Intervention Effects directly follow from Scope Rigidity in Turkish

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1 Introduction

- Many languages exhibit an *ordering restriction* referred to as **intervention effects** (also called Beck-effects) (Beck, 1996; Beck and Kim, 1997; Pesetsky, 2000; Beck, 2006, a.o.)

    - **Example:** Korean normally allows wh-in-situ.   Beck (2006): 2

        (1)   Minsu-nun   **nuku-lûl**   po-ass-ni?
                   Minsu-TOP   who-ACC   see-PAST-Q
                   Who did Minsu see?

    - However, an *only*-phrase <u>fails to precede a wh-phrase</u>

        (2)   *<u>Minsu-man</u>   **nuku-lûl**   po-ass-ni?
                   Minsu-only   who-ACC   see-PAST-Q
                   Intended: Who did only Minsu see?   ⇐ intervention configuration

    - Scrambling the wh-phrase to the left of the intervener eliminates the intervention effect.

        (3)   **nuku-lûl**   <u>Minsu-man</u>   po-ass-ni?
                   who-ACC   Minsu-only   see-PAST-Q
                   Who did only Minsu see?
                   = which person x is such that only Minsu saw x?

- In parallel configurations, Turkish, too, exhibits intervention effects, as Kesen (2010) reports based on an acceptability judgment survey.

(4) a. *Partide   sadece Pelin **kim-le**   konuştu?
          party.LOC only Pelin   who-with   talk.PST.3SG
          Intended: Who did only Pelin talk to at the party?

     b.   Partide   **kim-le**   sadece Pelin   konuştu?
          party.LOC who-with only Pelin   talk.PST.3SG
          Who did only Pelin talk to at the party?
          = which person x is such that only Pelin talked to x at the party?

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(5)   *Intervention configuration in wh-questions*
      If an **intervener** c-commands a wh-phrase,
      the wh-phrase cannot scope above the intervener.

Quick summary of what we know about intervention effects

  – intervention effects are not rare at all, but defining a universal class of
    intervener̲s̲ has proved to be challenging

  – there are competing theories of intervention effects
    : syntactic, semantic, prosodic approaches (see Mayr (2020) for an overview)

What does this paper aim to do? - to simplify things a bit

  – I argue that (at least) in Turkish the phenomenon of **intervention** is the very
    same thing as the phenomenon of **scope rigidity**

  – In particular, I show that an intervention effect simply means that
    there is no interpretable LF which conforms to a given PF.

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2 Background: a prominent account of intervention

- A well-known account of intervention due to Beck (2006) (and its close relatives in Cable (2010); Kotek (2014)) builds on
  – an in-situ semantics for composing question meanings
  – an in-situ semantics for focus association
- Caution: I present the general idea here, glossing over some technical details[1]

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[1] The implementation I am presenting below is closer to Kotek (2014) than Beck (2006).

– For any LF, we compute two dimensions of meaning: focus and normal (Rooth, 1985)

– The 'focus dimension' is evaluated by a sentential operator:

(6)   'only PELIN$_F$ talked to John'.

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         ONLY              S
                    sadece PELIN$_F$
                             John-la   konuştu
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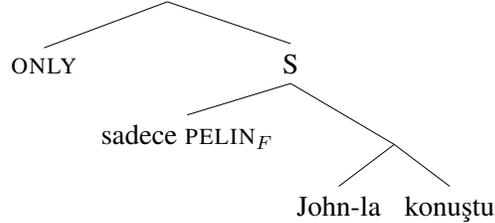
(7)   a. $[\![\text{PELIN}_F]\!]^{\text{focus}}$ = {Mary, Susan, Bill, ... }
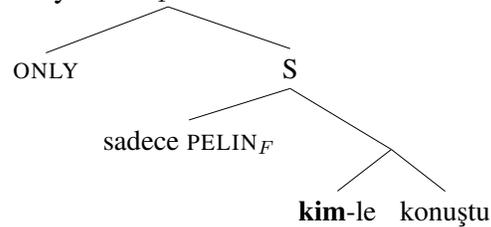   b. $[\![\text{PELIN}_F]\!]^{\text{normal}}$ = Pelin

(8)   a. $[\![\text{S}]\!]^{\text{focus}}$ = {Mary talked to John, Susan talked to John, ... }
       b. $[\![\text{S}]\!]^{\text{normal}}$ = Pelin talked to John

(9)   ONLY says
       $[\![\text{S}]\!]^{\text{normal}}$ is true & no other alternative in $[\![\text{S}]\!]^{\text{focus}}$ is true.

– ⌐Explaining Intervention⌐: wh-phrases lack a normal semantic value

(10)   'only PELIN$_F$ talked to whom?'   see (4a)

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         ONLY              S
                    sadece PELIN$_F$
                             kim-le   konuştu
```

(11)   a. $[\![\textbf{kim}]\!]^{\text{focus}}$ = {Mary, Susan, Bill, ... }
       b. $[\![\textbf{kim}]\!]^{\text{normal}}$: undefined!!

⇒ since $[\![\textbf{kim}]\!]^{\text{normal}}$ is undefined, $[\![\text{S}]\!]^{\text{normal}}$ is undefined, too!
However, ONLY needs the meaning of $[\![\text{S}]\!]^{\text{normal}}$. Hence, the * judgment.

# 3   Problems with this account

- **Problem 1:** This account stipulates that wh-phrases lack normal semantic values. But this makes incorrect empirical predictions!   (See Li and Law (2014) for Mandarin) Wh-phrases, and islands containing wh-phrases *can* associate with ONLY:

    (12)   Selin [sadece **hangi soru-yu**]   cevapla-dı?
            Selin only   which question-ACC answer-PST
            'Which question is such that Selin only answered that question?'

    (13)   Selin [sadece [island **hangi davetli-den** gel-en   hediye-yi]] beğen-di?
            Selin only   which guest-ABL   come-REL gift-ACC   like-PST
            ✓'Which guest$_1$ is such that Selin only liked [the gift that came from them$_1$]?'

    ⇒ Given that ONLY needs the normal semantic value of its sister and that wh-phrases prevent this, these are predicted to be gibberish. **Then how come they are interpretable?**

- **Problem 2**: A well-known problem with this account is that it needs interveners to be focus-associators. But not all kinds of interveners seem focus-related.
    See Mayr (2020) for discussion; and Kelepir (2001); Kesen (2010) for relevant facts in Turkish.

    (14)   a. ***Hiçkimse** hangi soru-yu   cevapla-ma-dı?
                anybody   which question-ACC answer-NEG-PST
                Intended: 'Which question is such that nobody answered it?'

            b. Hangi soru-yu   hiçkimse cevapla-ma-dı?
                which question-ACC anybody answer-NEG-PST
                'Which question is such that nobody answered it?'

    (15)   a. ***Herkes**   hangi soru-yu   cevapla-ma-dı?
                everybody which question-ACC answer-NEG-PST
                Intended: 'Which question is such that not everybody answered it?'

            b. Hangi soru-yu   herkes   cevapla-ma-dı?
                which question-ACC everybody answer-NEG-PST
                'Which question is such that not everybody answered it?'

    (16)   **Apparently this is an illicit LF in Turkish but why?**
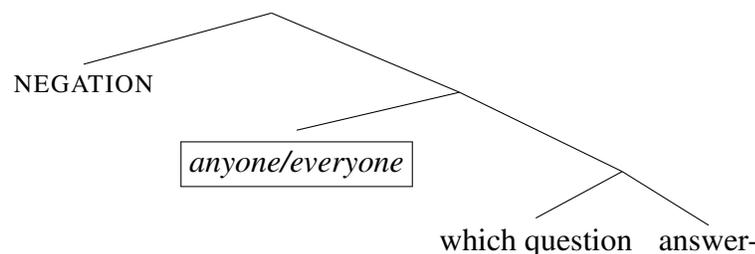
- **Problem 3:** Given that overt wh-scrambling can fix intervention, one needs to assume that covert wh-scrambling is, for some reason, unavailable. (See Branan (2018) for a comprehensive discussion of where this ban is situated in grammar under different approaches to intervention effects.)

  ⇒ what principle blocks covert fronting of **kim-le** in (17a)?

(17) a. *Partide   sadece Pelin **kim-le**   konuştu?
          party.LOC only Pelin   who-with   talk.PST.3SG
          Intended: Who did only Pelin talk to at the party?

      b. Partide   **kim-le**   sadece Pelin   konuştu?
          party.LOC who-with only Pelin   talk.PST.3SG
          Who did only Pelin talk to at the party?
          = which person x is such that only Pelin talked to x at the party?

4   Towards a solution

- In the previous section, I have posed three questions:

  - Q1. What blocks **covert wh-scrambling** (which would in principle obviate intervention)?

  - Q2. How come quantifiers that do not associate with focus cause intervention?

  - Q3. How do we interpret questions in which a wh-phrase associates with ONLY?
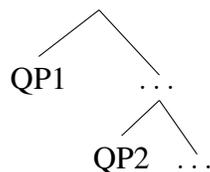
- There is a very reasonable answer to Q1.

  ⇒ **Scope Rigidity**

- (and taking this answer seriously answers Q2 and Q3, too!)

(18) **Scope Rigidity** [however it may be formalized] demands that the relative semantic scope of any two **scope-takers** be recovered from their **relative linear order**.

(19) PF: QP1 > QP2
      is mapped to
      LF:

- **Turkish exhibits scope rigidity.**   [See in particular Kelepir (2001) and Özyıldız (2017).]

    – In (20), PF is 'QP1>QP2'. So at LF, QP2 cannot semantically scope above QP1.

    (20)   [$_{QP_1}$ bi çocuk] [$_{QP_2}$ her   elma-yı]   ye-di
              a   child   every apple-ACC eat-PST.3SG
              'A child ate every apple.'
              false if every apple was eaten by a different child.

    – Only "overt QR" (i.e. scrambling) can shift semantic scope.

    (21)   [$_{QP_2}$ **her   elma-yı**]   [$_{QP_1}$ bi çocuk] **t**$_{QP_2}$ ye-di
              every apple-ACC   a   child   eat-PST.3SG
              true if every apple was eaten by a different child.

- My proposal relies on these two assumptions:

    – both *sadece*-phrases and wh-phrases take scope by movement/QR!
    ($\Rightarrow$ we **reject** the in-situ semantics for wh-phrases/*only*-phrases
    where these would not qualify as 'scope-takers')

    – Crucially, things that take scope by movement have to respect Scope Rigidity.

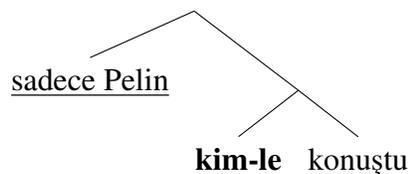- | **The basic idea about intervention effects** |

    – There is no non-gibberish LF for the PF in (22a), respecting Scope Rigidity

    – But there is a non-gibberish LF for (22b), respecting Scope Rigidity

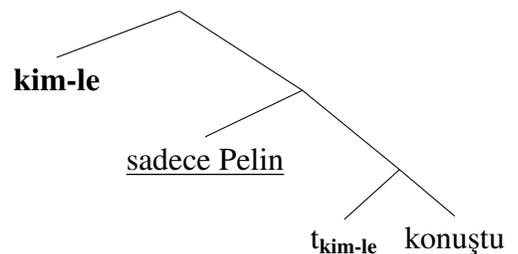   (22)   a. *Partide   sadece Pelin **kim-le**   konuştu?
                 party.LOC only Pelin   who-with   talk.PST.3SG
                 Intended: Who did only Pelin talk to at the party?

             b. Partide   **kim-le**   sadece Pelin   konuştu?
                 party.LOC who-with only Pelin   talk.PST.3SG
                 Who did only Pelin talk to at the party?
                 = which person x is such that only Pelin talked to x at the party?

    (23)   bad LF   (24)   good LF

            sadece Pelin   **kim-le**

                     kim-le konuştu   sadece Pelin

                                                                   t$_{\textbf{kim-le}}$ konuştu
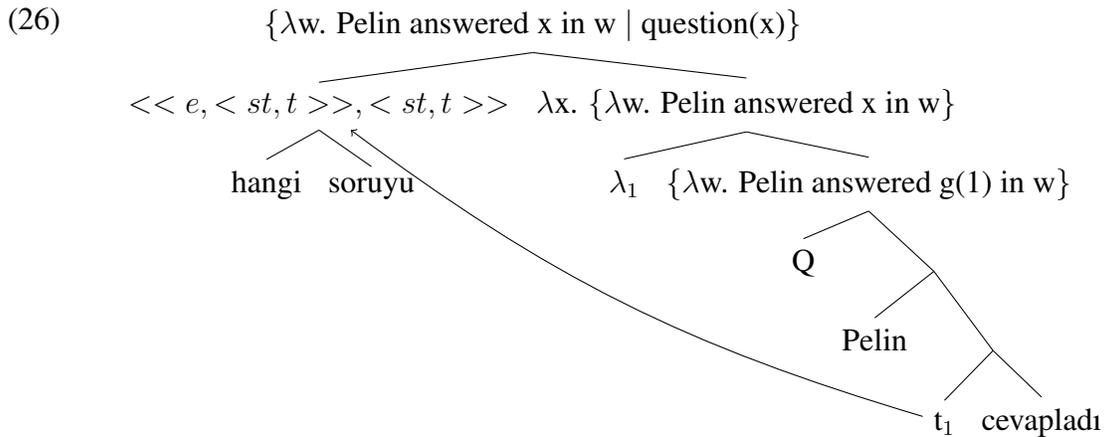
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5 Fleshing out the proposal

- **STEP#1:** I take wh-questions to denote sets of propositions (Hamblin, 1973; Karttunen, 1977) and follow Heim (2000) in the way wh-questions are composed.
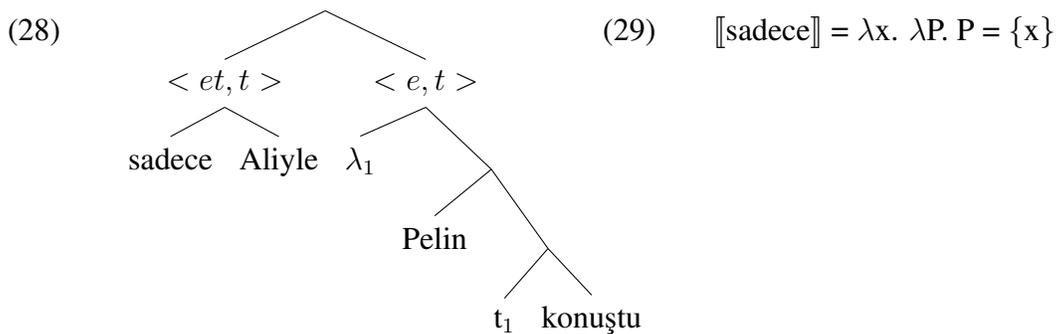
    – wh-phrases have to move right above a Q head. This derives a proposition set, the meaning of a wh-question.

(25)   Pelin hangi soruyu   cevapladı?
        Pelin which question answered
        'Which question did Pelin answer?'

(26)
$$\{\lambda w.\ \text{Pelin answered x in w}\ |\ \text{question(x)}\}$$

$<< e, < st, t >>, < st, t >>$ $\lambda x.\ \{\lambda w.\ \text{Pelin answered x in w}\}$

hangi   soruyu λ_1 $\{\lambda w.\ \text{Pelin answered g(1) in w}\}$

Q

Pelin

t_1 cevapladı

(27)   a. $[\![Q]\!]^w = \lambda p_{< s, t >}.\ \{p\}$
        b. $[\![\text{hangi soruyu}]\!]^w = \lambda R_{< e, < st, t >>}.\ \lambda p.\ \exists x:\ \text{question(x)}=1\ \&\ R(x)(p)=1$

- **STEP#2**: I assume that the focus particle *sadece* is a scope-taker (Krifka, 1991; Geurts and van der Sandt, 2004). See the LF in (28) and the truth conditions derived from it in (30).

(28)   (29) $[\![\text{sadece}]\!] = \lambda x.\ \lambda P.\ P = \{x\}$

$< et, t >$ $< e, t >$

sadece   Aliyle λ_1

Pelin

t_1 konuştu

(30) $[\![(28)]\!] = 1$ iff $\{\text{Ali}\} = \{x:\ \text{Pelin talked to}\ x\}$
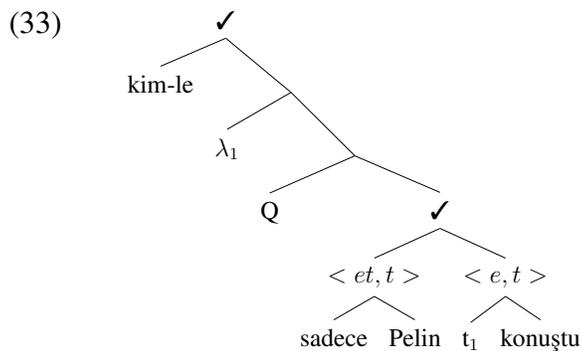   'Ali is the only one Pelin talked to.'

- **INTERVENTION EXPLAINED:** Given Scope Rigidity, there is a tight restriction on which LFs we can 'understand from' a given PF. This makes correct predictions about the so-called intervention configurations, which provide no converging LFs.

(31)   a.   *Sadece Pelin **kim-le**   konuştu?
      only Pelin   who-with   talk.PST.3SG
      Intended: Who did only Pelin talk to?

      b.   **Kim-le**   <u>sadece Pelin</u>   konuştu?
      who-with only Pelin   talk.PST.3SG
      Who did only Pelin talk to at the party?

– No interpretable LF for (31a) that respects Scope Rigidity!

(32)
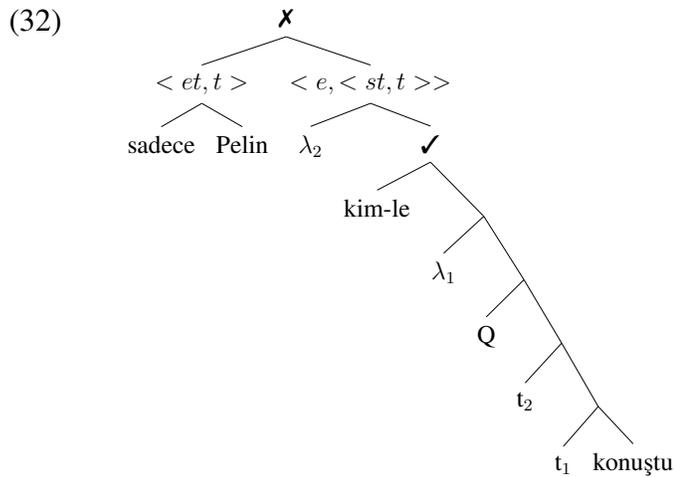
– An LF for (31b) that respects Scope Rigidity **is** interpretable! We derive the proposition set in (34). Crucially, given Scope Rigidity, this LF is unavailable for the PF in (31a).

(33)

(34) $\llbracket$(33)$\rrbracket$ = {λw. {Pelin} = {x: x talked to y in w} | person(y)} =
      {Pelin is the only one that talked to Susan,
   Pelin is the only one that talked to Mary, . . . }

Recall:
Q2. Why do quantifiers that do not appear to associate with focus cause intervention?

- This question now finds a plausible answer.

(35) a. $\{[\text{hiçkimse}]_1 \parallel [\text{herkes}]_1\}$ $[\text{hangi davetli-yle}]_2$ konuş-ma-dı?
          anybody   everyone   which guest-with   talk-NEG-PST
          ✗'Which guest$_2$ is such that $\{$nobody $\parallel$ not everyone$\}$ talked to them$_2$?'

      b. $[\text{hangi davetli-yle}]_2$ $\{[\text{hiçkimse}]_1 \parallel [\text{herkes}]_1\}$ konuş-ma-dı?
          which guest-with   anybody   everyone talk-NEG-PST
          ✓'Which guest$_2$ is such that $\{$nobody $\parallel$ not everyone$\}$ talked to them$_2$?'

– The LF for (35a) :
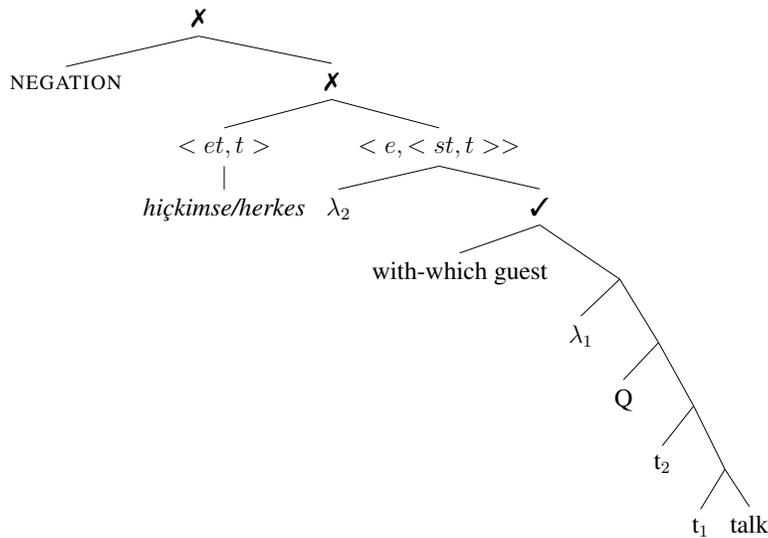
– The LF for (35b) :
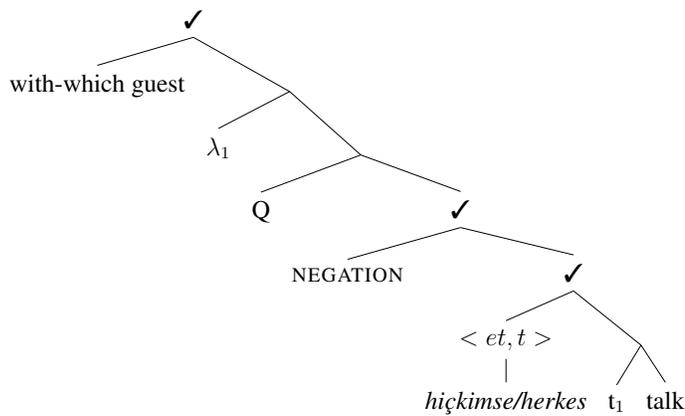
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- There is a licit LF for sentences where ONLY associates with a wh-phrase.

(36)   a.   Selin **sadece** hangi soru-yu   cevapla-dı?
               Selin only   which question-ACC answer-PST
               'Which question is such that Selin only answered that question?'

b.
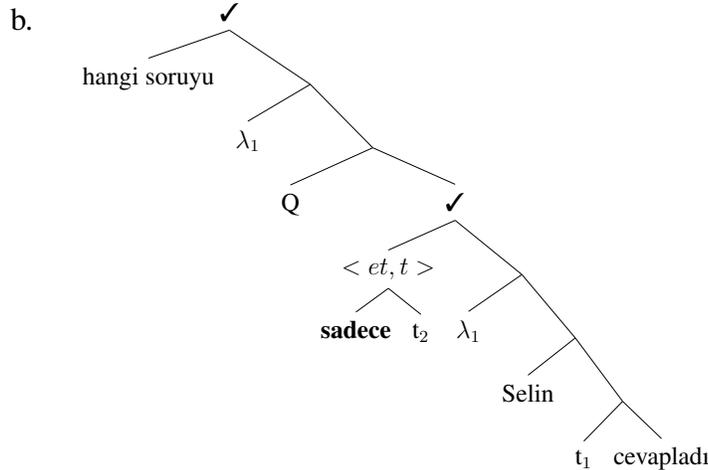
c.   = $\{\lambda w. \{x\} = \{y: \text{Selin answered y in w}\} \mid \text{question}(x)\}$

- There is, of course, the question of whether this LF is 'allowed from' this PF, given our concerns for Scope Rigidity.

  - Notice that here, a scope-taker contains another scope-taker and later in the derivation, this is un-nested — by sub-extraction. It is not obvious what Scope Rigidity means for such "un-nesting" cases.

  - I tentatively suggest that Scope Rigidity is only relevant for the linearization of scope-takers where one *c-commands* the other in the first merge site.[2]

  - (alternatively, the PF in (36a) might be allowing the LF in (36b) because there is no licit PF that matches the LF in (36b): Turkish does not allow stranding *sadece*.[3])

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[2]I believe that a formalization of Scope Rigidity (and when it is mute) may be tenable within the Copy Theory of Movement, stated in the form of 'PF/pronunciation instructions' concerning scope-takers. Just to give an idea, here is a partial (and almost certainly wrong) attempt to begin thinking about how to state something along those lines: Let α and β be scope-takers. If there is a copy of α that c-commands any copies of β but there is no copy of β that c-commands all copies of α, then pronounce the highest copy of α — unless there is a copy of β that contains α.

[3]I thank Paloma Jeretič for suggesting a possibility along these lines.

6 Concluding remarks

- I have argued for a semantic account of intervention effects.

  - Another semantic account, namely the focus-related account due to Beck (2006) is forced to assume that covert wh-scrambling is disallowed.

  - I have argued the ban on covert wh-scrambling in fact follows from Scope Rigidity - but only if wh-phrases themselves are scope-takers [contra Beck (2006), a.m.o.]

  - And if they *are* scope-takers, and rigid in Turkish, then the so-called 'intervention effect' is simply a non-converging LF.

- There are (at least) two important challenges that remain

  - As Kesen (2010) shows, some quantifiers can precede *wh*-phrases in Turkish. It seems that the ratings of these sentences vary across speakers but some quantifiers like *her NP* 'every NP ' lean towards 'acceptable' for a lot of speakers.

    (37) %Her öğrenci hangi soru-yu   cevapla-dı?
          every student which question-ACC answer-PST
          'Which question is such that every student answered it?'

  - The current account predicts that such sentences will sound acceptable to the extent that the quantifier does not behave like one (i.e. has a non-scopal interpretation) :

    (38)   Herkes   nereye gitti?
           everyone where went
           ✓ 'Where did everyone (=people) go?'
           ✗ 'For each person x, where did x go?'

  - or is somehow not scope rigid.

  - In particular, the latter holds in Japanese, as Erlewine and Kotek (2017) have argued. It seems that only scope-rigid expressions induce intervention in Japanese.

  - Finally: abandoning in-situ scoping mechanisms for *wh*-phrases, of course, raises questions about islands. Fortunately, the Heimian proposal for composing wh-questions (Heim, 2000) can be extended to deal with islands, as well. See Charlow (2019), and Demirok (2019) for a close alternative.

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