# Clause-final negation is sentential negation
## An analysis of Vietnamese polar questions

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# Partition by Exhaustification

- Fox (2019, 2020) proposes the following felicity condition on questions

(1) **Partition by Exhaustification** (PbE)
A question $Q$ is felicitous given a context set $C$ only if
$\left\{ \left[ exh(Q)(p) \right]_C \;\middle|\; p \in Q \right\}$ is a partition of $C$

(2) Definitions

   a. $\left[ p \right]_C =_{\text{def}} p \cap C$

   b. $exh(Q)(p) = 1 \Leftrightarrow_{\text{def}} p = 1 \wedge \forall q \in Q.\ q = 1 \rightarrow p \subseteq q$

   c. a set of propositions $\mathcal{P}$ partitions a set of worlds $\mathcal{W}$ iff

      (i) members of $\mathcal{P}$ are mutually exclusive

      (ii) $\bigcup \mathcal{P} = \mathcal{W}$

# Illustration of PbE

- An expression $E$ either represents or alludes to a question $Q$, and $E$ is felicitous to the extent that a context $C$ can be accomodated so that $Q$ satisfies PbE in $C$

  (3)  Which girl$_{\{a,b,c\}}$ came to the party?
      a.  $Q = \{a, b, c\}$
      b.  partition of $C$: $a \land \neg b \land \neg c$, $\neg a \land b \land \neg c$, $\neg a \land \neg b \land c$
      c.  inference: only one came to the party

  (4)  [A:] She brought an expensive convertible. [B:] No. #She brought a red$_F$ convertible.
      a.  $Q = \{expensive, red\}$
      b.  partition of $C$: $expensive \land \neg red$, $\neg expensive \land red$
      c. #inference: $expensive \Leftrightarrow \neg red$

Katzir (2023)

# PbE and polar questions

The discussion on PbE has been carried out exclusively with respect to constituent questions. Polar questions have not been considered.

# Agenda

- propose a syntactic analysis of polar questions in Vietnamese
- show that given PbE, the analysis provides a unified solution to many seemingly disparate problems
- relate the analysis to English polar questions

## Profile

- Polar questions in Vietnamese consists of an affirmative sentence followed by the sentential negation

  (5) a. Nam đến
         Nam came 'Nam came'
      b. Nam không đến
         Nam NO came 'Nam didn't come'
      c. Nam có đến
         Nam YES came 'Nam did come'

  (6) Nam có đến không
      Nam YES came NO 'did Nam come?'

  (7) Profile: $[S_{\text{YES}} \text{ NO}]$

## Analysis

- Polar questions are basically elliptical alternative questions

  (8)  a.  Nam YES came NO
       b.  [$S_{YES}$ Nam YES came] $Q$ [$S_{NO}$ ~~Nam~~ NO ~~came~~]

  (9)  Formal conditions

       a.  $S_{NO}$ is derived from $S_{YES}$ by replacing the positive polarity head of $S_{YES}$ with a negative polarity head
       b.  everything in $S_{NO}$ is deleted except the polarity head
       c.  $[\![\phi \ Q \ \psi]\!] = \lambda p. \ p = [\![\phi]\!] \vee p = [\![\psi]\!]$

  (10)  Consequence of PbE

       (i)  $S_{YES} \wedge S_{NO} = \bot$
       (ii)  $S_{YES} \vee S_{NO} = C$

# General form of puzzles and explanation

- Puzzles
  $S_{\text{YES}}$ is acceptable as a statement, but $\begin{bmatrix} S_{\text{YES}} \text{ NO} \end{bmatrix}$ is deviant as a polar question

- Explanation
  Accomodation of a context which is partitioned by $S_{\text{YES}}$ and $S_{\text{NO}}$ causes problems

# Quantifiers: puzzle

- Polar questions with quantified subjects are deviant

  (11)   a.   ai cũng    có    đến
              everyone YES came ('everyone did come')

         b.   một người có    đến
              someone   YES came ('someone did come')

  (12)   a. #ai cũng    có    đến    không?
              everyone YES came NO

         b. #một người có    đến    không?
              someone   YES came NO

## Quantifiers: explanation

- $S_{YES}$ and $S_{NO}$ partition $C$ only if $C$ is 'homogeneous'

  (13) a. everyone YES came = '$\forall x.\ x$ came'
  
          everyone NO   came = '$\forall x.\ \neg x$ came'
  
       b. someone YES came = '$\exists x.\ x$ came'
  
          someone NO   came = '$\exists x.\ \neg x$ came'

  (14) $C = \{w \mid \text{all came } w\} \cup \{w \mid \text{none came in } w\}$

- Maximize Presupposition would militate against **all** and **some** in favor of **the**

  (15) mọi người có    came không?
  
        the people YES came NO

Heim (1991)

# ONLY: puzzle

- Subjects in polar questions cannot associate with **only**

  (16) chỉ Nam có đến
       only Nam YES came 'only Nam did come'

  (17)#chỉ Nam có đến không?
       only Nam YES came NO

# ONLY: explanation

- $S_{YES}$ and $S_{NO}$ introduce contradictory presuppositions

  (18)  only Nam YES came = 'Nam came $\wedge$ no other did'
        only Nam NO  came = 'Nam didn't come $\wedge$ all others did'

- Even if the contradictory presuppositions are locally accomodated, a context partitioned by $S_{YES}$ and $S_{NO}$ makes **only** idle, thus deviant

  (19)  Context: either John got the job or Bill did
        a.  Who got the job?
        b.  Did John get the job?
        c.  #Did only John get the job?

# ONLY: comparison with ALSO

- Subjects in polar questions can associate with **also**

  (20)  Nam cũng có  đến  không?
        Nam also  YES came NO?

- A context partitioned by $S_{\text{YES}}$ and $S_{\text{NO}}$ is very easy to accomodate

  (21)  Nam also YES came = 'Nam came $\land \exists x \in R.\ x$ came'
        Nam also NO  came = '$\neg$Nam came $\land \exists x \in R.\ \neg x$ came'

# Modal adverbs: puzzle

- Adverbs like **certainly** are acceptable after and deviant before YES

  (22)  a.  Nam có   chắc chắn đến
           Nam YES certainly   came '□Nam came'
       b.  Nam chắc chắn có   đến
           Nam certainly   YES came '□Nam came'

  (23)  a.  Nam có   chắc chắn đến   không?
           Nam YES certainly   come NO
       b. #Nam chắc chắn có   đến   không?
           Nam certainly   YES come NO

# Modal adverbs: explanation

- The position of **certainly** makes a difference in $S_{NO}$

  (24) a.   Nam YES certainly came = '□Nam came'
              Nam NO  certainly came = '¬□Nam came'
       b.   Nam certainly YES came = '□Nam came'
              Nam certainly NO  came = '□¬Nam came'

- When $C = □p \vee □\neg p$, the use of **certainly** is strange

  (25) a.   Look out the window and tell me if it's raining
       b. #Look out the window and tell me if it's certainly raining

von Fintel and Gillies (2010)

# Embedding: puzzle

- Constituent questions can, but polar questions cannot, associate out of embedded clauses

  (26) a.  Nam muốn ai  đến?
         Nam want  who come
         'which x, x is a person: Nam wants x to come'
     b. #Nam muốn Lan có  đến  không?
         Nam want  Lan YES come NO
         ('which f, f is YES or NO: Nam wants f(Lan to come)')

  (27) Nam có  muốn Lan đến  không?
     Nam YES want  Lan come NO
     'which f, f is YES or NO, f(Nam wants Lan to come)'

# Embedding: explanation

- The context needed for $S_{\text{YES}}$ and $S_{\text{NO}}$ in the embedded case to satisfy PbE would make embedding unnecessary

  (28)  Nam want Lan YES come = 'Nam wants (Lan comes)'
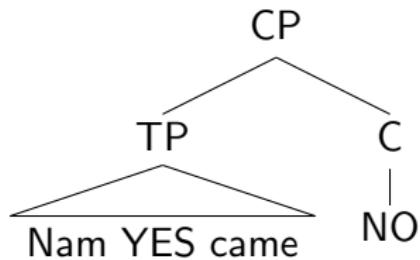         Nam want Lan NO  come = 'Nam wants ($\neg$Lan comes)'

- Grammar prefers non-embedding structures

  (29)  a.   Nam YES want Lan come NO
         b. #Nam want Lan YES come NO

## Previous accounts

- final NO is **not** analyzed as negation but as a "question particle" which basically means 'whether'

(30)

```
              CP
            /    \
          TP      C
        /    \    |
   Nam YES came   NO
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- this kind of analyses raises questions
    - why does the "question particle" look just like negation
    - why does it care where YES is in the TP, even though that is of no semantic consequence
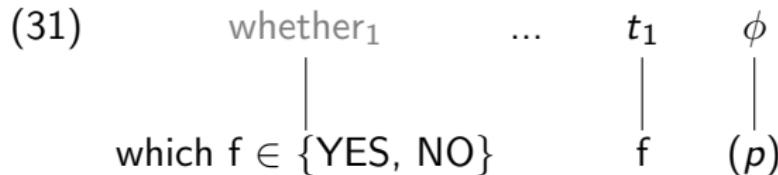
Trinh (2005); Duffield (2007); Phan (2024)

# Syntactic strategy: wh-movement

- English expresses polar question with a wh-word: **whether**

  (31)     whether$_1$          ...        $t_1$       $\phi$

       which f $\in$ {YES, NO}          f       ($p$)

- **whether** can move from different scope sites

  (32)  did John even solve problem 2?
     a.  (i)    whether$_1$ [$t_1$ [even [John solve problem 2]]]

          (ii)   which f $\in$ {YES, NO}: f(even(John solve problem 2))
     b.  (i)    whether$_1$ [even [$t_1$ [John solve problem 2]]]

          (ii)   which f $\in$ {YES, NO}: even(f(John solve problem 2))

Bennett (1977); Higginbotham (1993); Krifka (2001); Guerzoni (2004)

# Vietnamese & English

Because the trace of **whether** is silent, cases of deviant sentences in Vietnamese become cases of missing readings in English

# Quantifiers: English

- the trace of **whether** must scope above quantified subjects

(33) did everyone come?

    a.    whether$_1$ [$t_1$ [everyone$_2$ [$t_2$ came]]] = $\{\forall x.Px, \neg\forall x.Px\}$

    b. #whether$_1$ [everyone$_2$ [$t_1$ [$t_2$ came]]] = $\{\forall x.Px, \forall x.\neg Px\}$

(34) did someone come?

    a.    whether$_1$ [$t_1$ [someone$_2$ [$t_2$ came]]] = $\{\exists x.Px, \neg\exists x.Px\}$

    b. #whether$_1$ [someone$_2$ [$t_1$ [$t_2$ came]]] = $\{\exists x.Px, \exists x.\neg Px\}$

# ONLY: English

- the trace of **whether** must scope above **only**

(35) did only John$_F$ come?

    a.   whether$_1$ [$t_1$ [only [John$_F$ came]]] $= \{$ *only p*, $\neg$*only p* $\}$

    b. #whether$_1$ [only [$t_1$ [John$_F$ came]]] $= \{$ *only p*, *only* $\neg$*p* $\}$

# Modal adverbs: English

- the trace of **whether** must scope above **certainly**

  (36) did John certainly win?

      a.   whether$_1$ [$t_1$ [certainly [John won]]] $= \{\Box p, \neg \Box p\}$

      b.   #whether$_1$ [certainly [$t_1$ [John won]]] $= \{\Box p, \Box \neg p\}$

# Embedding: English

- the trace of **whether** cannot be inside an embedded clause

(37) does John want Mary to win

    a.   whether$_1$ [$t_1$ [John wants Mary to win]]
       $= \{want\ p, \neg want\ p\}$

    b. #whether$_1$ [John wants [$t_1$ [Mary to win]]]
       $= \{want\ p, want\ \neg p\}$

# Take home message

- The assumption that polar questions satisfy PbE brings together a lot of diverse observations pertaining to
  - acceptability of sentences in Vietnamese
  - availability of readings in English

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