Ellipsis Licensing in Sluicing: A QuD Account

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“Multiple questions about sluicing”
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**Sluicing**: clausal ellipsis in a Wh-question, leaving the Wh-phrase overt.

(1) Sally called someone, but I don’t know who.

Some terminology:

- **Remnant**: any Wh-phrase left overt in sluicing.
- **Correlate**: (typically) an indefinite corresponding to the remnant.
- **Antecedent, sluice**.
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Multiple sluicing: sluicing with more than one remnant.

(2) Some boy likes some girl, but I don’t know which boy which girl.
(3) Some boy danced with some girl, $\text{BIDK}$ which boy with which girl.

- Seen as degraded, but “real phenomenon” in English (Lasnik, 2014)
- In our own investigation, we find:
  - Many find (2)–(3) unimpeachable, others wholly reject them.
  - Variation in acceptance of $\langle DP, DP \rangle$ sluices (2) vs. $\langle DP, PP \rangle$ sluices (3).
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Multiple sluicing with quantified antecedents:

(4)  a. Every boy likes some girl, \( \text{BIDK which boy which girl} \).
   
   b. * Some boy likes every girl, \( \text{BIDK which boy which girl} \).

The puzzle:

- How can quantified antecedents license sluicing?
- What are the restrictions on sluicing with quantified antecedents, and what do they teach us about ellipsis licensing more generally?
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Roadmap

§1 Challenges to syntactic identity
§2 Proposal: a QuD account
§3 Implicature calculation and QuDs
§4 Conclusion
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   • Multiple sluicing in Russian
   • Syntactic identity and “Super-QR”

§2  Proposal: a QuD account

§3  Implicature calculation and QuDs

§4  Conclusion
Multiple sluicing in Russian

Perhaps unsurprisingly (as a multiple *wh*-fronting language), Russian allows multiple sluicing:

(5) a. Kto-to kogo-to videl, no ja ne znaju, kto kogo. someone someone saw but I not know who whom ‘Someone saw someone, but I don’t know who whom.’

    (Bailyn, 2012)

b. Každyj priglasil kogo-to na tanec, no ja ne pomnju, everyone invited someone to dance but I not remember kto kogo. who whom ‘Everyone invited someone to dance, but I don’t remember who invited whom to dance.’

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For concreteness, we’ll assume a tucking-in (Richards, 1997) derivation, though what we say would be compatible with a (Rizzi, 1997) style articulated left periphery:

(6) **Tucking-in (left) and articulated (right) left peripheries:**

a. \[
\text{CP} \quad \text{Wh1} \quad \text{Wh2} \quad \text{C}^0 \quad \text{TP}
\]

b. \[
\text{XP} \quad \text{Wh1} \quad \text{X}^0 \quad \text{YP} \quad \text{Wh2} \quad \text{Y}^0 \quad \text{TP}
\]
A **superiority effect** in Russian Sluicing: Correlates must match remnants

(7)  

a. Každyj priglasil kogo-to na tanec, no ja ne pomnju everyone invited someone to dance, but I not remember kto$_1$ kogo$_2$. who whom

b. * …no ja ne pomnju kogo$_2$ kto$_1$. …but I not remember whom who

‘Everyone invited someone to a dance, but I don’t remember {who whom/ *whom who}.’

c. A: Každogyj kto-to priglasil t$_i$ na tanec.  
Everyone$_{ACC}$ someone$_{NOM}$ invited to dance

B: {Kogo kto?/*Kto kogo}  
{whom who?/*who whom}

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b. * ...no ja ne pomnju kogo₂ kto₁.  
...but I not remember whom whom  
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Everyone\textsubscript{ACC} someone\textsubscript{NOM} invited to dance

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(Grebenyova, 2009)
Grebenyova adopts the LF identity analysis in Fox and Lasnik (2003):

- Structural parallelism between elliptical clause and antecedent.
- Variables contained in elliptical clause and antecedent are bound from parallel positions.

(8) **LFs for unscrambled antecedent and superiority obeying sluice:**
   a. $\forall x \exists y\ [x \text{ invited } y \text{ to dance }]$ antecedent in (7a,b)
   b. $\text{who}_x \text{ whom}_y [x \text{ invited } y \text{ to dance }]$ (Wh1 $>$ Wh2) sluice in (7a)

(9) **LFs for scrambled antecedent and superiority violating sluice:**
   a. $\forall y \exists x\ [x \text{ invited } y \text{ to dance }]$ antecedent in (7c)
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Seemingly good result:

✓ Unacceptability of superiority mismatches between remnants and correlates \( (7a \text{ vs } 7b) \)
✓ Scrambling data \( (7c) \)

But… Grebenyova 2009, most other work:
All Wh-phrases in sluicing are outside of the elided category, TP.

For quantifiers in antecedent to bind variables from a parallel positions, they must be outside of TP as well.

_requires exceptionally high QR of universal to left periphery. 
Call this Super-QR.
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Parallelism obtained via Super-QR, ∃-closure of indef from outside TP:

\[
\begin{align*}
\text{(10) } & \quad \left[ CP \ everyone_x \ \exists y \left[ TP_A \ x \ \text{invited } y \ \text{to dance} \right] \right] \quad \text{antecedent} \\
& \quad \left[ CP \ who_x \ whom_y \left[ TP_E \ x \ \text{invited } y \ \text{to dance} \right] \right] \quad \text{sluice}
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But, Super-QR ruled out by Scope Economy considerations (Fox, 2000).

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\begin{align*}
\text{(11) } & \quad \text{Some boy likes every teacher, and Mary does like every teacher too.} \\
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(10)  $[CP \text{ everyone}_x \exists y [TP_A x \text{ invited } y \text{ to dance }]]$  
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Super-QR ruled out by Scope Economy considerations (Fox, 2000):

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• High QR (above Mary) is ruled out in the sluice because it doesn’t lead to a new scope relation compared to shorter QR (below Mary).

• Inverse scope in the antecedent is ruled out because of parallelism.

QR can’t be motivated by the need to license ellipsis alone!

We need to have Super-QR for (7), and we need to not have it for (11).
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Trouble for syntactic Identity and Super-QR

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QR can’t be motivated by the need to license ellipsis alone!

We need to have Super-QR for (7), and we need to not have it for (11).
1 Super-QR is necessary for a syntactic identity story that can explain sluicing with quantified antecedents.

2 But at the same time it leads to problematic predictions — it should be ruled out by Scope Economy (Fox, 2000)

3 This leads us to abandon the syntactic approach in favor of a semantic one.
Roadmap

§1 Challenges to syntactic identity

§2 Proposal: a QuD account

  • The basic idea
  • The interpretation of pair-list questions
  • Supporting evidence from English

§3 Implicature calculation and QuDs

§4 Conclusion
Questions under Discussion (QuDs): semantico-pragmatic objects — salient Q meanings in a discourse with interrogative force (Roberts, 2012).

- shape the information exchange, as interlocutors address the QuD.
- may be made salient implicitly or explicitly (e.g., by asking a direct Q).

QuD-equivalence approaches to sluicing appeal to the intuition that assertions with indefinites and disjunctions make certain QuDs salient.

- *Sally is dating someone* raises the question *who is Sally dating?*.
- *Sally is dating either Mary or Bill* raises the question *which of the two is Sally dating?*.

(12) Indefinites and disjunctions serve as natural correlates:

a. Sally is dating someone, bidk who Sally is dating.

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QuD-equivalence approaches require sluiced questions to be congruent to the QuD raised by the antecedent.

- Congruence = equivalence (Roberts, 2012);
  semantic identity satisfied iff $[\text{QuD}] = [\text{Sluiced Q}]$.

We adopt a standard Hamblin/Karttunen semantics for questions, where they denote the set of possible answers to the question.

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Recall Grebenyova’s motivation for her LF-identity account of Russian multiple sluicing:

Russian multiple questions are insensitive to superiority, but remnants in sluiced Qs must match superiority of correlates (7a–b).

Our proposal: Superiority in multiple Wh-questions has consequences for Q meaning (Comorovski 1989; Dayal 1996, 2002; Fox 2012; Kotek 2014, a.o.). Hence, the antecedent in (7a) raises a distinct QuD from the sluice in (7b); QuD-equivalence is not met.
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Multiple questions can have both single-pair and pair-list answers:

(13) Which boy likes which girl?
   a. Mark likes Sarah. single-pair
   b. Mark likes Sarah, and Bill likes Maria. pair-list

Under the PL interpretation, multiple questions have two presuppositions (Comorovski 1989; Dayal 1996, 2002; Fox 2012; Kotek 2014, a.o.).

(14) **Exhaustivity:** Every member of the higher Wh-phrase’s restriction is paired with a member of the lower Wh-phrase’s restriction.

(15) **Uniqueness (functionhood):** No member of the higher Wh-phrase’s restriction may be paired with more than one member of the lower Wh-phrase’s restriction.
The interpretation of PL multiple questions

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Recall our Russian examples (7a–b) and the scrambled (7c):

(16) **Superiority in Russian Sluicing: Correlates must match remnants**

Každyj priglasil kogo-to na tanec, no ja ne pomnju
everyone invited someone to dance, but I not remember

a. ✓ kto₁ kogo₂,   b. *kogo₂ kto₁.
   who whom whom who

‘Everyone invited someone to a dance, BIDS {who whom/*whom who.}’

(17) A: Každogoᵢ kto-to priglasil tᵢ na tanec.
    EveryoneACC someoneNOM invited to dance

B: {Kogo kto?/*Kto kogo}
   {whom who?/*who whom}
Superiority-obeying and violating questions have different meanings:

(18) **Sluice in (16a), who whom (invited), sorted by inviters:**
{ which invitee did \( v_1 \) invite?, which invitee did \( v_2 \) invite? }
\[ \Leftrightarrow \left\{ \begin{array}{l}
\{ v_1 \text{ invited } i_1, v_1 \text{ invited } i_2 \}, \{ v_2 \text{ invited } i_1, v_2 \text{ invited } i_2 \} \end{array} \right\} \]

(= antecedent’s QuD in (16a))

Generalization: the universally quantified correlate in the antecedent contributes the sorting key for the QuD.

(19) **Sluice in (16b), whom who (invited), sorted by invitees:**
{ which inviter invited \( i_1 \)?, which inviter invited \( i_2 \)? }
\[ \Leftrightarrow \left\{ \begin{array}{l}
\{ v_1 \text{ invited } i_1, v_2 \text{ invited } i_1 \}, \{ v_1 \text{ invited } i_2, v_2 \text{ invited } i_2 \} \end{array} \right\} \]

(= Q meaning for sluice in (16b), \( \neq \) antecedent’s QuD in (16a))
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(18) **Sluice in (16a), who whom (invited), sorted by inviters:**
{ which invitee did $v_1$ invite?, which invitee did $v_2$ invite? }
$\Leftrightarrow$ { { $v_1$ invited $i_1$, $v_1$ invited $i_2$ }, { $v_2$ invited $i_1$, $v_2$ invited $i_2$ } }
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Generalization: the universally quantified correlate in the antecedent contributes the sorting key for the QuD.

(19) **Sluice in (16b), whom who (invited), sorted by invitees:**
{ which inviter invited $i_1$?, which inviter invited $i_2$? }
$\Leftrightarrow$ { { $v_1$ invited $i_1$, $v_2$ invited $i_1$ }, { $v_1$ invited $i_2$, $v_2$ invited $i_2$ } }
(= Q meaning for sluice in (16b), $\neq$ antecedent’s QuD in (16a))
Superiority-obeying and violating questions have different meanings:

(18) **Sluice in (16a), who whom (invited), sorted by inviters:**
\[
\{ \text{which invitee did } v_1 \text{ invite?}, \text{which invitee did } v_2 \text{ invite?} \}
\]
\[\Leftrightarrow \{ \{ v_1 \text{ invited } i_1, v_1 \text{ invited } i_2 \}, \{ v_2 \text{ invited } i_1, v_2 \text{ invited } i_2 \} \} \]
\[= \text{antecedent’s QuD in (16a)}\]

**Generalization:** the universally quantified correlate in the antecedent contributes the sorting key for the QuD.

(19) **Sluice in (16b), whom who (invited), sorted by invitees:**
\[
\{ \text{which inviter invited } i_1 \text{?}, \text{which inviter invited } i_2 \text{?} \}
\]
\[\Leftrightarrow \{ \{ v_1 \text{ invited } i_1, v_2 \text{ invited } i_1 \}, \{ v_1 \text{ invited } i_2, v_2 \text{ invited } i_2 \} \} \]
\[= \text{Q meaning for sluice in (16b), } \neq \text{antecedent’s QuD in (16a)}\]
Supporting evidence from English

Recall the English contrast:

(20)  a. Every boy likes some girl, \textit{BIDK} which boy which girl.

b. * Some boy likes every girl, \textit{BIDK} which boy which girl.

Unlike Russian, English \textit{does} allow inverse scope, yet sluicing with an inverse scope antecedent is not possible.

This is a sluicing-specific problem:

(21) Some boy likes every girl, \textit{BIDK} which boy likes which girl.
(A PL question asking for boy-girl pairs in the \textit{like} relation.)
Recall the English contrast:

(20)  a. Every boy likes some girl, _bidk which boy which girl.
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This is a sluicing-specific problem:

(21) Some boy likes every girl, bidk which boy likes which girl.
    (A PL question asking for boy-girl pairs in the like relation.)
QuD-equivalence captures the acceptability of examples like (20a).

(22) QuD and sluice meanings in (20a), sorted by boys:
{ which girl does $b_1$ like?, which girl does $b_2$ like? }
$\iff$ { { $b_1$ likes $g_1$, $b_1$ likes $g_2$ }, { $b_2$ likes $g_1$, $b_2$ likes $g_2$ } }

In the antecedent, in English as in Russian, the universally quantified correlate in the antecedent contributes the sorting key for the QuD.

(23) QuD meaning in (20b), sorted by girls ($\neq$ sluice in (20a,b)):
{ which boy likes $g_1$?, which boy likes $g_2$? }
$\iff$ { { $b_1$ likes $g_1$, $b_2$ likes $g_1$ }, { $b_1$ likes $g_2$, $b_2$ likes $g_2$ } }
QuD-equivalence captures the acceptability of examples like (20a).

(22) QuD and sluice meanings in (20a), sorted by boys:

\{ \text{which girl does } b_1 \text{ like?}, \text{which girl does } b_2 \text{ like?} \}
\Leftrightarrow \{ \{ b_1 \text{ likes } g_1, b_1 \text{ likes } g_2 \}, \{ b_2 \text{ likes } g_1, b_2 \text{ likes } g_2 \} \}

In the antecedent, in English as in Russian, the universally quantified correlate in the antecedent contributes the sorting key for the QuD.

(23) QuD meaning in (20b), sorted by girls (≠ sluice in (20a,b)):

\{ \text{which boy likes } g_1 \text{?}, \text{which boy likes } g_2 \text{?} \}
\Leftrightarrow \{ \{ b_1 \text{ likes } g_1, b_2 \text{ likes } g_1 \}, \{ b_1 \text{ likes } g_2, b_2 \text{ likes } g_2 \} \}
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In the antecedent, in English as in Russian, the universally quantified correlate in the antecedent contributes the sorting key for the QuD.

(23) QuD meaning in (20b), sorted by girls (\neq sluice in (20a,b)):
    \{ which boy likes g_1?, which boy likes g_2? \}
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The QuD-equivalence approach captures Grebenyova’s paradigm.

- The English data parallel the Russian data.

We achieve sensitivity to syntactic structure in a manner similar to LF/Syntactic identity approaches, without the pitfalls of those approaches.

Two issues remain:

1. The strength of the English judgment
2. An account of the un-sluiced sentence (21)
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Two issues remain:

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Roadmap

§1 Challenges to syntactic identity
§2 Proposal: a QuD account
§3 Implicature calculation and QuDs
  • Context and accommodation in ellipsis licensing
  • How and when QuDs are calculated
§4 Conclusion
Speakers who accept multiple sluicing find (20b) degraded to varying degrees compared to (20a), with some reporting only a subtle contrast.

QuD-equivalence does not predict variation, but ungrammaticality.

We appeal to accommodation: the QuD’s meaning and the sluiced Q’s meaning are manipulated in context in order to achieve semantic identity.
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We begin with the unsluiced (21), which is perfectly acceptable even to speakers who find sluicing in (20b) strongly unacceptable.

(21) ✓ Some boy likes every girl, \textit{BidK} which boy likes which girl.
(20b) * Some boy likes every girl, \textit{BidK} which boy likes which girl.

• The QuD made salient by the antecedent is sorted by \textit{girls}.
• The continuation in (21) (and sluice in (20b)) is sorted by \textit{boys}.
• What contexts are compatible with these antecedents and sluices?
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Context and accommodation in ellipsis licensing

(24) **Contexts satisfying QuD’s presuppositions in (21):**

a. 

```
      b_1     g_1
       |      |
  b_2    |      |   g_2
       |      |
```

b. 

```
      b_1     g_1
       |      |
  b_2    |      |   g_2
       |      |
```

c. 

```
      b_1     g_1
       |      |
  b_2    |      |   g_2
       |      |
```

d. 

```
      b_1     g_1
       |      |
  b_2    |      |   g_2
       |      |
```

(25) **Contexts satisfying multiple-Q’s presuppositions in (21):**

a. 

```
      b_1     g_1
       |      |
  b_2    |      |   g_2
       |      |
```

b. 

```
      b_1     g_1
       |      |
  b_2    |      |   g_2
       |      |
```

c. 

```
      b_1     g_1
       |      |
  b_2    |      |   g_2
       |      |
```

d. 

```
      b_1     g_1
       |      |
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       |      |
```
(24) **Contexts satisfying QuD’s presuppositions in (21):**

- a. 

   ![Diagram a](image)

- b. 

   ![Diagram b](image)

- c. 

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- d. 

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(25) **Contexts satisfying multiple-Q’s presuppositions in (21):**

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   ![Diagram a](image)

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Only bijective contexts like (c) and (d) satisfy the presuppositions of both the QuD and the continuation.

Proposal: in the absence of sluicing, QuD-equivalence is irrelevant; speakers *accommodate* that only bijective contexts are possible, (21).
Only bijective contexts like (c) and (d) satisfy the presuppositions of both the QuD and the continuation.

**Proposal:** in the absence of sluicing, QuD-equivalence is irrelevant; speakers *accommodate* that only bijective contexts are possible, (21).
With sluicing (20b), even with accommodation, the meanings of the antecedent’s QuD and the multiple Wh-question are distinct:

(26)  

a. \[[\text{QuD} \ (\text{some boy likes every girl})] = \neq (26b)\]
{ which boy likes g_1 ?, which boy likes g_2 ? }
\iff \{ \{ b_1 \text{ likes } g_1, b_2 \text{ likes } g_1 \}, \{ b_1 \text{ likes } g_2, b_2 \text{ likes } g_2 \} \}

b. \[[\text{which boy likes which girl?}] = \neq (26a)\]
{ which girl does b_1 like?, which girl does b_2 like? }
\iff \{ \{ b_1 \text{ likes } g_1, b_1 \text{ likes } g_2 \}, \{ b_2 \text{ likes } g_1, b_2 \text{ likes } g_2 \} \}
Proposal: Accommodation involves removing from consideration those contexts where the presuppositions of either question are not met. This “pruning” will result in equivalence.

- But, costly and subject to speaker variation.
- Explaining the subtlety of judgments.
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- But, costly and subject to speaker variation.
- Explaining the subtlety of judgments.
We illustrate with a more fine-grained representation for propositions, as sets of worlds.

(27)  

Only w5 and w6 will survive pruning.
(28) **Unpruned QuD and multiple Q meanings: equivalence not met**

a. \[ \text{QuD} = \]
\[ \{ \text{which boy likes } g_1 ?, \text{which boy likes } g_2 ? \} \]
\[ \iff \{ \{ b_1 \text{ likes } g_1, b_2 \text{ likes } g_1 \}, \{ b_1 \text{ likes } g_2, b_2 \text{ likes } g_2 \} \} \]
\[ \iff \{ \{ w_1, w_3, w_6 \}, \{ w_2, w_3, w_5 \} \}, \{ \{ w_1, w_4, w_5 \}, \{ w_2, w_4, w_6 \} \} \}

b. \[ \text{which boy likes which girl?} = \]
\[ \{ \text{which girl does } b_1 \text{ like?}, \text{which girl does } b_2 \text{ like?} \} \]
\[ \iff \{ \{ b_1 \text{ likes } g_1, b_1 \text{ likes } g_2 \}, \{ b_2 \text{ likes } g_1, b_2 \text{ likes } g_2 \} \} \]
\[ \iff \{ \{ w_1, w_3, w_6 \}, \{ w_1, w_4, w_5 \} \}, \{ \{ w_2, w_3, w_5 \}, \{ w_2, w_4, w_6 \} \} \}

(29) **Pruned QuD and multiple Q meanings: equivalence met**

a. $\begin{align*}
\llbracket\text{QuD}\rrbracket &= \{ \text{which boy likes } g_1?, \text{ which boy likes } g_2? \} \\
&\equiv \left\{ \{ b_1 \text{ likes } g_1, b_2 \text{ likes } g_1 \}, \{ b_1 \text{ likes } g_2, b_2 \text{ likes } g_2 \} \right\} \\
&\equiv \left\{ \{ \{ w_6 \}, \{ w_5 \} \}, \{ \{ w_5 \}, \{ w_6 \} \} \right\}
\end{align*}$

b. $\begin{align*}
\llbracket\text{which boy likes which girl?}\rrbracket &= \{ \text{which girl does } b_1 \text{ like?}, \text{ which girl does } b_2 \text{ like?} \} \\
&\equiv \left\{ \{ b_1 \text{ likes } g_1, b_1 \text{ likes } g_2 \}, \{ b_2 \text{ likes } g_1, b_2 \text{ likes } g_2 \} \right\} \\
&\equiv \left\{ \{ \{ w_6 \}, \{ w_5 \} \}, \{ \{ w_5 \}, \{ w_6 \} \} \right\}
\end{align*}$
How and when QuDs are calculated

We’ve seen that context matters in the computation of the QuD.

Next we’ll show that the implicatures of the antecedent also play a crucial role in determining the QuD.
How and when QuDs are calculated

**Puzzle:** The antecedent of (20a) may be true in a context where the uniqueness ps of the QuD needed to license sluicing is not met.

\[(30) \quad \text{Context: Every boy likes two girls.}\]

\[a. \quad \text{Every boy likes some girl} \quad \text{true under } \forall > \exists\]

\[b. \quad \# \text{ Every boy likes some girl, } BIDK \text{ which boy which girl.}\]

The sluiced question’s uniqueness presupposition requires that for every boy, there is exactly one girl that he likes.

The context explicitly contradicts this presupposition, thus blocking the QuD *which boy likes which girl?*, needed to license the sluice in (30b).
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(30) **Context:** Every boy likes two girls.
    a. Every boy likes some girl \( \text{true under } \forall > \exists \)
    b. # Every boy likes some girl, BIDK which boy which girl.

The sluiced question’s uniqueness presupposition requires that for every boy, there is *exactly one* girl that he likes.

The context explicitly contradicts this presupposition, thus blocking the QuD *which boy likes which girl?*, needed to license the sluice in (30b).
Proposition: the sg some girl gives rise to an implicature of exactly one girl.

This, in turn, gives rise to the QuD Which boy likes which girl?, which licenses the sluice in (20a).

This strengthened meaning is the result of a silent $\text{EXH}$ operator operating on the antecedent (Sauerland, 2001; Spector, 2007; Fox, 2007, 2009; Chierchia et al., 2012, a.o.).

If exhaustification is obligatory whenever possible, this would block potential QuDs such as Which boy likes which girls? from being accessible.
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If exhaustification is obligatory whenever possible, this would block potential QuDs such as *Which boy likes which girls?* from being accessible.
How and when QuDs are calculated

As is predicted from this proposal, sluices that would be licensed by non-exhaustified QuDs are ruled out:

(31)  a. * Every boy likes some girl, BIDK which boy which girls.
     b. * Every boy likes some girl, BIDK which boy which girl or which girls.
Note, exhaustification of antecedent takes place independently of sluicing:

(32) Every boy likes some girl, BIDK which boy likes which girl. Felicitous in a context in which each boy likes exactly one girl. Infelicitous in a context in which some boys like more than one girl.

The truth conditions, the context, and the scalar implicatures associated with the antecedent all matter for QuD equivalence!
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§1 Challenges to syntactic identity
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• The availability of multiple sluices with quantified antecedents is surprising and unexpected.

Both the semantics and the pragmatic implicatures of the antecedent matter for the purposes of ellipsis licensing.

• Within QuD-equivalence, QuDs are computed after antecedent’s contribution to CG has been computed — taking into account any (scalar) implicatures antecedent gives rise to.

• This explains a complex set of judgments in Russian and English, and contributes to our understanding of ellipsis licensing more generally.
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Conclusion

- The availability of multiple sluices with quantified antecedents is surprising and unexpected.
- **Both the semantics *and* the pragmatic implicatures of the antecedent matter** for the purposes of ellipsis licensing.
- Within **QuD-equivalence**, QuDs are computed after antecedent’s contribution to CG has been computed — taking into account any (scalar) implicatures antecedent gives rise to.
- This explains a complex set of judgments in Russian and English, and contributes to our understanding of ellipsis licensing more generally.
Thank you! Questions?

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(33) **Apparent violation of Scope Economy in A clause:**
\[ [\_A \text{ Mary likes every teacher}], \text{ and } [E \text{ some boy does like every teacher too}] . \]

\( \left( \forall \exists > \exists, \forall \exists > \forall \right) \)

a. LF of E clause = [ every teacher\( _x \) some boy likes \( x \) ]
b. LF of A clause = [ every teacher\( _x \) Mary likes \( x \) ]

Fox deals with this through a mechanism that crucially does not involve long-distance QR: E is parallel to an alternative antecedent LF, call it \( A' \), which may be accommodated under certain conditions (met in (33)).

(34) **Accommodated antecedent in (33):**
\[ [A \text{ Mary likes every teacher}] \models [A' \text{ every teacher}_x \text{ some girl likes } x ] \]
\[ A' \in F([E \text{ every teacher}_x \text{ some } [\text{ boy}]_F \text{ likes } x ]) \]

( where \( F(E) \) is a set of structured meanings corresponding to \( E \)'s focus alternatives in the sense of Rooth 1992. )
Under the PL interpretation, multiple questions have two presuppositions (Comorovski 1989; Dayal 1996, 2002; Fox 2012; Kotek 2014, a.o.).

(35) **Exhaustivity:** Every member of the higher Wh-phrase’s restriction is paired with a member of the lower Wh-phrase’s restriction.

a. Guess which one of these 3 kids will sit on which of these 4 chairs. (Good with a single-pair answer and with a pair-list answer.)

b. Guess which one of these 4 kids will sit on which of these 3 chairs. (Only good with a single-pair answer.)

(36) **Uniqueness (functionhood):** No member of the higher Wh-phrase’s restriction may be paired with more than one member of the lower Wh-phrase’s restriction.

a. I wonder which one of the 3 boys will do which one of the 3 chores.

b. # I wonder which one of the 3 boys will do which one of the 4 chores. (Suggests that the boys will not do all of the chores.)
Could the problem with (20b) in English can be fixed by switching the order of remnants?

Superiority violations are generally possible (Pesetsky, 2000). However:

(37)  **No superiority violations in English multiple sluicing:**
Some boy likes every girl,
   a.  * …but I don’t know which girl which boy.
   b.  …but I don’t know which girl which boy likes.

Superiority violations are ruled out in sluicing because only the (overtly) moved Wh evacuates TP, the other one remains in-situ (Pesetsky 2000), hence it is trapped and expected to be deleted.

See Abels and Dayal 2016 for recent discussion of superiority violations in English multiple sluicing.