Why we still don't need/want variables:
Two SALTy Case Studies

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1. Variable Free Semantics

- No assignment functions as part of semantic machinery
- No indices in syntax
  → No use of *variables* and hence *variable names*

- expressions with 'unbound' pronouns within them - denote functions from individuals to something else (not assignment dependent values)

  she lost $=$ function from individuals x to proposition that x lost
  his mother $=$ the mother-of function

- Pronoun itself - identify function (so, type $<e,e>$)

  hooked in with a syntax: pronouns NP^{NP} (substitute DP if you prefer)
  and expressions with unbound pronoun within them of category A^{NP}
  HENCE: a single pronoun *she* - no indices

- a rule (**g** for "Geach') which allows things to combine with pronouns or material with unbound pronouns within it - passes up the 'incompleteness' and the superscript feature

  i.e. something of type $<a,b>$ shifts to $<<e,a>,<e,b>>$ - so combines with an 'incomplete' argument and inherits the incompleteness

Hence: in case where the pronoun is never 'bound': e.g., main clause *She lost*
a function of type $<e,t>$ (and category S^{NP}) applied by listener a contextually salient individual
  NB: in variable-ful [[she lost]] also not a proposition, but an assignment dependent proposition

- pronouns can be 'bound' higher up, by a meaning shift rule **z**
  illustrated by example: to **z** call some function f is to be an f who calls f(x)

every third grade boy$_i$ called his$_i$ mother (on bound reading: indices to indicate
                reading only):
above applied to the-mother-of function
= set of x's who called x's own mother
taken as argument of every-third-grade-boy

NOTE: variables used to 'name meanings' only - these play no crucial role; we could
        name meanings without them, e.g., by using Combinatory Logic

*Consequence: There could never be any crucial use of variable names to keep track of
        different unbound pronouns (or gaps/'traces')*

B. Challenges:

• Two interesting challenges to this consequence, from papers in SALT

(a) Heim's analysis - **SALT 7** - of 'Kennedy's puzzle' centering on ACD, and revision of
        her analysis by Kennedy **SALT 24** (published in Kennedy, 2014)

(b) Takahashi and Fox **SALT 15** - explanation of facts from Sag (1976) via:

Both make use of "No Meaningless Coindexation - NMC
        Two variables bound by different things cannot have same variable name

No analogue to "NMC" in VFS:

(1)   Every 3d grade boy$_i$ thinks that the principal likes him$_i$ but no 4th grade boy$_i$
        thinks that the principal likes him$_i$

        [[likes him]] in 3d grade clause = [[likes him]] in 4th grade clause

        Not so with NMC; these have different semantic values

Both cases center on what I have called TVP (Transitive Verb Phrase) Ellipsis
        Jacobson, **SALT 2** and many subsequent papers

2. Other Background Pieces

A. VP Ellipsis:

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(2)   a. Lindsay can ski that course in 4 minutes.
        b. Bode can too.

(b) - just a 'missing' <e,t> function (extensionalizing) - like the case of 'free' individual
        pronouns:
        [[Bode can too]] = λP[Bode can P]

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listener applies to contextually salient property; here relevant property (under usual understanding with no other context) is made highly salient by having been named
i.e., = 'deep anaphora'; cf. Hardt (1993)
No grammatical notion of an antecedent: this an illusion

Auxiliary can shift to VP^{VP} - open slot passed up
(possibly can also be bound, see, e.g., Szabolcsi 1992, Charlow **SALT 18**)

- Much evidence since Hankamer and Sag (1976) that these do not need an overt antecedent; recent - see Miller and Pullum (2014)

But why were Hankamer and Sag (1976) 'almost' right? Why is this hard to get?

Will assume: properties (<e,t> functions) are 'fragile objects' - harder than individuals conjure up without having been named

Why the famous of *do* (VPE) vs. *do it?* (Hankamer and Sag)
Context: I see someone about to jump off a 3 story building
(3)   a. ?? I sure hope he doesn't.
         b. I sure hope he doesn't do it.
               (a) is missing <e,t>
               (b) -*it* picks up events only - and *do* here is only main
                          clause *do:*
Sally believes that snow is white, and
Sarah does too./*Sarah does it too.

B. TVP Ellipsis (TPVE) "Transitive Verb Phrase Ellipsis"

- follows that there are also cases of 'missing' 2-place relations - picked up from an antecedent, or from context, with our without being named
                see, e.g., Jacobson 2019 for technical details, as well as many earlier papers

ACD (see Cormack, 1984, Jacobson **SALT 2**, etc.)
(4)   Sarah read every newspaper that Katie did.

CG treatment of (5) (e.g., Steedman, 1988; refined in Jacobson, 2014)
(5)   Sarah read every newspaper that Katie read
               [[read]] function composes with type-lifted Katie:
               [[Katie read]] = λx[katie read x]   ]

[[that Katie did]] (full composition spelled out in, e.g., Jacobson 2003):
(6) λR[lifted Katie) o R] = λR[λx[katie R x]]

R slot remains open and passed up to end: *highly* salient [[read]] relation picked up

Many other cases of TVPE:

with a gap, across sentences: (ACD just happens to be one where two-place relation is
        supplied by material in the same sentence

(7)   a. Bagels, I like. Donuts, I don't.
         b. I know which student Polly recommended, and which student Sheila did.
                Evans, 1988 (ESCOL 5)
                    NB: (7b) is contra Sag 1976 - who used main clauses so Subject Aux
                        Inversion muddied the waters

cases where full paraphrase would contain a pronoun

(8)   Sue$_i$ asked Bill to water her plants, and Mary asked John to.
                (okay on sloppy reading)
                Jacobson, 1992 **SALT 2**
                NB: This also contra Sag, 1976 - will return

Others from Jacobson 1992: (lexical items changed to get rid of kissing scenanarios):

(9)   a. Professor Carberry nominated Kim for the prize. But it was Lee who really
            wanted him to. (best with background context; easy to supply)
         b. Professor Carberry nominated several students, though none of them really
            wanted him to.

These later rediscovered in Merchant 2001 generally goes under rubric 'rebinding'
        Notes: (9a) shows that Merchant's 'subset' generalization is wrong

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Most important point here: Basic story predicts that these should also be good <u>without</u>
        <u>any prior linguistic antecedent</u>.

Clear case of this of the 'rebinding' sort: The Me Either Scenario.

(10)   Imagine Dad with two kids: Keela and Zack. Keela (the older) has been trying to
         tell Dad for quite a while now that she is very independent, and doesn't need any
         help tying her shoes! But Dad is a creature of habit - and so he reaches down to
         start helping Keela - who says:
     (a)   Dad. Please! Stop! I DON'T WANT you to!!!
           Dad then reaches over to help Zack. But Zack likes to copy Keela, so he says:
     (b)   And I don't want you to either!!! (though I don't care if you tie Keela's laces)

can even follow this with three more kids, the oldest of which says:
     (c)   Dad, none of us want you to!

Keela's utterance: can be understood either as missing VP-meaning (i) or missing TVP meaning (ii)

"missing' meaning of type <e,t>

(i) not (I want [you to [*tie my/Keela's shoelaces]*]
          (supplied <e,t> meaning)

or : bound by z on *want* (allowing for Zack to utter the sloppy identity TVPE statement):

(ii) not (I z-want [you to *[tie shoelaces of]*] =
          not (I λx[x want [you *tie shoelaces of x]*]

Either way: they are equivalent in this context, and whichever is posited,
          (ii) can be inferred
(ii) I don't **z**-want [you *[tie-shoelaces of]* =
          not (I am an x such that x wants you tie shoelaces of x)
                    allowing the *tie-shoelaces-of* relation to be salient.

Hence Zack's utterance can be understood as (ii)
          (ii) not **I** (= Zack) *z-want you tie shoelaces of* either =
          not I λx[x want [you tie shoelaces of x]*] either

NOTE: Exercise for the astute listener: Why is (10b) actually surprising both for T&F (later) and my reformulation? (*I know why it is surprising; I don't know how to account for the surprise*) (Explanation might lie in Zack's copy-catness)

C. Focus in Variable Free Semantics
          see, e.g., Jacobson 1998 (**SALT 8**), Jacobson 2004 (**SALT 14**), 2012 (JoS), etc.

• *What is focus value of something with an unbound pronoun within it at the place where focus is 'resolved'?*   i.e. - (11) can be understood as 'in addition to' or 'as opposed to' someone else; focus resolved at S-level

(11)   KEELA scolded him.
regular meaning: λx[k scold x]
focus value: not a set of alternative meanings of type <e,t>, but a function from individuals to a set of alternative propositions:
          λx[{k scold x, z scold x, d scold x, ...}]

One way to do the compositionworked out in Jackson Golden (2014) (Brown University Honors thesis)

•   will also assume, if no overt focus sensitive operator (*also, only)*   is ~ which 'resolves' the focus and gives its scope

- ~ can occur with S and NPs (DPs)

takes as argument a proposition p (=[S]]) and a set of propositions X and returns p, defined only for those Ss such that there is a contextually salient p' such that p' ≠ p and p' ∈ [[S]]

~ S: Informally, 'resolves' focus by assuring that there is a contextually salient alternative to [[S]]

- What is ~S^{NP} or   ~(that) KATIE read

the input to a focus interpretation rule (e.g., combining with ~) is
a function from individuals to a set of propositions about
that individual

- ~ not defined by above, but it can undergo a generalized g rule

see Jacobson, 2014 - textbook - for this generalization, which is motivated
by other considerations and not just made up for this purpose; e.g.
it allows for generalized conjunction without having to list *and* as
'polymorphic' in the lexicon

Generalized **g** of ~ :

Takes the pair of a function P f type <e,t> (the regular value of an S^{NP}) and a function F from individuals to a set of propositions (the focus value of S^{NNP}) and returns P, defined only if for each individual x in the domain of F, there is a contextually salient proposition p in F(x) and p ≠ P(x)=

Informally by example:

MARY saw him   Reg value: = λx[m saw x]

Foc value: = λx[{m saw x, t saw x, s saw x, ...}

call that function F'

~MARY saw him   = λx[m saw x] defined only for those x such that
there is a contextually salient p in F(x) such that p ≠ reg value(x)

Bottom line : [[~MARY saw him]] = λx[m saw x], defined only for those x
for whom there is a salient proposition about someone other than Mary seeing
them
[[~(that) KATIE read]] = λx[k read x], defined only for those x for whom there is a
salient proposition about someone other than k reading x

D. Ellipsis and Focus

• Ellipsis is sensitive to there being something focussed (i.e., 'contrastive stress')

Some of that follows from what it would take to make the property salient - BUT
Not all does - Stockwell, 2018 **SALT 28** confirms that there really is some
need for salient contrasting material (in terms here: in discourse context)

"Standard": Focus condition (informally from Rooth (1992)

(12) A VP ellipsis site must be contained within some constituent with focus (call that
C-ELL) which is such that there is some other expression C-ANT such that [[C-
ANT]]^{REG} *or something which follows (perhaps pragmatically) from [[C-ANT]]* is
a member of the focus value of C-ELL

BUT: No need for antecedent - or *any linguistic material* - see Keela's utterance - , so
cannot enforce a linguistically overt C-ANT to supply the contrast
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Keela: in Me Either Scenario:
The contrast is between wanting and not wanting Dad to tie shoelaces, but it's
only implicit that Dad thinks she does want this.

This no different from other kinds of presuppositional facts: ellipsis allowed only if it is
in a domain with focus such that there is a presupposition that some alternative is
'at issue'.

*Note that italicized material in (12) generally ignored; with this the condition very weak -
ensures nothing more that there is <u>some</u> linguistic material somewhere - but even
that too strong given Keela's utternace*

• So : **Actual generalization is just:**
**(T)VPE (i.e., missing <e,t> or <e,<e,t>> meanings) have to be in a domain that
evokes a contrast, and there must be something in the discourse context
satisfying the contrast**
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*This actually not that far from Rooth's formulation: C-ELL is the domain, and C-ANT is
just any expression from which follows - including by pragmatic inference - the
contrasting meaning.
Since no overt C-ANT needed; just need the contrast to be salient in the context.*

How ensure this? Will 'punt' on this

Something must ensure either:

(a) that an 'open' VP (or "TVP') slot needs to find a focus sensitive
operator later in the semantic combinatorics
(This can be done by brute force feature passing, but won't spell
that out here since it is just a stipulation)
OR, hopefully:

(b) the fact that 'missing' <e,t> (and <e,<e,t>>) meanings must be in a
domain for which there is a contextually salient contrast has to do
with how the 'missing' meanings can be recovered

NOTE: common rubric about 'recoverability'

3. Why we don't need and don't want variable names: Two SALTy Case studies

A. SALTy Case 1: Heim **SALT7**: addresses 'Kennedys puzzle' - a version of this:

Kennedy's puzzle (material in italics indicates understood meaning)

(13)   Sarah likes every newspaper that Katie does *(like)*
(14)   *Sarah likes every newspaper that (once) reviewed a book that Katie does *(like)*

- NOTE: there are ways to get (14) with prior context - exactly as we would expect if this
is about the focus condition
- So take these to be contrasts as 'out of the blue' utterances - we supply context no matter
what, but nothing special needed for (13)

Heim's (correct!) insight: (14) gives no appropriate contrast (no way to satisfy focus
condition) (without more background)

Informal intuition:
In (13) what Sarah likes and what Katie likes are about the same things
In (14) they aren't

Jacobson 2004 **SALT 14** and in more detail in Jacobson 2008 shows how to do this
without variable names - key is in focus computation
→ Just quickly here but:
(a) with some refinements, and
(b) respond to updated version in Kennedy 2014 **SALT 24** (published in Kennedy
2014)

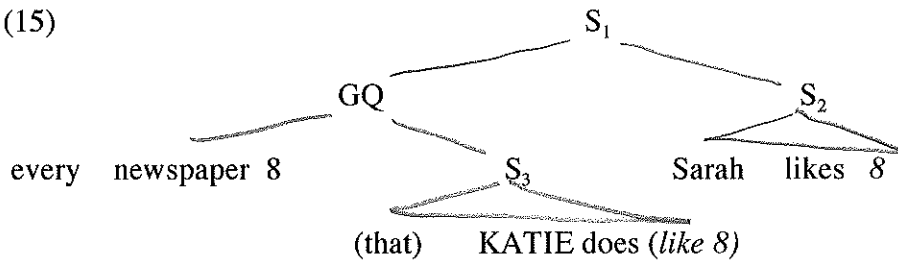Heim's way to implement the insight - 3 crucial ingredients:

A. Focus condition as in (12) - requiring *overt C-ANT*
     • Satisfied by *meanings* of two linguistic expressions (at LF)

B. No Meaningless Coindexation

Ordinary ACD:

(15)

$$S_1$$

GQ S_2

every   newspaper   8 S_3 Sarah   likes   *8*
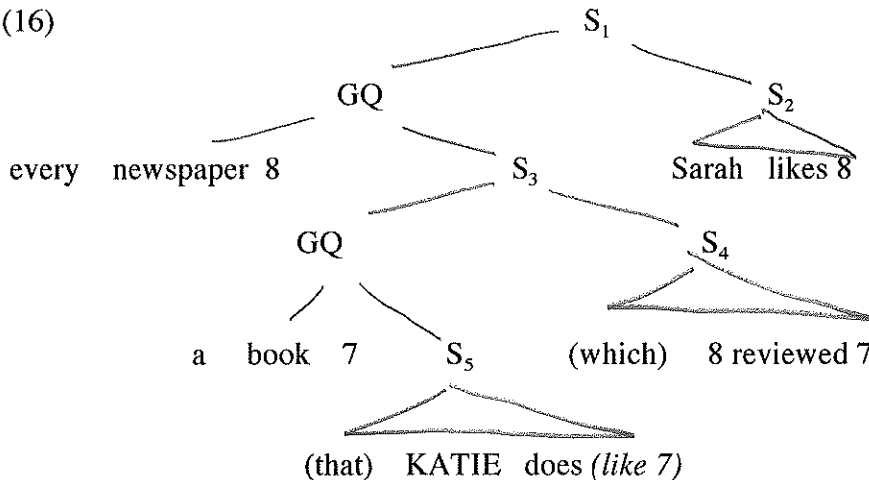
(that)   KATIE does *(like 8)*

for all g, $[[S_3]](g) \in [[S_2]]^{FOC}(g)$

From now on, I'll just write $[[S_3]] \in [[S_2]]^{FOC}$ (thinking of $[[C]]$ as a function from assignments to something else)

Bad attempt at ACD (with no additional context):

(16)

$$S_1$$

GQ S_2

every   newspaper   8 S_3 Sarah   likes 8

GQ S_4

a   book   7 S_5 (which)   8 reviewed 7

(that)   KATIE   does *(like 7)*

$[[S_7]] \notin [[S_2]]^{FOC}$

No Meaningless Coindexation:
     • Need to make sure that *book* GQ (and relative clause) doesn't accidentally use 8 instead of 7

•NOTE: no harm for this particular case!!!   would just get a different but stupid
          reading (8 reviewing 8) which could be blocked by No Vacuous
          Quantification :
      "Sarah likes every newspaper which is such that Katie likes a book which
          reviewed itself"

- But can recreate the problem with more complex cases (see Jacobson, **SALT 8**)

- Will continue to use these here for expository ease

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C. Formulas Hypothesis

- S_7 and S_2 both have to stay 'open' - *Formulas Hypothesis* - and not have λ-abstraction
     here, because if that were possible then we'd get predicates such that one is a
     member of focus value of the other

     **hence quantification over assignment functions - everything involves sets
     of assignments rather than sets of individuals**

Once do λ-abstraction (or any other binding) the difference in variable names not matter

(17)   (leaving out irrelevant details)
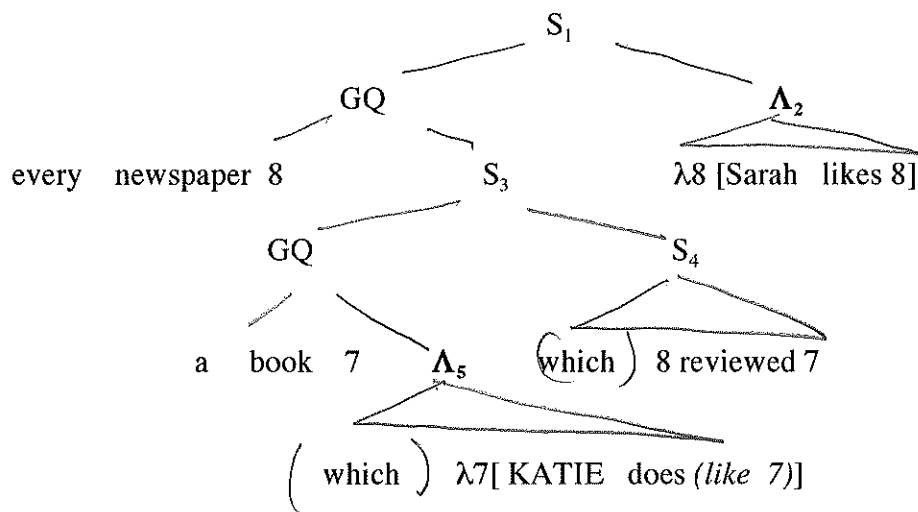
Here, $[[\Lambda_2] \in [[\Lambda_5]]^{FOC}$ (the difference in variables names not matter; they are bound)

But: There is a problem with keeping the relative clauses (and NPs in which they occur)
          open - see Jacobson **SALT 8**

(18)   The book that KATIE read was better than the book that SARAH did.

Kennedy 2014 **SALT 24** revision (designed also for (18))
 <u>a more standard semantics</u>, making use of sets of individuals both for relative
  clauses and arguments

<u>Relative clauses can be closed</u> (i.e., properties) as long as the argument of the QR'ed
  GQ is 'open'
 • 'closes' (maps to a property) just when the sentence combines with the GQ

 a la Montague, PTQ, Quantifying In rule - which did the λ-abstraction
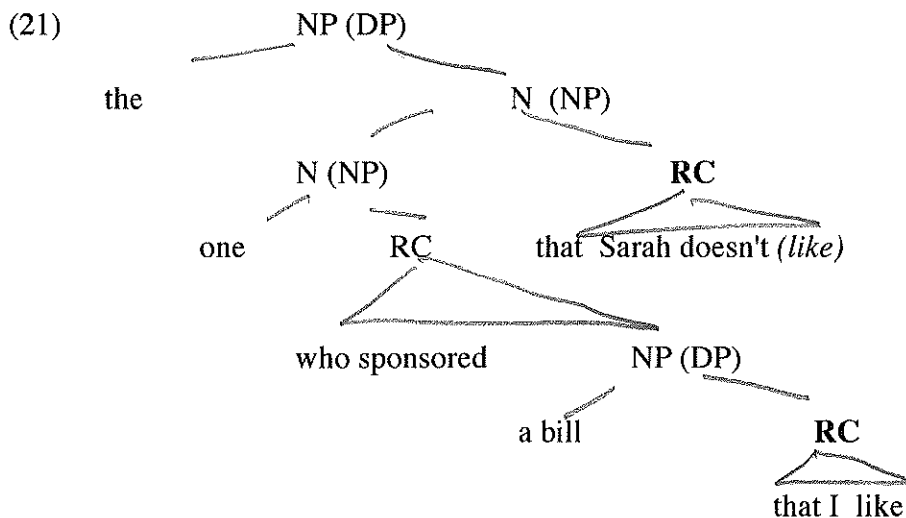 and becoming argument of a quantifier as one step

• But : same problem with stacked relatives!
 • need additional but irrelevant complexities to make naturally sounding
   examples- have additional contrast here but that doesn't change the point

(19)   Speaker A: Which candidate are you going to give money to?
        B: The one that Katie likes.
        A: Well, but she likes a lot of them.
        B. You're right. Okay - the one that Katie likes that Sarah doesn't *(like)*

(20)   Speaker A: Which candidate are you going to give money to?
        B: The one that sponsored a bill (that) I like.
        A. Aren't there a bunch of candidates that did that?
        B. *You're right. Okay, the one that sponsored a bill (that) I like that Sarah
                doesn't *(like)* (good on an irrelevant reading)
                vs. ..... ?the one that sponsored a bill I like that Sarah doesn't like

attempted reading for B's final answer:

(21)   NP (DP)

       the   N (NP)

            N (NP)   RC

       one   RC   that Sarah doesn't *(like)*

              who sponsored   NP (DP)

                        a bill   RC

                                     that I like

If RCs closed (i.e., denote λ-abstracts), difference in variable names inside them doesn't
  matter

Bottom lines:
- Variant of this problem might arise in my account too (depending on full details of focus computation)
- Potential solution: via a stipulation that $\sim$ defined only for NP, S (though it can 'Geach')
- Parallel implementation available for Heim: C-ELL must be S or NP (DP)

But - two other problems with Heim/Kennedy solution:
- *crucially* requires overt C-ANT for focus, but we know that can't be right
- *crucially* relies on NMC, which is a stipulation
  Kennedy - 2014 **SALT 24:**
  Each binder a unique index

Interim Conclusion: Not a convincing demonstration of the need for variable names

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Solution in the variable free program - Given already in Jacobson **SALT 14** (albeit sketchily) and with more detail in Jacobson (2008) - so just sketched here (with refinement)

Recall:

$[[\sim$(that) KATIE likes $]] = \lambda x[k$ read $x]$, defined only for those x for whom there is a salient proposition about someone other than k liking x

$[[\sim$(that) KATIE does $]] = \lambda R[\lambda x[$Katie R x$]]$

defined only for those R and those x such that there is a y $\neq$ Katie
such that y R x is salient
such that y R x is salient

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good case (13)

(13) Sarah likes every newspaper that Katie does

NB: glossing over the fact that we have a GQ in object position so need an account of that; see, e.g, Hendriks 1993 for an account (based on Montague 1974)

relative clause: setting the free R to *likes* - relative clause is defined only for those x such that there is a = y $\neq$ katie and there is something salient about y liking x
Obviously, the semantics of the top makes this satisfied
modulo needing a definition of salient

Good Cases - **whatever the quantifier is - it involves relation between set of Katie likers and set of Sarah likers. Any quantifier consults the intersection of Katie-liking set and Sarah-liking set. So for each thing in this intersection, if Katie likes them it is also relevant whether Sarah likes them.**

(14)   *Sarah likes every newspaper that (once) reviewed a book that Katie does (*like*)

relative clause: defined only for those x R and those x such that there is a y ≠ katie and
there is something salient about y liking x
Set R to *likes:*
  Nothing satisfies this.
  Things at issue about Sarah liking (regardless of head) are entirely different from those
          at issue about Katie liking

Questions about how the full composition proceeds because the definedness condition is
          met only at the top level

But: exactly the same holds for other 'antecedent contained presupposition' cases

Jacobson (2008) documents that pattern *is exactly the same with also - except for the fact*
          that the presupposition of also is that something else in the focus value is true, not
          just salient

(22)   Sarah likes every newspaper that Katie also likes.
(23)   *Sarah likes every newspaper that reviewed a book that Katie also likes.

Can't be computed by looking at open sentences with variables:
          • depends on truth, not representational similarity
                  hence if substitute in *no* for *every* in (22) obviously bad:

(24)   *Sarah likes no newspaper that Katie also likes.
                  Ellipsis okay because all that matters is salience
                  also not okay because presupposition is about truth
                  otherwise these the same, and show same mattern

And in general presupposition of *also* need not be overt (like presuppositions in general)

Conclusion from this domain:
          Trying to use variable names to 'track' the individuals being talked about is
                  problematic
                  • Requires incorrect focus condition
                  • Requires stipulative NMC
                  • doesn't extend to *also*
          Using variable-free, can track that we are 'talking about' same individuals in
                  the two cases via their meanings:
                  Focus considerations - relative clauses defined for individuals for whom
                  there is a contextually salient alternative in focus value
                          in case of *also:* a true alternative in focus value

B. SALTY Case 2: Takahashi and Fox **SALT 15**

centers on **MaxElide** (original motivation from Merchant 2001):

(25) a.   Sally knows that Carl will endorse one of those candidates, but she doesn't
         know which (one).
      b.   ?*Sally knows that Carl will endorse one of those candidates, but she doesn't
         know which one he will.

(b): highly dispreferred

• my account will generalize to these, but will focus on competing (T)VPE cases

Background:

Sag noted that 'big ellipsis' possible in (26a) but not 'little ellipsis' (26b)

Context: Upcoming US presidential primary season

(26)   a. Harris is hoping that South Carolina will seal the nomination for her, and
        Warren is too.
        b. ?*Harris is hoping that South Carolina vote seal the nomination for her, and
        Warren is also hoping that it will.

(b) bad or questionable on sloppy reading
                NOTE: these can improve in the right contrxt, see Grant (2008)

Sag's explanation (oversimplified):
        no ellipsis possible if unbound variables in both ellipsis site and antecedent
        where they are bound by different things

        identity plus NMC would get this

But this can't be right, see examples above involving TVP Ellipsis - e.g.:
(27)   Mary asked John to water her plants, and SALLY asked TOM to.

similarly:
(28)   Harris is hoping that South Carolina will seal the nomination for her, and/while
        WARREN is hoping that NEVADA will.

(28) not perfect, but contrasts with (2bb)

WHY THE DIFFERENCE?

T&F attribute badness of (26b) vs. betternesss of (28) to the fact that
　　　　(a) *(26b) competes with (26a)*
　　　　　　　　(27) and (28) okay as no competitor - due to the focus
　　　　(b) Competition based on size (MaxElide)
I will agree with (a) but not with (b) - Why should Size Matter?

Stepping back:

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* Should the grammar contain competition principles (such as MaxElide, however ultimately formulated)?　Or should competition effects be driven only by speaker/hearer principles (e.g., Gricean reasoning)?

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* But of course many have claimed there are Economy Driven competion principles in grammar

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* Even if happy with economy principles, this not about economy ! (although see Kimura 2013)

Could it be relocated as a speaker-based principle?　(The Lazy Speaker hypothesis)

No. Would predict ellipsis always obligatory:
(29)　　a. Lindsay can ski that course and Bode can too.
　　　　b. Lindsay can ski that course and Bode can ski it too.

might be slight preference for ellipsis, but only slight

Plus - cases where smaller ellipsis only slightly dispreferred:

(30)　　a. Bode thought that Lindsay would win gold. Sally also did.
　　　　b. Bode thought that Lindsay would win gold. Sally also thought she would.

Key generalization crucial for T&F's account:
* MaxElide competition holds (strongly) only when there is an unbound variable within the 'little' ellipsis site
　　　　　　　　(T&F, 2005 **SALT 15**, also Merchant 2008)

BUT WHY? T&F tie it into their version of the Focus Condition, given here roughly and informally:

Parallelism Domain for some ellipsis site E:

Lowest node for which there is:

a. some (overt) *expression* in discourse context with same meaning as E
(i.e., meeting usual identity condition)

or -

b. if no such expression (as in the bad cases with the unbound variable)
lowest node meeting Rooth's focus condition
(i.e., lowest node C-ELL (which contains ellipsis site) such that
there is an overt C-ANT whose meaning is a member of focus
value of C-ELL

Informally: : For ellipsis to be okay:

• Look for an expression with same meaning. --> OK

Can't do that? Look up.
Be within higher expression with focus - C-ELL
Find another expression whose meaning contrasts with C-ELL.
Call this Parallelism domain

Highest possible ellipsis within that domain?--> OK
MaxElide holds within the parallelism domain for some ellipsis

(26b): to meet condition - Warren clause has to look up to Harris clause
that is the parallelism domain
so within it: get biggest ellipsis

Other crucial ingredients:

• obviously, requires focus condition with overt antecedent
• AND: No Meaningless Coindexation again!
**to ensure that a - an identical antecedent - is accidentally met in, e.g.,
Sag's original case (26b)**

HENCE: *Looks like argument for variable names, and hence variables.*
T&F in fact point this out as argument against variable-free semantics

Additional prediction: good if both unbound but co-bound
Then will have same name
And hence same meaning

(31)   a. Every male candidate₍ᵢ₎ thinks that the *Times* poll predicted that Iowa would vote
for him₍ᵢ₎ and that the *Quinnipiac* poll also did ~~predict that Iowa would vote for him₍ᵢ₎~~.

b. Every male candidate₍ᵢ₎ thinks that the *Times* poll predicted that Iowa would vote
for him₍ᵢ₎ and that the *Quinnipiac* poll also predicted that it would ~~vote for him₍ᵢ₎~~

(31b) somewhat strange but doesn't seem worse than (32):

(32) Every male candidate thinks that the *Times* poll predicted that Iowa would vote for Klobuchar, and that the *Quinnipiac* poll also predicted that it would.

This is as expected: the two variable names are the same if they are cobound, so here the lowest VPs are identical and thus meet the condition to be a PD. Hence MaxElide doesn't care that there is a higher deletable VP.

Recasting this as type - not size - competition

• Recall the relevant assumptions here

•The 'little' ellipsis in both cases is TVP ellipsis - i.e., of type <e,<e,t>>

--> Whenever - in the standard terms' - there is an 'unbound variable' within an expression of type a (in standar terms), in variable free semantics the meaning of that expression is of type <e,a>

So here, 'missing' meaning of type <e,<e,t>>

• Independent evidence that accessing 2-place relations harder than <e,t> meanings (where <e,t> meanings harder than individuals)

• ACD cases fine because the meaning highly accessible "rebinding' and no overt antecedent (Me Either) cases less noticed, because harder to construct (cases here fall under 'rebinding')

'BIG' ELLIPSIS VS. 'LITTLE' ELLIPSIS - *type competition!*
missing <e,t> meanng vs. missing <e,<e,t>> meanings

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(26) uderlined material is what supplies 'missing meaning' in Warren clause:
   a. Harris z(hopes) SC seal-nomination-for =
      Harris λx[x hopes SC seal nomination for x]
         and W. does too   *λx[x hopes SC seal nomination for x]I* <e,t> meaning
   b. Harriz z(hopes) SC seal-nomination-for and
         and Warren also z-hopes it does *(seal-nomination-for)* <e,<e,t>>

When an expression of type <A,t> and one of type <B,t> convey (in context) the same proposition (once 'missing arguments' filled in) where A is a simpler type than B, then the expression of type <B,t> is dispreferred

<u>Makes sense as a speaker/hearer based principle</u>: Make things easy for hearer!

NOTE: Opposite problem from full 'lazy speaker' hypothesis:
                Why should there ever be ellipsis?
                Assume - competing pressures between speaker and hearer

Why not just have 'mirror image' explanation: MaxElide as 'Lazy Speaker' - when ellipsis
          not obligatory it's because of competing pressure from hearer?

• Could do that - but then why 'Lazy Speaker' hypothesis care about 'having an unbound variable' within ellipsis vs. not. Here: that contrast ends up being about types!

• extends directly to the original MaxElide cases of Sluicing vs. VPE as in (25)

(25) a.   Sally knows that Carl will endorse one of those candidates, but she doesn't
            know which (one).
     b. ?*Sally knows that Carl will endorse one of those candidates, but she doesn't
            know which one he will.
                  But: see Griffiths (to appear)

• *What about the 'co-bound case'?*
(31)   a. Every candidate$_i$ thinks that the *Times* poll predicted that Iowa would vote for
               him$_i$ and that the *Quinnipiac* poll also did ~~predict that Iowa would vote for him$_i$~~.

     b. Every candidate$_i$ thinks that the *Times* poll predicted that Iowa would vote for
            him$_i$ and that the *Quinnipiac* poll also predicted that it would ~~vote for him~~

 --> Same prediction as T&F.
         No competition - since *both involve missing <e,<e,t>> meanings*

• Where we make different predictions:

• One can push out the Evan's types of cases in (7) to embed the 'elided' VP-

Background: We are at a bakery deciding which wonderful things to bring to Sally for her
           birthday party.

(33)   a. Cakes, I'm sure she really likes. Cookies, I'm not.
        b. Cakes, I'm sure she really likes. Cookies, I'm not sure she does.
(34)   a. Cakes, I think that she really likes! Oh, and cookies I also do.
        b. Cakes, I really think she likes! Oh, and cookies, I also think she does.

No sharp contrast.
MaxElide - predicts there should be
Type competition - both involving 'missing' <e,<e,t>> relations

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       see also Griffiths, to appear for related data

In fact, possible to construct ones where the 'smaller' ellipsis better, due to potential garden path effects with higher ellipsis:

(35)   a. ?The hummus, Sally had told me that Max had brought. The pound cake, SARAH had. (*told me that Max had brought*)
         b. The hummus, Sally had told me that Max had brought. The pound cake, SARAH had told me that he had.

One further case which neither of our accounts cover, but which has an independent explanation   from Merchant 2001 also used as evidence for MaxElide:

(36)   a. Sally knows who had brought the hummus to the potlock, and Jim also does.
         b. *Sally knows who had brought the hummus to the potluck and Jim also knows who.

T&F: MaxElide not extend to this case since no unbound variable in 'elided material
         a = Jim also *knows who brought the hummus to the potluck*
         b - also knows who *brought the hummus to the potluck*
Type competition: both missing <e,t> meanings (both are 'VPE')

<u>But</u>: This is not about MaxElide.
         NOTE: (35b) is actually much worse than the competition based cases

• Embedded questions do not support Sluicing even when there is no higher ellipsis competitor. AnderBois and Jacobson 2018 **SALT 28**:
         (unless wh-word is focussed)

(37).   John couldn't sleep.
         *His therapist finally discovered what had been bothering him, but he himself has yet to figure out what.

No higher possible ellipsis here; *figure out* does not support NC:A.

Conclusion from this SALTy domain:

• Not about MaxElide
• --> No need for No Meaningless Coindexation (which is stipulative in any case)
• No need for coindexation! Or Variable names! Or variables!

→ **We don't need variables**
→ **We don't want variables** - Type competition (which can be rooted in speaker/hearer facts rather than mysterious grammatical principles) crucially assumes that 'missing' meanings in relevant cases of type <e,<e,t>> -
         i.e., missing 2-place relations - TVP E
Follows under variable free program

Selected SALT-free references (SALT-y references are easy to find from refs. within the handout)

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