NPI licensing in English and Vietnamese: A comparative analysis

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Grammar and Logic

Grammar separates well-formed from ill-formed sentences.

(1) a. I know what John said before he departed
    b. #I know what John departed after he said

Logic separates valid from invalid inferences.

(2) a. $\dfrac{\text{every student smokes and every student drinks}}{\text{every student smokes and drinks}}$

    b. $\dfrac{\text{some student smokes and some student drinks}}{\text{✗ some student smokes and drinks}}$

The Logic–Grammar Interface

A plausible working hypothesis is that logic is encapsulated from grammar as a separate module (Chomsky 1957).

(3)   a.   colorless green ideas sleep furiously
          b. #furiously sleep ideas green colorless

The Logic–Grammar Interface

But there are grammatical phenomena which seem to be explainable in terms of logical properties of the expressions involved.

(4) a. Every student except John came to the party
    b. #Some student except John came to the party

(5) a. at least two students came to the party
    b. #at least zero students came to the party

cf. von Fintel (1993), Gajewski (2008, 2013), Hirsch (2016), Haida and Trinh (2020)

Distribution of NPIs

NPIs in English: **any NP**, **ever**,...

(6) a. no one is writing any book on Vietnamese
     b. #John is writing any book on Vietnamese

(7) a. few people ever visited Iceland
     b. #many people ever visited Iceland

Distribution of NPIs

NPIs in Vietnamese: **NP nào**, **bao giờ**,...

(8)   a.   không ai đọc quyển sách nào
             no one   read any book
       b. #Nam đọc quyển sách nào
             Nam read any book

(9)   a.   ít sinh viên nào đọc sách bao giờ
             few students   read books ever
       b. #nhiều sinh viên đọc sách bao giờ
             many students read books ever

First attempt: DE functions

(10) DE-ness Condition
NPIs must be inside the argument of a **downward entailing** (DE) function

(11) A function f is DE iff
for all x, y such that $x \Rightarrow y$, $f(y) \Rightarrow f(x)$

$$\frac{x \Rightarrow y}{f(y) \Rightarrow f(x)}$$

cf. Fauconnier (1975), Ladusaw (1979)

Cross-categorial $\Rightarrow$

(12) a. If x, y are sets, then $x \Rightarrow y$ iff $x \subseteq y$
   b. If x, y are truth values, then $x \Rightarrow y$ iff $x = 0$ or $y = 1$

(13) a. run fast $\Rightarrow$ run
   b. John talked to Mary and Sue $\Rightarrow$ John talked to Mary

stronger meaning $\Rightarrow$ weaker meaning

Sentences as function–argument structures

(14) John read a book

   a.   [John _____](read a book)   = [John read a book]

   b.   [_____ read a book](John)   = [John read a book]

   c.   [John read _____](a book)   = [John read a book]

   d.   [John _____ a book](read)   = [John read a book]

cf. Frege (1879, 1884, 1923)

many vs. few

(15) run fast ⇒ run
    ───
    ✗ many students <u>run</u> ⇒ many students <u>run fast</u>

(16) run fast ⇒ run
    ───
    few students <u>run</u> ⇒ few students <u>run fast</u>

(17) a. #many students <u>ever run</u>
    b.   few students <u>ever run</u>

(18) a. #nhiều sinh viên chạy <u>bao giờ</u>
        many students run   ever
    b.   ít sinh viên <u>nào</u> chạy <u>bao giờ</u>
        few students   run   ever

Exception to DE-ness Condition: ONLY

(19) only John <u>ever reads books</u>

(20) DE-ness Condition
      NPIs must be in the scope (i.e. the argument) of a DE function

[ONLY NP ___] is not DE

(21) drinks espresso $\Rightarrow$ drinks coffee
      ━━
      ✗ only John <u>drinks coffee</u> $\Rightarrow$ only John <u>drinks espresso</u>

Presupposition of ONLY

(22) [ONLY NP VP] is defined only if [NP VP] is true
    when defined, [ONLY NP VP] is true iff $\neg\exists$A: A $\neq$ NP & A VP is
    true

(23) [only John drinks espresso] is defined only if John drinks espresso
    when defined, [only John drinks espresso] is true iff no one else
    drinks espresso

cf. Horn (1969)

DE vs Strawson-DE

(24) A function f is DE iff
for all x, y such that $x \Rightarrow y$, $f(y) \Rightarrow f(x)$

$$\frac{x \Rightarrow y}{f(y) \Rightarrow f(x)}$$

(25) A function f is Strawson-DE iff
for all x, y such that $x \Rightarrow y$ and $f(x)$ is defined, $f(y) \Rightarrow f(x)$

$$\frac{\begin{array}{c} x \Rightarrow y \\ f(x) \text{ is defined} \end{array}}{f(y) \Rightarrow f(x)}$$

Note that if f is DE then f is Strawson-DE but not vice versa!

Asher (1987), Linebarger (1987)

Second attempt: Strawson-DEness

(26) Strawson-DEness Condition
NPIs must be inside the argument of a Strawson-DE function

(27) drinks espresso ⇒ drinks coffee
John drinks espresso
only John drinks coffee ⇒ only John drinks espresso

Since [only John ___] is Strawson-DE, NPIs can occur in its scope.

(28) only John ever reads books

cf. von Fintel (1999)

ONLY: English vs Vietnamese

ONLY does not license NPIs in Vietnamese!

(29) a. only John ever reads books
     b. #mỗi John đọc sách   bao giờ
         only John read books ever

(30) Hypothesis
     a. NPIs in Vietnamese must be inside the argument of a DE
         function
     b. NPIs in English must be inside the argument of a Strawson-DE
         function

EVERY

(31) [EVERY NP VP] is defined only if there are NPs
when defined, [every NP VP] is true iff NP $\subseteq$ VP

(32) student who doesn't run $\Rightarrow$ student

✗ every <u>student</u> runs $\Rightarrow$ every <u>student with wings run</u> runs

(33) student who doesn't run $\Rightarrow$ student
there is a student with wings

every <u>student</u> runs $\Rightarrow$ every <u>student with wings</u> runs

[EVERY _____ VP] is not DE but is Strawson-DE

Strawson (1952), Diesing (1990, 1992)

EVERY: English vs Vietnamese

Prediction: EVERY licenses NPIs in its NP argument in English but not in Vietnamese

(34) a.   every student who ever reads books passed the exam
      b. #tất cả những sinh viên đọc sách   bao giờ đều qua được
          every student who   read books ever   passed
          bài thi
          the exam
      c.   tất cả những sinh viên đọc sách   tuần trước đều qua được
          every student who   read books last week   passed
          bài thi
          the exam

Adversatives

(35) John regrets ever drinking espresso

(36) [x regret p] is defined only if p is true
when defined, [x regret p] is true iff x wants $\neg p$

(37) drinking espresso $\Rightarrow$ drinking coffee
John drank espresso
_____
John regrets drinking coffee $\Rightarrow$ John regrets drinking espresso

[NP regrets ___] is not DE, but is Strawson-DE

Ladusaw (1980)

Adversatives: English vs Vietnamese

Prediction: Adversatives license NPIs in English but not in Vietnamese

(38) a. John regrets ever drinking coffee
     b. #John hối hận là đã uống cà-phê bao giờ
        John regrets   drinking coffee   ever

Antecedent of conditionals

[if ___ then q] is not DE, but Strawson-DE

(39) I win the lottery and break my leg $\Rightarrow$ I win the lottery

   ✗ if I win the lottery, i will be happy $\Rightarrow$ if I win the lottery and break my leg, I will be happy

(40) I win the lottery and break my leg $\Rightarrow$ I win the lottery

   If I win the lottery, I will be happy

   winning the lottery may come with me breaking my leg

   if I win the lottery, i will be happy $\Rightarrow$ if I win the lottery and break my leg, I will be happy

Stalnaker (1975), Lewis (1981), Katz (1991), von Fintel (1999)

Antecedents of conditionals: English vs Vietnamese

Predictions: NPIs are licensed in antecedents of conditionals in English but not in Vietnamese

(41) a. if John ever reads Mary's tweets, he will be very surprise

    b. #nếu John đọc   tweets của Mary bao giờ, nó sẽ   rất
        if   John reads tweets of   Mary ever   he will be very
        ngạc nhiên
        surprised

    c. nếu John đọc   tweets của Mary hằng ngày, nó sẽ   rất
       if   John reads tweets of   Mary every day   he will be very
       ngạc nhiên
       surprised

Recap

(42) Hypothesis
    a.   NPIs in Vietnamese must be inside the argument of a DE function
    b.   NPIs in English must be inside the argument of a Strawson-DE function

FEW vs AT MOST

Puzzle: both [few NP ___] and [at most n NP ___] are DE, but only the former licenses NPIs in Vietnamese

(43) a. few students ever read Quine
     b. ít sinh viên nào đọc Quine bao giờ
         few students   read Quine ever

(44) a. at most three students ever read Quine
     b. #nhiều nhất là ba sinh viên đọc Quine bao giờ
         at most three   student   read Quine ever

Intolerance

(45) Revised Hypothesis
 a. NPIs in Vietnamese must be inside the argument of a DE and intolerant function
 b. NPIs in English must be inside the argument of a Strawson-DE function

(46) Intolerance
A function f is intolerant iff
for any x, y such that $x = \neg y$, either $\neg f(x)$ or $\neg f(y)$

Horn (1989), Löbner (1985), Gajewski (2005)

Resolution of the puzzle

Puzzle: both [few NP ___] and [at most n NP ___] are DE, but only the former licenses NPIs in Vietnamese

(47) a.   few ≈ less than half
     b.   at most three ≈ three or less than three

(48) [few students <u>passed the exam</u>] and [few students <u>failed the exam</u>]
     = contradiction
     ⇝ [few NP ___] is intolerant

(49) [at most three students <u>passed the exam</u>] and [at most three
     students <u>failed the exam</u>]
     = not a contradiction
     ⇝ [at most n NP ___] is not intolerant

Many thanks!

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