Ellipsis Licensing in Sluicing: A QuD Account

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Sluicing

Sluicing: clausal ellipsis in a Wh-question, leaving the Wh-phrase overt.

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

Multiple sluicing: sluicing with more than one remnant.

(2) Some boy likes some girl, but I don't know which boy which girl.

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Multiple sluicing with quantified antecedents:

(3) Every boy likes some girl, 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 Context and accommodation in ellipsis licensing

§4 Conclusion

Roadmap

§1 **Challenges to syntactic identity**

- Multiple sluicing in Russian
- Syntactic identity and “Super-QR”

§2 Proposal: a QuD account

§3 Context and accommodation in ellipsis licensing

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Multiple sluicing in Russian

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

(4) 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
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Judgments appear much more robust than in English (Stjepanović 2003; Grebenyova 2009; Bailyn 2012; Scott 2012; Antonyuk 2015).

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A **superiority effect** in Russian Sluicing: Correlates must match remnants

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everyone invited someone to dance, but I not remember
kto$_1$ kogo$_2$.
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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: Každogo$_i$ 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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Syntactic Identity

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.

(6) **LFs for unscrambled antecedent and superiority obeying sluice:**

a. $\forall x \exists y[\ x$ invited y to dance $]$ antecedent in (5a,b)

b. who$_x$ whom$_y$[x invited y to dance] (Wh1 $>$ Wh2) sluice in (5a)

(7) **LFs for scrambled antecedent and superiority violating sluice:**

a. $\forall y \exists x[\ x$ invited y to dance $]$ antecedent in (5c)

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Syntactic Identity

Seemingly good result:

- ✓ Unacceptability of superiority mismatches between remnants and correlates (5a vs 5b)
- ✓ Scrambling data (5c)

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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Syntactic Identity and Super-QR

Parallelism obtained via Super-QR, ∃-closure of indef from outside TP:

(8) a. $[_{CP}$ everyone$_x$ $\exists y$ $[_{TP_A}$ *x* invited *y* to dance]] antecedent

b. $[_{CP}$ who$_x$ whom$_y$ $[_{TP_E}$ *x* invited *y* to dance]] sluice

But, Super-QR ruled out by Scope Economy considerations (Fox, 2000).

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- Super-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.

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§1 Challenges to syntactic identity

§2 **Proposal: a QuD account**

- The basic idea
- An analysis of multiple sluicing with quantified antecedents

§3 Context and accommodation in ellipsis licensing

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Proposal: Questions under Discussion

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 (AnderBois, 2011).

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

(10) **Indefinites and disjunctions serve as natural correlates:**

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

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

- A question like *Who is Sally dating?* denotes { that Sally is dating Mary, that Sally is dating Bill } (in a small toy model).
- A quantified statement *Every girl is dating someone* raises the QuD { *Who is Sally dating?*, *Who is Mary dating?* } — a set of questions sorted by *girls*.

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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 (5a–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 (5a) raises a distinct QuD from the sluice in (5b); QuD-equivalence is not met.

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The interpretation of PL multiple questions

Multiple questions can have both single-pair and pair-list answers:

(11) 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.).

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

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Analysis: English sluicing with quantified antecedents

A contrast in English multiple sluicing:

(14) a. Every boy likes some girl, BIDK which boy which girl.

b. * Some boy likes every girl, BIDK which boy which girl.

Unlike Russian, English allows inverse scope, yet sluicing with an inverse scope antecedent is not possible.

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(15) Every boy likes some girl *antecedent in (14a)*
QuD: For each boy, which girl does he like?

(16) Which boy likes which girl? *sluice in (14a–b)*

Both the sluice and the QuD are sorted by *boys*.

(17) **QuD and sluice have identical meanings, sorted by *boys*:**
{ which girl does b_1 like?, which girl does b_2 like? }
$\Leftrightarrow \{ \{ b_1 \text{ likes } g_1, b_1 \text{ likes } g_2 \}, \{ b_2 \text{ likes } g_1, b_2 \text{ likes } g_2 \} \}$

(18) Some boy likes every girl *antecedent in (14b)*
QuD: For each girl, which boy likes her?

(19) **QuD meaning in (14b), sorted by *girls* ($\neq$ sluice in (14b)):**
{ which boy likes g_1?, which boy likes g_2? }
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Analysis: English sluicing with quantified antecedents

☞ The QuD-equivalence approach captures the English paradigm.

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

Roadmap

Context and accommodation in ellipsis licensing

Notice that the presluice (20), which is perfectly acceptable even to speakers who find sluicing in (14b) strongly unacceptable.

(20) ✓ Some boy likes every girl, BIDK which boy likes which girl.

(14b) * Some boy likes every girl, BIDK which boy ~~likes~~ which girl.

- The QuD made salient by the antecedent is sorted by *girls*.
- The continuation in (20) (and sluice in (14b)) is sorted by *boys*.

- What contexts are compatible with these antecedents and sluices?

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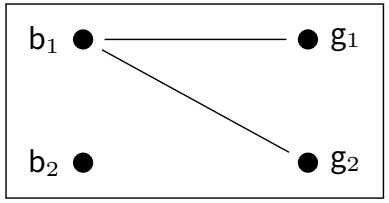
(21) **Contexts satisfying QuD's presuppositions in (20):**

a.



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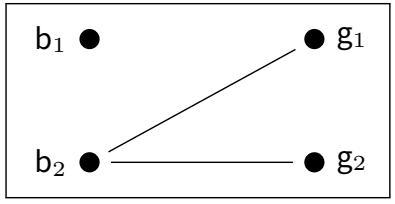
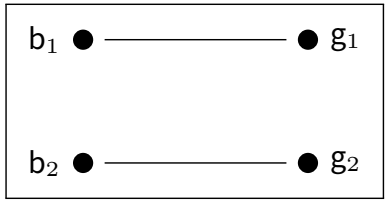


c.



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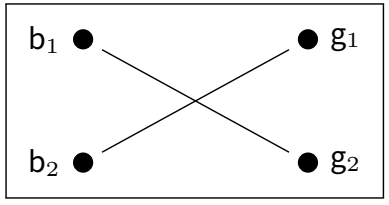
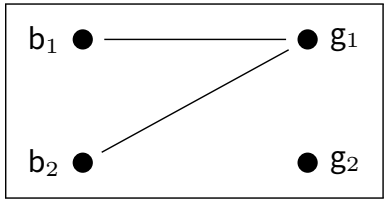


(22) **Contexts satisfying multiple-Q's presuppositions in (20):**

a.



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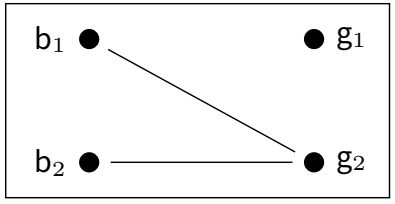

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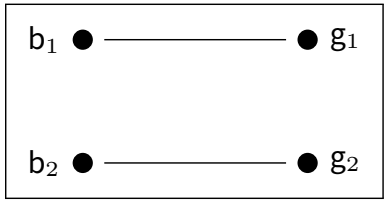

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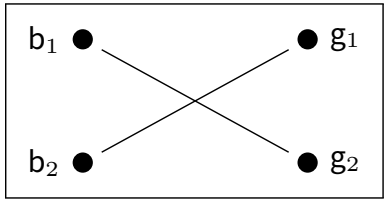
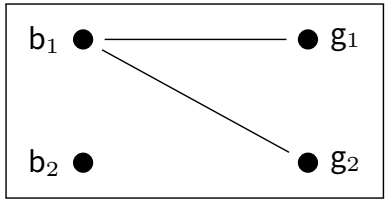


Context and accommodation in ellipsis licensing

(21) **Contexts satisfying QuD's presuppositions in (20):**

a.


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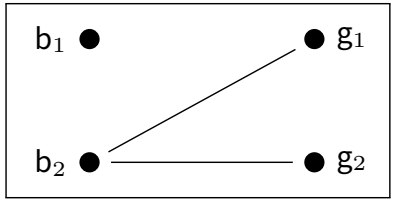

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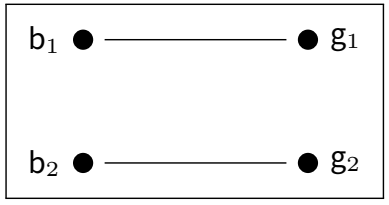

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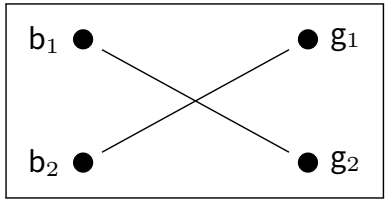
d.


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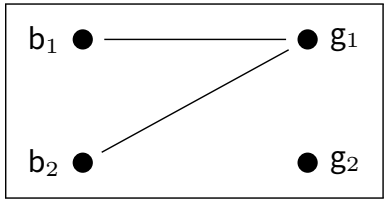
(22) **Contexts satisfying multiple-Q's presuppositions in (20):**

a.


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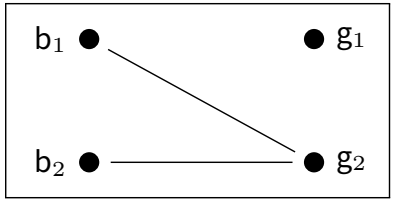

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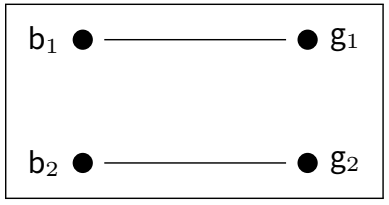

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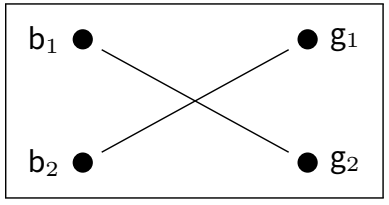
d.


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Context and accommodation in ellipsis licensing

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, (20).

Context and accommodation in ellipsis licensing

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Context and accommodation in ellipsis licensing

With sluicing (14b), even with accommodation, the meanings of the antecedent's QuD and the multiple Wh-question are distinct:

(23) a. $[\![$**QuD** (some boy likes every girl)$]\!] =$ $\neq$ **(23b)**
{ which boy likes g_1?, which boy likes g_2? }
$\Leftrightarrow \{ \{ b_1$ likes g_1, b_2 likes $g_1 \}, \{ b_1$ likes g_2, b_2 likes $g_2 \} \}$

b. $[\![$**which boy ~~likes~~ which girl?**$]\!] =$ $\neq$ **(23a)**
{ which girl does b_1 like?, which girl does b_2 like? }
$\Leftrightarrow \{ \{ b_1$ likes g_1, b_1 likes $g_2 \}, \{ b_2$ likes g_1, b_2 likes $g_2 \} \}$

Context and accommodation in ellipsis licensing

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.

Context and accommodation in ellipsis licensing

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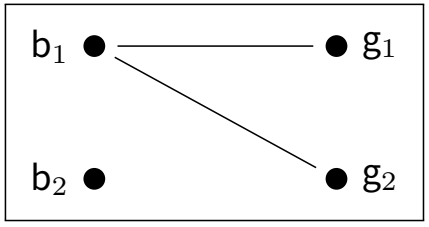
Context and accommodation in ellipsis licensing

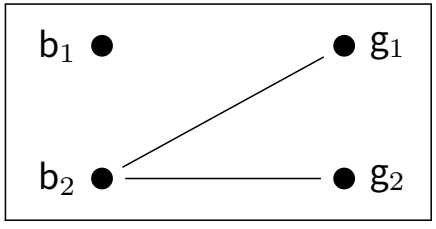
We illustrate with a more fine-grained representation for propositions, as sets of worlds.

(24)

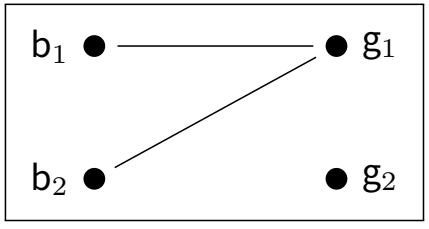
w1



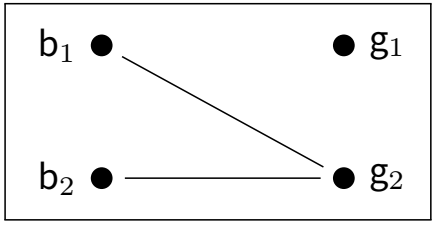
w2



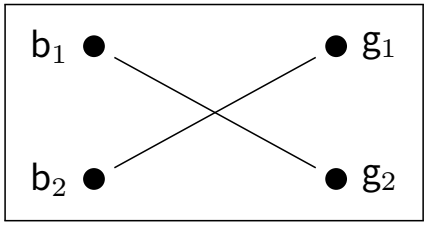
w3



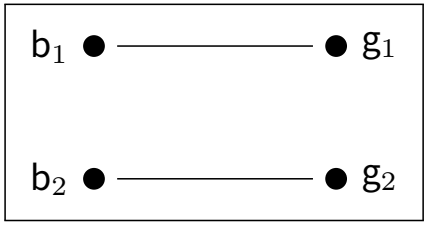
w4



w5



w6



Only w5 and w6 will survive pruning.

Context and accommodation in ellipsis licensing

(25) **Unpruned QuD and multiple Q meanings: equivalence not met**

a. $[\![\text{QuD}]\!] =$ $\neq$ (25b)

{ which boy likes g_1?, which boy likes g_2? }

$\Leftrightarrow \{ \{ b_1 \text{ likes } g_1, b_2 \text{ likes } g_1 \}, \{ b_1 \text{ likes } g_2, b_2 \text{ likes } g_2 \} \}$

$\Leftrightarrow \Big\{ \big\{\{w1,w3,w6\}, \{w2,w3,w5\}\big\}, \big\{\{w1,w4,w5\}, \{w2,w4,w6\}\big\} \Big\}$

b. $[\![\text{which boy likes which girl?}]\!] =$ $\neq$ (25a)

{ which girl does b_1 like?, which girl does b_2 like? }

$\Leftrightarrow \{ \{ b_1 \text{ likes } g_1, b_1 \text{ likes } g_2 \}, \{ b_2 \text{ likes } g_1, b_2 \text{ likes } g_2 \} \}$

$\Leftrightarrow \Big\{ \big\{\{w1,w3,w6\}, \{w1,w4,w5\}\big\}, \big\{\{w2,w3,w5\}, \{w2,w4,w6\}\big\} \Big\}$

Context and accommodation in ellipsis licensing

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

a. $[\![\text{QuD}]\!] =$ $= (26b)$

{ which boy likes g_1?, which boy likes g_2? }

$\Leftrightarrow \{ \{ b_1 \text{ likes } g_1, b_2 \text{ likes } g_1 \}, \{ b_1 \text{ likes } g_2, b_2 \text{ likes } g_2 \} \}$

$\Leftrightarrow \left\{ \{ \{ w6 \}, \{ w5 \} \}, \{ \{ w5 \}, \{ w6 \} \} \right\}$

b. $[\![\text{which boy likes which girl?}]\!] =$ $= (26a)$

{ which girl does b_1 like?, which girl does b_2 like? }

$\Leftrightarrow \{ \{ b_1 \text{ likes } g_1, b_1 \text{ likes } g_2 \}, \{ b_2 \text{ likes } g_1, b_2 \text{ likes } g_2 \} \}$

$\Leftrightarrow \left\{ \{ \{ w6 \}, \{ w5 \} \}, \{ \{ w5 \}, \{ w6 \} \} \right\}$

☞ See appendix 4 for implicature accommodation in QuD calculation.

Roadmap

Conclusion

- The availability of multiple sluicing with quantified antecedents is surprising and unexpected.
- LF-identity accounts fall short, as they require Super-QR.
- QuD-equivalence is able to model the superiority facts, inverse scope restrictions, and the contribution of context.

☞ **Both the semantics *and* the pragmatics of the antecedent matter** for the purposes of ellipsis licensing.

- 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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Thank you!

Thank you! Questions?

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Scope economy and Super-QR

(27) **Apparent violation of Scope Economy in A clause:**
$[_A$ Mary likes every teacher], and $[_E$ some boy does ~~like every teacher~~ too]. ($^{\checkmark}\forall > \exists$, $^{\checkmark}\exists > \forall$)

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 (27)).

(28) **Accommodated antecedent in (27):**
$[_A$ Mary likes every teacher] $\models [_{A'}$ every teacher$_x$ some girl likes x]
$A' \in F([_E$ every teacher$_x$ some [boy]$_F$ likes x])

(where F(E) is a set of structured meanings corresponding to E's focus alternatives in the sense of Rooth 1992.)

The interpretation of PL multiple questions

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

(29) 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.)

(30) 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.)

Superiority violations in English multiple sluicing

Could the problem with (14b) in English can be fixed by switching the order of remnants?

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

(31) **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.