.
       b. # I served₂ the guests, but there was no food.
(52) a. * She served₁ the meal, but I don't know WHO *she served₁ it to*.
       b. (cf. She served₁ the meal, but I don't know who *she served₁ it TO*.)
(53) a. IP$_A$ = she served the meal
       b. F-clo(IP$_E$) = ∃x[she served the meal to x]

(54) * She served₁ the meal, but I don't know WHO$_i$ ~~she served₂ t$_i$ the meal~~.
       (cf. She served₂ someone the meal, but I don't know who$_i$ ~~she served₂ t$_i$ the meal~~.)
(55) a. IP$_A$ = she served the meal
       b. F-clo(IP$_E$) = ∃x[she served x the meal]

Works for verbs like *serve, throw* (which entail only two arguments), but not for verbs like *send, give, bring* (which entail three; Levin 2004):

(56) They sent the package--find out who to!
       *They sent the package--find out who!

Greek causative~inchoatives:
(57) a. Eklisan   ena   dhromo.
           closed.3p a.ACC road.ACC
           'They closed a road.'
       b. Enas   dhromos   eklise.
           a.NOM road.NOM closed.3s
           'A road closed.'
(58) a. Eklisan   ena   dhromo, alla dhen ksero pjon   <eklisan>.
           closed.3p a.ACC road.ACC but not I.know which.ACC closed.3p
           'They closed a road, but I don't know which.'
       b. *Eklisan   ena   dhromo, alla dhen ksero   pjos   <eklise>.
            closed.3p a.ACC road.ACC but not I.know which.NOM   closed3s
           ('They closed a road, but I don't know which.')

3.2.3 Voice mismatches under sluicing

(59) *Joe was murdered, but we don't know who <murdered Joe>.

(60) *Someone murdered Joe, but we don't know who by <Joe was murdered>.

- These (or rather, (60) and the equivalents to (59) in a language with a distinct morphological case on subject wh-pronominals like German or Greek: *Joe wurde ermordert, aber wir wissen nicht, wer <ihn ermorderte>)) also weigh against using Fox 1999's accommodation account: the correlateless preposition *by* would be the accommodation-seeking material, triggering a new array of LF antecendents that could accommodate it, including a passive one.

3.2.4 Chung 2005's implicit P-marked arguments

(61) CHUNG'S GENERALIZATION:
      P-stranding inside an ellipsis site is possible only if P has a correlate

(62) a. Bill is upset. Guess about what <he's upset>.
      b. Bill is upset. *Guess what <he's upset about>.
      c. Bill is upset about something. Guess what <he's upset about>.

(63) a. John was seen, but I don't know by whom <he was seen t>.
      b. *John was seen, but I don't know who <he was seen by t>.

(64) a. They're jealous, but it's unclear of who.
      b. Joe was murdered, but we don't know by who.
      c. Last night he was very afraid, but he couldn't tell us of what.
      d. Mary was flirting, but they wouldn't say with who.
      e. We're donating our car, but it's unclear to which organization.

(65) a. *They're jealous, but it's unclear who(m).
      b. *Joe was murdered, but we don't know who(m).
      c. *Last night he was very afraid, but he couldn't tell us what.
      d. *Mary was flirting, but they wouldn't say who(m).
      e. *We're donating our car, but it's unclear which organization.

Do all these follow from something *outside* the brief of the theory of ellipsis? Do such switches violate more general, presumably discourse level, coherence requirements? As always, it is vital to compare the nonelliptical, *deaccented* variants of all cases.

(66) NON MUTUALLY ENTAILED ADJUNCTS
      ( ) He finished the project, but we don't know whose HELP *he finished it with*.

(67) ARGUMENT STRUCTURE ALTERNATIONS
      ( ) They sent the package--find out WHO *they sent it to*!

(68) ( ) Joe was murdered, but we don't know WHO *murdered Joe*.

(69) ( ) Someone murdered Joe, but we don't know WHO *Joe was murdered by*.

(70)   ( ) Mary was flirting, but they wouldn't say with WHO *she was flirting with*.
(71)   ( ) Eklisan   ena   dhromo, alla dhen ksero PJOS   *eklise*.
            closed.3p a.ACC road.ACC but not I.know which.NOM closed3s
            ('They closed a road, but I don't know which.')

4   Semantic+some syntactic identity

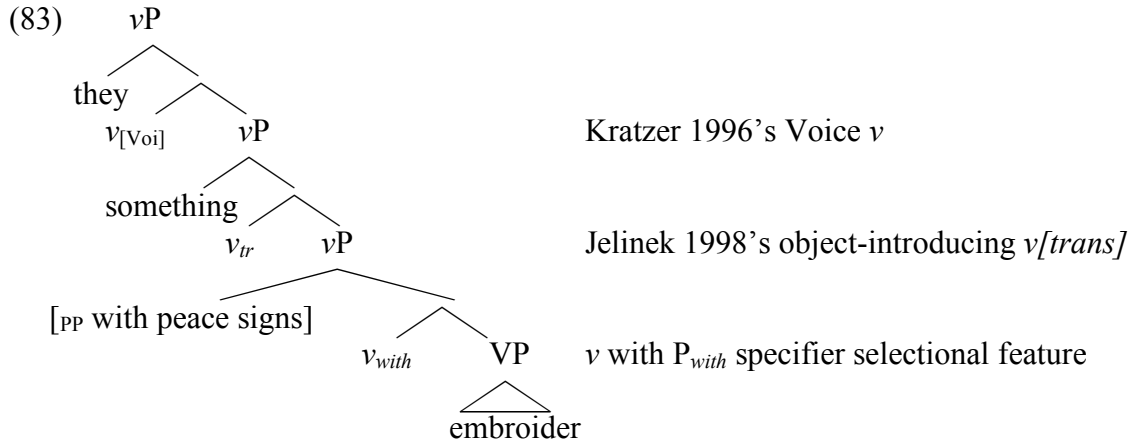Chung 2005's lexico-syntactic requirement (applied in addition to e-givenness):
(72)   **No new words**
        Every lexical item in the numeration of the sluice that ends up (only) in the elided
        IP must be identical to an item in the numeration of the antecedent CP.

(73)   Mary was flirting, but they wouldn't say [with who <[TP Mary was flirting __]>].
(74)   *Mary was flirting, but they wouldn't say [who <[Mary was flirting **with** __]>].

(75)   a.   They're jealous, but it's unclear [of who <they're jealous __>].
        b.   *They're jealous, but it's unclear [who <they're jealous **of** __>].
(76)   a.   John was seen, but I don't know by whom <he was seen __>.
        b.   *John was seen, but I don't know who <he was seen **by** __>.
(77)   a.   They sent the package--find out who to <they sent the package __>!
        b.   *They sent the package--find out who <they sent the package **to** __>!

Not just stranded prepositions: object alternations that involve two different obliques
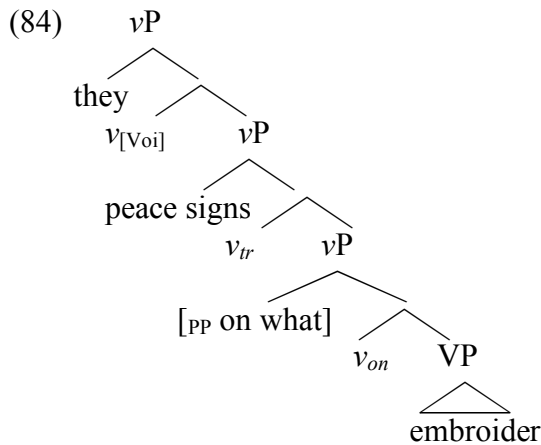(Levin 2003) are equally out:

(78)   a.   They embroidered something with peace signs.
        b.   They embroidered peace signs on something.
(79)   a.   *They embroidered something with peace signs, but I don't know
                what on <they embroidered peace signs __>.
        b.   *They embroidered something on their jackets, but I don't know
                with what <they embroidered their jackets __>.
                (On image impression reading of *with what*, not manner reading.)

(80)   a.   Fortosan   kapja fruta s'ena fortigo.   [Greek]
                loaded.3p some fruits on.a   truck
                'They loaded some fruits on a truck.'
        b.   Fortosan   ena fortigo me   kapja fruta.
                loaded.3p a   truck   with some fruits
                'They loaded a truck with some fruits.'
(81)   a.   *Fortosan   kapja fruta s'ena fortigo, alla dhen ksero   me   pja.
                loaded.3p some fruits on.a   truck   but not   I.know with which
                ('They loaded some fruits on a truck, but I don't know with which.')
        b.   *Fortosan   ena fortigo me   kapja fruta, alla dhen ksero se pjo.
                loaded.3p a   truck   with some fruits but not   I.know on which
                ('They loaded a truck with some fruits, but I don't know on which.')

The lack of voice and argument structure alternations (whether or not they involve stranded prepositions) follows if all such alternations reflect distinct heads in the numeration (Hale and Keyser 1993, 2002, et multi alii ante postque):

(82) *They embroidered something with peace signs, but I don't know
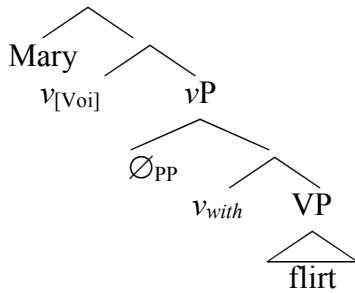   what on <they embroidered peace signs __>.

(83) vP

      they

      $v_{[Voi]}$ vP   Kratzer 1996's Voice v

             something

             v_{tr} vP   Jelinek 1998's object-introducing v[trans]

      [$_{PP}$ with peace signs]

             v_{with} VP v with P$_{with}$ specifier selectional feature

                    embroider

      (Levin 2003: *embroider* has a simple event structure: [x ACT$_{<MANNER>}$],
      She embroidered her way into the record books.)

(84) vP

      they

      $v_{[Voi]}$ vP

             peace signs

             v_{tr} vP

      [$_{PP}$ on what]

             v_{on} VP

                    embroider

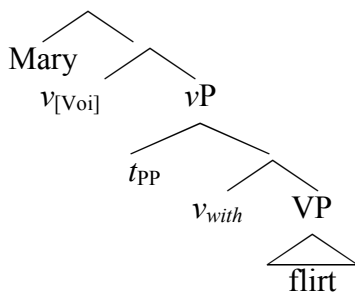(85) *Joe was v_{pass} murdered, but we don't know who < $\boldsymbol{v_{act}}$ murdered Joe>.
(86) *Someone v_{act} murdered Joe, but we don't know who by <Joe **was $\boldsymbol{v_{pass}}$**
      murdered>. (also auxiliary *was* violates Chung's condition).
(87) a.   Eklisan   ena   dhromo, alla dhen ksero pjon   <eklisan __>.
            closed.3p a.ACC road.ACC but not I.know which.ACC closed.3p
            'They closed a road, but I don't know which.'
      b.   *v_{caus} eklisan   ena   dhromo, alla dhen ksero   pjos < $\boldsymbol{v_{inch}}$ eklise>.
                 closed.3p a.ACC road.ACC but not I.know which.NOM   closed3s
            'They closed a road, but I don't know which.'

(88)   Mary was flirting, but they wouldn't say [with who <[$_{TP}$ Mary was flirting __]>].
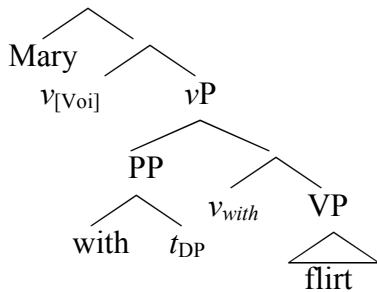(89)   *Mary was flirting, but they wouldn't say [who <[Mary was flirting **with** __]>].

(90) vP   (Mary was flirting)

Mary
  $v_{[Voi]}$ vP

       ∅$_{PP}$
           v_{with} VP

                flirt

(91) vP   (... with who <Mary was flirting __>)

Mary
  $v_{[Voi]}$ vP

      t_{PP}
          v_{with} VP

              flirt

(92) vP   (*... who <Mary was flirting [with__]>)

Mary
  $v_{[Voi]}$ vP

      PP
           v_{with} VP
   with t_{DP}
             flirt

Still not quite strong enough?: Wacky cases (discussed by Chung)
(93)   The$_1$ butler$_2$ claimed$_3$ to$_4$ the chef that$_5$ he$_6$ served$_7$ the$_8$ soup$_9$, but I'm not sure [which guests [the$_1$ butler$_2$ claimed$_3$ that$_5$ he$_6$ served$_7$ the$_8$ soup$_9$ to$_4$ __]].
(94)   *The butler claimed to the chef that he served the soup, but I'm not sure which guests.

"suppose the numeration of a sentence (or of some phase of a sentence) could be viewed as a highly structured collection of lexical items that must be combined deterministically, in exactly one way." (Chung 2005:16)

(95)   Joe said something or other to Zelda, but I don't know [what [Joe said __ to Zelda or Zelda said __ to Joe]]. ⊬
(96)   Joe said something or other to Zelda, but I don't know what.

- The examples in (94) and (96) can be ruled out by Chung's condition simpliciter if e.g., *claim that* and *claim to X that* involve different *v*s (introducing the different argument structures), and if sentential *or* (<t, t>) is a different lexical item from nominal *or* (type <ett, ett>), etc. (Or 'phase-based ellipsis evaluation', as proposed by Takahashi and Fox 2004.)

But we still need mutual entailment (or something else) in addition to 'No new words':
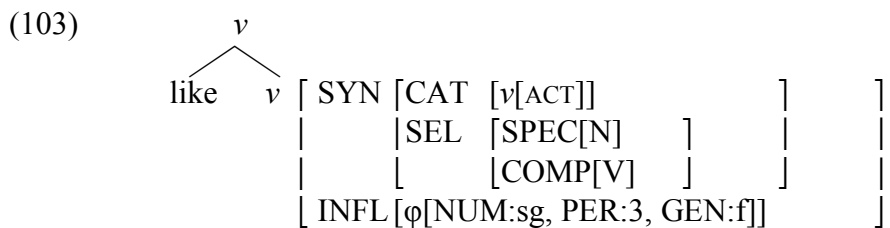(97)   *Joe hates Felicia, but I don't know why <Felicia hates Joe>.

4.1   Revisiting the other problems with a more refined syntax

Not at issue: *Surface* identity. Inflectional features (vs. categorial or selectional) are irrelevant. Different language antecedents:

(98)   a.   A: Tha pas?   [Greek]
                     FUT go.2s
                     'Will you go?'
        b.   B: Yes, I will <go>.
(99)   Ich habe ihr   einen Brief   geschrieben, and you did <write her a letter>, too.
        I   have her.DAT a.ACC letter.ACC written
        'I wrote a letter to her...'
(100)   a.   A: Tha ise   eki?   [Greek]
                     FUT be.2s there
                     'Will you be there?'
        b.   B: I will <be there>.
(101)   a.   A: Kannst du mir helfen?   [German]
                     can   you me.DAT help
                     'Can you help me?'
        b.   B: Sure I can <help you>.

(102)   Anastasia likes okra, and her mother does <like okra>, too.

- Noninflectional features grouped in a feature structure to the exclusion of inflectional features (the latter relevant for PF/Morphological Structure); 'LF' identity actually identity of SYN feature structures.

(103)   *v*

           like   *v* [SYN [CAT [*v*[ACT]]   ]   ]
                           | |SEL   [SPEC[N]   ] | |
                           | [[COMP[V]   ]   ] |
                           [INFL [φ[NUM:sg, PER:3, GEN:f]]   ]

Recall Johnson 2001's tack to Hardt 1993's data:

(104) a.   John is a great laugher -- when he does <laugh>, it's infectious.
      b.   [NP -er [VP laugh]]

- Basic idea: Despite surface appearances, at the level relevant to syntactic identity, the relevant feature structures are identical:
- THE JOHNSON STRATEGY: Use a more articulated syntax to prise apart the mismatches, locating the mismatching material (or its morphological trigger) *outside* the ellipsis site.

(105) Bill mentioned his plans to do away with someone, but he didn't mention who [he plans to do away with]. < Ross 1969:275
      [DP he[GEN] D[POSS] [NP *n* [vP *the* plan to do away with someone]]]

4.1.1   Deleted infinitives

(106) [DP D [xP x [vP PRO decorate for the holidays]] is easy if you know how [PRO to decorate for the holidays]!

(107) a.   D[CAT[D; FIN[*gerund*]]...]
      b.   *x*[INFL[FIN[__]]]
(108) Agree(D, *x*; FIN) turns *x*[INFL[FIN[__]]]
      into *x*[INFL[FIN[*gerund*]]] (realized as -*ing* form by the morphology)

(109) **Agree**(X,Y;F) (read: 'X triggers agreement on Y in F' or 'Y agrees with X in F')
      For any syntactic objects X and Y, where X bears a categorial feature F with
      value Val(F) and Y bears a matching unvalued inflectional feature F´: , and either
      X c-commands Y or Y c-commands X,
              let Val(F´) = Val(F) and
              if F is uninterpretable, let F = F̶

(110) how C[FIN[*nonfinite*]] <PRO T[FIN[__]] decorate for the holidays>.

4.1.2   'Modality' switches

(111) I₁ remember [DP [vP PRO₁ meeting him]], but I don't remember when [I met him].
      - See von Stechow 2003

4.1.3   Contrast sluices

(112) She has [five CATS]F, but I don't know how many DOGS [IP she has t].
(113) [five CATS]λt.she has t

- Focus scoping gets the locality effects (e.g., islands) in contrast sluices as well

4.1.4 Malagasy sluicing (Potsdam to appear)

(114) nandoko zavatra i Bao fa adinoko   hoe
       paint.ACT thing   Bao   but forget.PASS.1s COMP
       inona <Op_i no   nolokoin' i Bao t_i
       what   PRT paint.PASS Bao

- Chung 2005, Pearson 2005: 'voice' in Malagasy is really more on a par with wh-agreement in e.g. Chamorro (an inflectional morphological realization triggered by a particular syntactic configuration)

4.1.5 'Vehicle change'

Negative Polarity Items (NPIs) in ellipsis (Klima 1964, Ross 1967, Sag 1976)

(115) John didn't see anyone, but Mary did.
(116) *John didn't see anyone, but Mary saw anyone.
(117) John didn't see anyone, but Mary saw someone.

With minimizers, we have access to the literal (or nonidiomatic) meaning, just as with idioms.
(118) John didn't sleep a wink, but Mary did. (=sleep at least a minimal amount)
(119) John wouldn't budge an inch, but Mary did. (= move at least a minimal amount)
(120) John didn't lift a finger that day, but Mary did. (=do at least a minimal amount)
(121) John didn't say a word, but Mary did. In fact, she said a lot of words/them!
(122) A: John spilled the beans. B: Really? Was he able to find them all again?

In certain ('echoic'?) contexts, minimizers differ from NPIs like 'anyone', 'at all':
(123) Q: Did John lift a finger?
       A: Yes, he lifted a finger. (='he did at least a minimal amount')
          In fact, he helped a lot.
(124) Q: Did you eat {anything/ at all} this morning?
       A: *Yes, I ate {anything/ at all} this morning.

So the nature of the 'problem' with minimizers in ellipsis contexts is different: its solution is the solution we give to the well-formedness of dialogues like (123).

(125) John didn't sleep a wink, but Mary did <sleep a wink>.

Reviving Klima's *some~any* rule (and Ross's feature-changing constraints)

(126) a(ny) [uPol:__]
(127) Can be valued in situ by Agree(Licenser, *NPI*)

Sloppy identity in pronouns is insensitive to φ features:

(128) You think you're going to win, but so does [everybody else in the race]$_2$ <think they$_2$'re going to win>.

(129) Only I did my homework.
       SS: [Only I$_5$]$_8$ did my$_8$ homework.
       LF: [$_{DP}$ only I$_5$] λ8 t$_8$ did 8^{1st}'s homework

(130) Feature transmission under variable binding
       Transmit features of a moved phrase to all variables it binds. (a Heim handout, cited by von Stechow 2003)
(131) Feature deletion under semantic binding Delete the features to all variables that are semantically bound. (LF) (von Stechow 2003)

(132) a.   They arrested Alex$_3$, though he$_3$ thought they wouldn't.
       b.   They arrested [the guy who lives over the garage]$_3$, though he$_3$ thought they wouldn't.
(133) They arrested Alex$_3$, though he$_3$ didn't know why.
(134) a.   They arrested the guy Alex$_3$ hired, though he$_3$ thought they wouldn't.
       b.   They arrested [the guy Alex$_3$ hired]$_2$, though he$_3$ thought they wouldn't arrest {*the guy Alex$_3$ hired / him$_2$}.

   • [±p, ±a] are inflectional features? Valued by what? (Cf. Aoun and Nunes 2002)

Elbourne 2001
(135) Mary talked to no senator before the senator was lobbied.
(136) [$_{DP}$ D[THE, R] [$_{NP}$ senator]]   ↝   the senator
(137) [$_{DP}$ D[THE, R] <NP>]   ↝   him

Can this be extended to names? (i.e., if the variable is free) Are there bound uses of names? (Was Kripke wrong?)
(138) [$_{DP}$ D[THE, R] <[$_{NP}$?]>]   ↝   Alex

R-expressions in antecedents can license the deletion of pronouns in ellipsis sites.

(139) a.   <[$_{VP}$ arrest [him]$_3$]>
       b.   <[$_{IP}$ they arrested [him]$_3$]>

This way madness lies?
(140) a.   A: Kannst du mir helfen?   [German]
                   can   you me.DAT help
                   'Can you help me?'
       b.   B: Sure I can <help you>.

English has an inherent DAT assigning V/v like German? Or Case features are always inflectional (requiring a slight modification to the definition of Agree).

4.2 Argument for argument structure?

Is all this evidence for another level of representation relevant to (significant for) human linguistic competence?

- If the syntactic approach is wrong, what we want is a (kind of semantic) representation that can distinguish, for example, actives from passives and predicates with overt (internal) arguments from their congeners in which those arguments are implicit (or suppressed). This can't be the truth conditional level, since at that level, these differences are gone (otherwise the entailment patterns don't work).

Candidates:

(141) HPSG (Sag et al. 2003:314ff), argument structure:

      active   *send*   [ARG-ST <NP_i, NP_j, PP[to]>]

      passive   *sent*   [ARG-ST <NP_j, PP[to] (, PP[by]$_i$)>]

(142) LFG (Bresnan 2001:312), f-structure

      active   a-structure: *pound* < x   y >

                                    | |

                f-structure: SUBJ OBJ

      passive   a-structure: *pound* < x   y >

                                    ∅ |

                f-structure: SUBJ

(143) Lexical Conceptual Structure (Jackendoff 1990)

(144) Final Stratum relations (GRs) in Relational Grammar

4.3 Voice mismatches under ellipsis

4.3.1 English

- Impossible in sluicing

(145) *Joe was murdered, but we don't know who. <murdered Joe>

(146) *Someone murdered Joe, but we don't know who by. <Joe was murdered>

- Possible with VP-ellipsis

passive antecedent, active ellipsis (all from Kehler 2002:53)

(147) a.   This problem was to have been looked into, but obviously nobody did. <look into this problem>

       b.   In March, four fireworks manufacturers asked that the decision be reversed, and on Monday the ICC did. <reverse the decision>. (Dalrymple 1991, cited by Kehler)
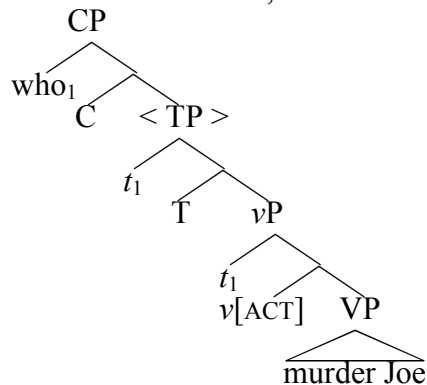
active antecedent, passive ellipsis

(148) a. Actually, I have implemented it [=a computer system] with a manager, but it doesn't have to be. <implemented with a manager>
 b. Steve asked me to send the set by courier through my company insured, and it was. <sent by courier through my company insured>
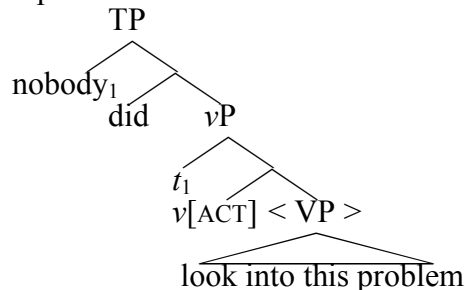 c. The janitor should remove the trash whenever it is apparent that it needs to be <removed>.

Different targets for deletion:
- in sluicing, a clausal node that necessarily includes Voice
- in VP-ellipsis, the verbal projection that is complement to Voice

(149) *Joe was murdered, but we don't know who.

```
            CP
         /      \
      who₁
          \
           C    < TP >
               /
             t₁
               \
                T    vP
                    /  \
                  t₁
                    \
                 v[ACT]   VP
                         /    \
                      murder Joe
```

(150) This problem was to have been looked into, but obviously nobody did.

```
               TP
            /      \
       nobody₁
             \
             did      vP
                     /
                   t₁
                     \
                 v[ACT]  < VP >
                         /     \
                   look into this problem
```

Internal argument alternations are not possible, even under VP-ellipsis:

(151) *She embroiders peace signs on jackets more often than she does <embroider jackets> with swastikas.
(152) a. *Abby flirted more often in general than Beth did <flirt with> Max.
 b. ?Abby flirted with Ben more often than she did <flirt with> Ryan.
(153) a. *He'd give Yale money more readily to Yale than he would <give money> to charity.
 b. ?He'd give money more readily to Yale than he would <give money to> charity.
(154) *This can freeze. Please do. (Johnson 2004:7) (v_{unacc} is under $v_{[VOI]}$: allows us to capture Perlmutter's generalization, which is mysterious if unaccs are just VPs)

(155)   The wind blew the door open and no one closed it.
        Finally, *Maribel did [$_{vP}$ v [$_{VP}$ <[$_{VP}$ close it]> again]].

4.3.2   In v-raising (and v-stranding) languages

Goldberg 2005, McCloskey 1991

- Hebrew
(156) Q: Tazmini   et   Dvora la-mesiba?
               invite. FUT.2fs ACC   Dvora to.the-party
               'Will you invite Dvora to the party?'
       A: Kvar   hizmanti.
               already invite.PAST.1s
               'I already did. (lit. I already invited.)'

       Q: Binyamin LAKAX   et   Ruti la-makolet?
               Binyamin take[Past3Msg] ACC Ruti to.the-grocery.store
               '(Did) Binyamin TAKE Ruti to the grocery store?'
       A: *Lo, hu ŠALAX.
                no he send[Past3Msg]
               ('No, he SENT [Ruti to the grocery store].')

Binyan Hif'il (Causative) vs. Pa'al (Plain), Root NUN-SAMEX-AYIN (נסע)
       Q: Hisa'ta etmol et Li'ora le-Tel Aviv?
               drive[Past2Msg] yesterday ACC Liora to-Tel Aviv
               '(Did) you drive yesterday Liora to Tel Aviv?'
       A: *Ken, hi nas'a.
               yes she travel[Past3Fsg]
               ('Yes, she traveled [to Tel Aviv yesterday].')

Binyan Pu'al (Passive of Intensive) vs. Pi'el (Intensive), Root XET-BET-KUF
       Q: Aviva xubka al-yedey Yicxak?
               Aviva be.embraced[Past3Fsg] by Yitzchak
               'Was Aviva hugged by Yitzchak?'
       A: *Ken, hu xibek.
               yes he embrace[Past3Msg]
               ('Yes, he hugged [her].')

(157) GOLDBERG'S GENERALIZATION: Inflectional, but not derivational/root
        morphology, may vary on heads of VP-ellipsis targets in V-raising languages.

- Likewise for light verb (LV) stranding under VP-ellipsis in Farsi (Toosarvandani 2005, p.c.):

(158) Q: lebasha xoshk shodan?
          clothes dry   BECOME
          'Have the clothes dried yet?'
    A: *na, vali sohrab raft <lebasha-ra   xoshk> bokone
          no, but Sohrab went <clothes-ACC dry> subj.DO
          ('No, but Sohrab went to (dry clothes).')

(159) Q: kasi   lebasha-ra xoshk karde?
          someone clothes-ACC dry   DID
          'Has someone dried the clothes?'
    A: *na, vali lebasha <xoshk> shodan
          no, but clothes <dry> BECOME
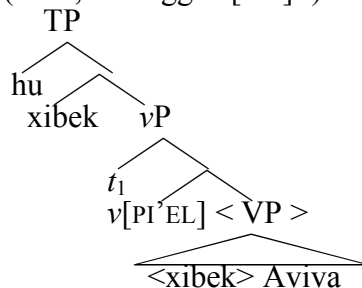   ('No, but the clothes have already (dried).')

- NB: Light verbs in Farsi can alternate (in v) outside the ellipsis site (as long as argument structure is preserved) (Toosvarvandani 2005).

(160) Q: piran-ra otu kard-i ?
             shirt-RA iron DO:PAST-2sg
             'Have you ironed the shirt?'
      A: Āre, diruz   <[prian-rā otu]> zad-am.
             yes yesterday shirt-RA iron HIT:PAST-1sg
             'Yes, I did (iron the shirt) yesterday.'

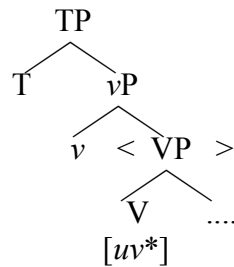Why can't the same strategy apply? Goldberg's VIR, for root alternations.

But why not simply elide (as in English) a proper subpart of the VP, the complement to the valence-changing head?:

(161) Q: Aviva xubka al-yedey Yicxak?
             Aviva be.embraced[Past3Fsg] by Yitzchak
             'Was Aviva hugged by Yitzchak?'
      A: *Ken, hu xibek.
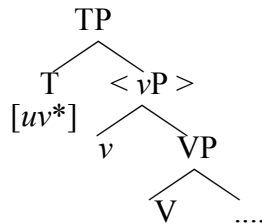   yes he embrace[Past3Msg]
             ('Yes, he hugged [her].')

```
          TP
         /\
      hu
       xibek    vP
               /\
            t₁
           v[PI'EL] < VP >
                    /\
              <xibek> Aviva
```

- Irish shows us that the projection that introduces the subject must also delete

(162)   TP   (English)

       T vP

          v < VP >

               V   ....

            [*uv**]

(163)   TP   (Hebrew, Irish)

       T   < vP >

    [*uv**]

          v VP

           V   ....

Answer:

(164)   Local morphosyntactic constraints on the 'licensing' of ellipsis (e.g., the E feature or on v_e; see Johnson 2004)

- Maybe the null VP (or the head of it, or E) is a null (en)clitic (Lightfoot 2004), which must attach to a stressable host in its leftward immediate prosodic domain. (*to* is also such an element, though the prosodic effects may be phonologically opaque; cf German 'weak' pronouns.)
⇒ E can attach to v (as in English), but not to a trace (Hebrew)

5   Conclusions

- Ellipsis resolution needs to refer to focus-assisted mutual entailment and identity of argument structure, or
- Syntactic identity is enough, but
  o   the structures involved are much more articulated than we thought, and
  o   identity is to noninflectional feature structures, and
  o   more features are inflectional than we thought

6   References

Aoun, Joseph and Jairo Nunes. 2002. Vehicle Change Effects: An Argument for Move F. Ms., University of Southern California/ Universidade Estadual de Campinas.

Bresnan, Joan. 2001. Lexical-functional syntax. Blackwell: London.

Chung, Sandra. 2005. Sluicing and the lexicon: The point of no return. Paper presented at the annual meeting of the Berkeley Linguistics Society. To appear in the Proceedings.

Chung, Sandra, William Ladusaw, and James McCloskey. 1995. Sluicing and logical form. Natural language semantics 3:239-282.

Depiante, Marcela. 2000. The syntax of deep and surface anaphora: A study of null complement anaphora and stripping/bare argument ellipsis. PhD thesis, University of Connecticut.

Elbourne, Paul. 2001. On the semantics of pronouns and definite articles. In K. Megerdoomian and L.A. Bar-ellipsis (eds.), Proceedings of WCCFL 20, 164-177. Cascadilla Press: Somerville, Mass.

Elbourne, Paul. 2005. The semantics of ellipsis. Ms., Potsdam University.

Fiengo, Robert, and Robert May. 1994. Indices and identity. MIT Press: Cambridge.

Fox, Danny. 1999. Focus, Parallelism and Accommodation. In T. Matthews and D. Strolovitch (eds.), Proceedings of Semantics and Linguistic Theory 9. Ithaca, NY: Cornell Linguistics Club.

Ginzburg, Jonathan. 1992. Questions, queries, and facts: A semantics and pragmatics for interrogatives. PhD thesis, Stanford.

Ginzburg, Jonathan and Ivan Sag. 2000. Interrogative investigations. CSLI: Stanford.

Goldberg, Lotus. 2005. Verb-stranding VP-ellipsis: A cross-linguistic study. PhD thesis, McGill University.

Hardt, Daniel. 1993. Verb phrase ellipsis: Form, meaning, and processing. PhD thesis, University of Pennsylvania. (Distributed as IRCS Report 93-23.)

Jackendoff, Ray. 1990. Semantic structures. MIT Press: Cambridge, Mass.

Jelinek, Eloise. 1998. Voice and transitivity as functional projections in Yaqui. In Miriam Butt and Wilhelm Geuder (eds.), The projection of arguments, 195-224. CSLI: Stanford, Ca.

Johnson, Kyle. 2001. What VP-ellipsis can do and what it can't, but not why. In Mark Baltin and Chris Collins (eds.), The handbook of contemporary syntactic theory. Blackwell.

Johnson, Kyle. 2004. How to be Quiet. Paper presented at CLS 40, to appear in the proceedings.

Kehler, Andrew. 2002. Coherence in discourse. CSLI: Stanford.

Kennedy, Christopher. 2003. Ellipsis and syntactic representations. In K. Schwabe and S. Winkler (eds.), Adding and omitting. John Benjamins: Amsterdam.

Klein, Wolfgang. 1993. Ellipse. In v. Stechow et al. (eds.) Handbuch der Syntax. Mouton de Gruyter: Berlin.

Kratzer, A. 1996. Severing the external argument from its verb. In J. Rooryck and L. Zaring, eds. Phrase Structure and the Lexicon, 109-137. Dordrecht: Kluwer.

Levin, Beth. 2003. Objecthood and object alternations. Handout of talk given at UCLA.

Levin, Beth. 2004. Verbs and constructions: Where next? Paper presented at WECOL 2004.

Levin. Lori. 1982. Sluicing: A lexical interpretation procedure. In Bresnan (ed.), The mental representation of grammatical relations. Pp. 590-654. MIT Press: Cambridge.

McCloskey, James. 1991. Clause Structure, Ellipsis and Proper Government in Irish. Lingua 85: 259–302.

Potsdam, Eric. To appear. Ellipsis identity and Malagasy sluicing. In J. Merchant (ed.), Sluicing: Cross-linguistic perspectives. John Benjamins: Amsterdam.

Romero, Maribel. 1997. Recoverability conditions for sluicing. In F. Corblin et al. (eds.) Empirical issues in formal syntax and semantics: Selected papers from the Colloque de syntaxe et de sémantique de Paris 1995, 193-216. Peter Lang: Bern.

Rooth, Mats. 1992. Ellipsis redundancy and reduction redundancy. In Proceedings of Stuttgarter ellipsis workshop, SFB 340 and IBM.

Sag, Ivan, Thomas Wasow and Emily Bender. 2003. Syntactic theory: A formal introduction. CSLI: Stanford.

Stechow, Arnim von. 2003. Feature Deletion under Semantic Binding: Tense, Person, and Mood under Verbal Quantifiers. Proceedings of NELS.

Takahashi, Shoichi and Danny Fox. 2004. MaxElide and the rebinding problem. Handout, LingLunch MIT. (Revised version to appear in Proceedings of SALT 15.)

Tancredi, Chris. 1992. Deletion, deaccenting, and presupposition. PhD thesis, MIT.

Toosarvandani, Maziar. 2005. *v*-Stranding ellipsis in Farsi. Ms., University of California, Berkeley

Appendix: *be* facts Lasnik, Warner, Roberts, Potsdam

(165) a.   My father thought I should be a doctor, and I will <be a doctor>.
       b.   *My father was a doctor, and I will <be a doctor>, too.

(166) a.   A: Tha ise   eki?   [Greek]
                     FUT be.2s there
                     'Will you be there?'
       b.   B: I will <be there>.

(167) O pateras mou itan giatros.   [Greek]
       the father my   was doctor
       'My father was a doctor.'
       and *I will <be a doctor>, too.

(168) a.   Exi orea zestula   edho mesa.
              has nice heat.DIM here inside
              'It's nicely warm in here.'
       b.   *Yes, it/there does.
       c.   *Yes, it is.
       d.   ?Yes, there is.