No need for a dedicated theory of the distribution of readings of English bare plurals

Giorgio Magri

CNRS | University of Paris 7 | LABEX EFL-PLU

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English bare plurals have (at least) three readings

- **Generic** reading:

  (1) *Dogs* are smart.

  \[ \rightarrow \text{Generally, a dog is smart} \]

- **Existential** reading:

  (2) *Dogs* are playing in my backyard.

  \[ \rightarrow \text{There are dogs playing in my backyard} \]

- **Functional** reading:

  (3) In 1999 at Stanford, a ghost was hunting the campus. . .

  *Students* were aware of that.

  \[ \rightarrow \text{The students (at Stanford) were aware of that} \]

- For the time being, I only look at *English* BPs
How to account for the distribution of these readings

- Distribution of BPs’ readings is constrained by many factors:
  - predicate type (ILP vs SLP)
  - syntactic scope (wide vs narrow)
  - information structure (focus vs topic)
  - argument type (subject vs object)
  - ...

- Distribution of BPs’ readings has been accounted with rich theories:
  - lots of operators: GEN, DKP, DEC, ...
  - lots of constraints on these operators: DKP is last resort, DEC has VP scope
  [Chierchia 2004; Diesing 1995; Kratzer 2004; Cohen & Erteschik-Shir 2002; ...]

- No such rich theory of the distribution of BPs’ readings is needed:
  - all BPs come with the same covert determiner $\emptyset$, no matter their readings
  - $\emptyset$ has existential force, yielding BPs’ existential reading
  - other readings arise through a mechanism of pragmatic strengthening
  - modeled on Spector’s (2007) pragma-semantics for plural morphology
The pragma-semantics of plurality: Spector’s facts

■ **Upward entailing environments:**

(4) John bought *books*.

⇒ says that John bought at least two books

⇒ plural morphology triggers a plurality inference in UEEs

■ **Downward entailing environments:**

(5) It is false that John bought *books*.

⇒ denies he bought any book, not just that he bought two

⇒ the plurality inference disappears in DEEs

■ **Non-monotonic environments:**

(6) Only three boys bought *books*.

⇒ says that three boys bought at least two books

⇒ denies anyone else read any book, not just more than one

⇒ plurality inf. \{ survives \} in the \{ positive \} component of meaning

\{ disappears \} in the \{ negative \} component of meaning
The pragma-semantics of plurality: Spector’s assumptions

- **Background assumptions on the theory of scalar implicatures:**
  - certain sentences trigger scalar implicatures:
    (7) John did *some* of his homework \(\sim\) he did not do *all*
  - a sentence triggers the implicature that any stronger alternative is false
  - iterative computation: implicatures of the alternative are taken into account

- **Assumption on scalar alternatives:**
  - *one* is Horn-mate of *two*
  - PL and *one* are Horn-mates
  - but PL is not Horn-mate of *two*

- **Assumption on relative strength:**
  - *two* asymmetrically entails *one*
  - PL is equivalent to *one*
  - hence *two* also asym. entails PL

\[\begin{array}{c}
\text{[at least two]} \\
\text{[PL]} \quad \text{[at least one]} \\
\end{array}\]

\[\begin{array}{c}
\text{[at least two]} \\
\text{[at least one]} \\
\end{array}\]
The pragma-semantics of plurality: Spector’s computations

- **Downward entailing environments:**
  \[(8) \text{ It is false that John bought } \textbf{books}.\]
  \[\downarrow\text{denies he bought any book, not just that he bought two}\]
  - there are no implicatures in downward entailing environments
  - PL thus reveals its plain semantics, whereby it is equivalent to *at least one*

- **Upward entailing environments:**
  \[(9) \text{ John bought } \textbf{books}. \quad (10) \text{ John bought } \underline{a \textbf{book}}.\]
  \[\downarrow\text{He did not buy only one} \quad \downarrow\text{He bought only one}\]
  - since *at least one* and *at least two* are alternatives and the latter is stronger
    \[\implies (10) \text{ triggers the implicature that } \text{John bought two books} \text{ is false}\]
    \[\implies \text{whereby (10) gets the only-one reading}\]
  - since PL and *at least one* are alternatives and are semantically equivalent
    \[\implies (9) \text{ triggers the implicature that this implicature of one is false}\]
    \[\implies \text{whereby (9) gets the not-only-one reading}\]

**Plurality inference of books is parasitic on the only-one inference of a book**

- **Non-monotonic environments:** correct meaning easily derived
The behavior of the generic inference of BPs

- **Upward entailing environments:**
  
  (11) *Dogs* are carnivorous.
        \[\Rightarrow \text{says that generally a dog is carnivorous} \]

  \(\Rightarrow\) this BP triggers a generic inference in UEEs

- **Downward entailing environments:**
  
  (12) It is false that *dogs* are carnivorous.
        \[\Rightarrow \text{does not just deny that dogs are generally carnivorous} \]

  \(\Rightarrow\) this generic inference disappears in DEEs

- **Non-monotonic environments:**
  
  (13) In only three countries, *dogs* are carnivorous.
       \[\Rightarrow \text{says in three countries a dog is generally carnivorous} \]
       \[\Rightarrow \text{doesn't just deny dogs are elsewhere generally carnivorous} \]

  \(\Rightarrow\) generic inf. \(\{\text{survives, disappears}\}\) in the \(\{\text{positive, negative}\}\) component of meaning
Extending Spector’s account to generic BPs: assumptions

The generic inference of BPs behaves as the plurality inference of PL straightforwardly extend Spector’s account for PL to BPs

- **Background assumption:**
  All English BPs are headed by the same phonologically null determiner \( \emptyset \), no matter their reading

- **Assumption on relative strength:**
  - GEN asymmetrically entails *some*
  - \( \emptyset \) is equivalent to *some*
  - hence GEN/*all* also asym. entails \( \emptyset \)

- **Assumption on scalar alternatives:**
  - *some* is Horn-mate of GEN
  - \( \emptyset \) and *some* are Horn-mates
  - but \( \emptyset \) is not Horn mate with GEN
Extending Spector’s account to generic BPs: computations

- **Downward entailing environments:**
  
  (14) It is false that *dogs* are carnivorous.  
  \[ \rightarrow \text{does not just deny that dogs are generally carnivorous} \]
  
  - there are no implicatures in downward entailing environments
  - $\emptyset$ thus reveals its plain semantics, whereby it is equivalent to *some*

- **Upward entailing environments:**
  
  (15) *Dogs* are carnivorous.  
  \[ \rightarrow \text{Not-just-some dogs are} \]

  - since *some* and *all* are alternatives and the latter is stronger
    \[ \rightarrow (16) \text{triggers the implicature that *All dogs are carnivorous* is false} \]
    \[ \rightarrow \text{whereby (16) gets the just-some reading} \]
  
  - since $\emptyset$ and *some* are alternatives and equivalent
    \[ \rightarrow (15) \text{triggers the implicature that this implicature of *some* is false} \]
    \[ \rightarrow \text{whereby (15) gets the not-just-some reading} \]

**Generic reading of *dogs* is parasitic on the just-some reading of *some dogs***

- **Non-monotonic environments:** correct meaning easily derived
A predicted correlation between BPs and overt indefinites

**Prediction**: a BP $[\emptyset \text{NP}]$ has a **generic** (existential) reading iff the corresponding overt indefinite $[\textit{some NP}]$ in that same configuration triggers (doesn’t trigger) the just-some implicature (out of the blue)

- No rich theory of the distribution of BPs’ readings is needed:
  - just-some implicature of overt indefinites is constrained in complicated ways
  - this is the source of the complicated distribution of BPs’ readings
  - there is no need for a rich theory of the distribution of BPs’ readings
  - we need instead a theory of the distribution of the just-some implicature

- I will now look at a few test cases for the predicted correlation:
  - they provide some preliminary, encouraging evidence
  - admittedly, more work is needed to nail down the just-some implicature
  - the correlation was also implicit in earlier work [e.g., Diesing 1992]
Test case #1: correlation with the ILP/SLP distinction

- Readings of BP subjects correlate with ILP/SLP distinction:

  (17) *Dogs* are carnivorous\textsubscript{ILP}.

  \[\rightarrow\text{generic inference}\]

  (18) *Dogs* were playing\textsubscript{SLP} in my backyard.

  \[\rightarrow\text{no generic inference}\]

- This pattern conforms to the predicted correlation:

  (19) *Some dogs* are carnivorous.

  \[\rightarrow\text{just-some implicature}\]

  (20) *Some dogs* were playing in my backyard.

  \[\rightarrow\text{no just-some implicature}\]
Test case #2: correlation with subject/object distinction

- BP objects can be existential independently of predicate type:
  
  (21) John knows\textsubscript{ILP} good lawyers.  
       $\rightarrow$ no generic inference

  (22) John bought\textsubscript{SLP} good books.  
       $\rightarrow$ no generic inference

  but certain intensional objects tend to be interpreted generically:

  (23) John hates/loves good lawyers.  
       $\rightarrow$ generic inference

- This pattern conforms to the predicted correlation:

  (24) John knows some good lawyers.  
       $\rightarrow$ no just-some implicature

  (25) John bought some good books.  
       $\rightarrow$ no just-some implicature

  (26) John hates some/loves some good lawyers.  
       $\rightarrow$ just-some implicature
Test case #3: correlation with scope

- Existential BPs only have narrow scope (no scope ambiguities)

(27) Every boy read *books*.

\[ \Downarrow = \text{For every boy, there are some books he read} \]
\[ \text{when BP is narrow scoped: no generic inference} \]
\[ \Downarrow = \not\text{there are some books such that every boy read them} \]
\[ \text{when BP is wide scoped: generic inference} \]

- This pattern conforms to the predicted correlation...
  ...because of asymmetry between matrix and embedded implicatures:

(28) Every boy read *some books*.

\[ \Downarrow = \text{when *some* is narrow scoped: no just-some inference} \]
\[ \Downarrow = \text{when *some* is wide scoped: just-some inference} \]

- No need for syntactic constraints on the scope of existential BPs:
  - when wide scoped, BP enriched to a generic reading covering existential one
  - when narrow scope, BP not enriched, and existential reading is thus available
Test case #4: Fox’s exception to BP subjects of ILPs

- BP subjects of ILPs can be existential when embedded under a universal:

\[(29) \text{Jewish women} \text{ are related to every Jewish man.} \quad [\text{Fox 1999}]\]
\[\Downarrow \text{says that for every man there are women related to him}\]
\[\Downarrow \text{no generic inference}\]

- This pattern conforms to the predicted correlation:

\[(30) \text{Some Jewish women} \text{ are related to every Jewish man.}\]
\[\Downarrow \text{no just-some implicature when indefinite has narrow scope}\]
Test case #5: correlation with topic/focus

- The BP *typhoons* can be construed as existential or generic

  \[(31)\] *Typhoons* arise in this part of the pacific.  
  \[\rightarrow\text{generic inference} \text{ when about typhoons}\] 
  \[\rightarrow\text{no generic inference} \text{ when about this part of the pacific}\]

- This pattern conforms to the prediction:

  \[(32)\] *Some typhoons* arise in this part of the pacific.
  \[\rightarrow\text{just some implicature} \text{ when about typhoons}\] 
  \[\rightarrow\text{no just-some implicature} \text{ when about this part of the pacific}\]
Test case # 6: Condoravdi’s reading

- The BP *students* is neither generic nor existential, rather a definite:

  (33) In 1985 there was a ghost haunting the campus. *Students* were aware of this fact. [Condoravdi 1997]
  \[\rightarrow\] says that the students (at Stanford) were aware
  \[\rightarrow\] universal reading, but of a special non-generic quality

- Conforms to the prediction that BP = existential + not just-some

  (34) In 1985 there was a ghost haunting the campus. *Some students* were aware of this fact.
  \[\rightarrow\] says that just some of the students were aware
  \[\rightarrow\] just-some implicature, of the right quality

- Not just the availability of the universal reading for BPs…
… but also the quality of that universal reading is determined by the implicatures of the corresponding overt indefinite
Summary and conclusions

- BPs’ universal readings (generic+functional) behaves under embedding as the plurality inference triggered by plural morphology.
- Extend Spector’s (2007) account for the pragma-semantics of plural morphology to the distribution of BPs’ universal readings.
- Predicts that the availability and the quality of BPs’ universal readings correlate with that of the just-some implicature of overt indefinites.
- We need a theory of the distribution of the just-some implicature of overt indefinites, not a theory of the distribution of BPs’ readings.
- Admittedly, more experimental work is needed for testing the predicted correlation between BPs and overt indefinites.