Donkey anaphora and presupposition projection.

Keny Chatain (MIT)

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What I am not presenting today

- My global project (presented at LFRG): adapt Schlenker's incremental account of presupposition projection to donkey anaphora.
- **Motivations:** mimic the results of Dynamic Semantics without encoding the dynamic behaviour in individual lexical items. This avoids the problem of predicting *monstruous* lexical items cross-linguistically.
  - **The easy problem:** devising such a system.
  - **The hard problem:** making it deal with the existential/universal distinction as powerfully as a DS's approach.

What I am presenting today

- Today, I want to discuss an approach to the hard problem by the recent Champollion, Bumford and Henderson (CBH) within DS.
- And propose an alternative to this approach that highlights an interesting connection between Strong Kleene logic and the $\exists/\forall$ distinction.
- This alternative is also readily implementable in terms of my solution to the easy problem.

1 $\exists/\forall$ distinction

1.1 What are the two construals?

(1) Every farmer who owns a donkey beats it

- Early E-type theories (see (2)) predicted a uniqueness presupposition: every farmer owns exactly one donkey.

(2) Every farmer who owns a donkey beats it<~~the donkey he owns~~>.

- But the sentence is readily accepted by speakers when the pronoun has multiple referential targets (e.g. some farmer owns more than one donkey).

(3) Every customer who bought a sageplant bought 5 others along with it ; because we only sell them in packs of 6... (Heim's dissertation)

- This raises the following question: *how do owners of multiple donkeys affect the truth conditions of the sentence?*
- Two construals have been discussed: the existential and the universal.

(4) a. Every farmer who owns a donkey beats it.
→ every donkey-owning farmer beats **all** of the donkeys that he owns.
(Universal construal)

b. Every customer who had a credit card on him paid with it.
→ every credit-card-having customer used **at least one** of his credit cards.
(Existential construal)

1.2 What's so special about those construals?

- They are cross-linguistically robust. Languages tested: TODO
- Each quantifier seems to have a default reading (cf the controversed Kanazawa paper).
  - *every*: $\forall$
  - *no*: $\exists$
  - *some*: $\exists$

(5) No farmer who owns a donkey beats it.
→ no donkey-owning farmer beats **any** of the donkeys he owns.
$\exists$
→ there's no beating at all.

- Given the right context, each quantifier can give rise to a non-default reading.

(6) No gentleman who has an umbrella ever leaves it at home on rainy days.
→ no umbrella-owning gentleman leave **all** of his umbrellas.

- Among the multiple factors that seem to condition this variability, privatives like *leave*, or negativy forms tend to prefer the non-default reading.

Interim summary

- Donkey sentences are *ambiguous*.
- There does not seem to be any obvious structural correlate of this ambiguity.
- The availability of the reading depends on some default option and a number of pragmatic factors.
- The proposals listed below only tries to derive the readings, they do not try to address directly the pragmatics of the phenomenon.

2 Historical attempts at modeling the distinction

2.1 This much you should know about Dynamic Semantics

- **DS:** Every word, consituents has a **context-change potential**: the ability to modify the context.
- Compare with H&K: only one item has context-change potential.

(7) "*a student*$_i$" denotes a student x.
"*a student*$_i$" modifies the assignment function from g to $g[i \to x]$

- Dynamic quantifiers are just like classical quantifiers, except that they pass on the context from their restrictors to their nuclear scope.

(8) Every

a. **Restriction**: farmer who owns a donkey$_{\text{i}}$
introduce a referent for i

b. **Nuclear Scope:** beats it
access the referent for i

2.2 Chierchia's early approach

- **Chierchia's idea.** given a static quantifier Q, one can define two dynamic quantifiers from it: U-Lift(Q) and E-Lift(Q).
- Concretely, those quantifiers give the following paraphrases for donkey sentences.

(9) Every farmer who owns a donkey beats it.

a. For every donkey-owning farmer x, x owns a donkey and beats it. (E-Lift)

b. For every donkey-owning farmer x, if x owns a donkey, he beats it. (U-Lift)

- E-Lift and U-Lift derives $\exists$ and $\forall$ readings respectively.
- **Advantages**
  - Both the existential and the universal readings are generated
  - Gives a more restricted view on UG: not all objects with dynamic types are used, only those generated by universally available type-lifting.
- **Empirical shortcomings.** With two pronouns, one same quantifier can give rise to mixed $\exists/\forall$ readings (Brasoveanu).

(10) Every person who buys a book on Amazon and has a credit card uses it to pay for it.
$\to$ every book-buying credit-card owner uses **one** of her credit cards to pay for **all** of her books.

$\to$ *The $\forall/\exists$ ambiguity, if anywhere, is not located in the quantifier.*

2.3 Brasoveanu's proposal

- Brasoveanu proposes to locate the ambiguity in the indefinite: one indefinite giving rise to *universal* reading the other giving rise to *existential* reading.
- But this faces the objection that the same indefinite can give rise to mixed readings as well (BCH, crediting Charlow).

(11) Every gentleman who has an umbrella takes it with him on rainy days but leaves it at home on sunny days
→ every umbrella-having gentleman takes **one** of his umbrellas on rainy days and leaves **all** of his umbrellas on sunny days.

→ *The ∀/∃ ambiguity, if anywhere, is not located in the indefinite.*

Conclusion

- Chierchia's proposal: two type-shifters to give quantifiers dynamic meanings, E-Lift and U-Lift
- Brasoveanu's proposal puts the ambiguity in the indefinite.
- Both these approaches are powerful enough to generate both readings.
- But facts pointed out to two negative conclusions: the ambiguity is neither in the quantifier nor in the indefinite.

3 Champollion, Bumford and Henderson

3.1 Main claims

- The fairly recent Champollion et al. provides a new interesting perspective on these construals.
- **Champollion et al's contributions:**
  1. The perceived ambiguity is due to vagueness, not to different readings.
  2. In this case, vagueness should be handled by TV gaps.
     → *in some scenarios, the sentence receives no truth value.*
  3. Vagueness (i.e. TV gaps) are introduced by the quantifiers.
  4. TV gaps are resolved following Kriz's procedure.
- **Contribution 2**
- To present gappy sentences, I'll adopt one of the two presentations.

(1) **true** iff *blah*
false iff *glop*
otherwise

(2) **strong reading:** *blah*
weak reading: *not glop*

- The **weak** reading is the reading obtained by considering all the # scenarios **true**.
  The **stong** reading is the reading obtained by considering all the # scenarios **false**.

- **Contribution 3**
- They use Chierchia's type lifters to build the following three-valued type-lifter for quantifiers.

(12) [CBH-LIFT(∀) $x : A,\ B$] is

a. **true** iff [E-LIFT(∀) $x : A,\ B$] and [U-LIFT(∀) $x : A,\ B$] are both true.

b. **false** iff [E-LIFT(∀) $x : A,\ B$] and [U-LIFT(∀) $x : A,\ B$] are both false.

c. # otherwise.

3.2 Example

- The standard donkey-sentence is predicted to have the following truth/falsity-conditions in (13).

(13) Every farmer who owns a donkey beats it.

a. **true** iff every donkey-owning farmer beats **all** of the donkeys he owns.
false iff some donkey-owning farmer beats **none** of the donkeys he owns.
otherwise.

b. **strong reading:** every donkey-owning farmer beats **all** of the donkeys he owns.
→ ∀ reading
weak reading: every donkey-owning farmer beats **some** of the donkeys he owns.
→ ∃ reading

- For any world where the sentence is evaluated to #, some pragmatic procedure (such as Kriz's) will come to decide which TVs to give to the sentence in that world.
- Whatever the procedure, the weakest reading of this sentence can be obtained by considering the #s to be uniformly true ; the strongest by considering them uniformly false.
- The reading that Kriz gives will be logically comprised between the ∃ and the ∀ reading.
- For other quantifiers[1], any reading will be logically comprised between the **existential** and the **universal** readings.

3.3 Unraveling main predictions & asking the right questions

3.3.1 Intermediate reading

- Depending on how it fills the TV gaps, Kriz's procedure sometimes yields *intermediate* readings: neither ∃ nor ∀.

[1] More precisely, other conservative right-monotonic quantifiers...

(14) Every farmer who has a donkey beats it.
read as: "Every donkey-owning farmer beats **most** of the donkeys he owns"

- Intermediate readings are even necessary → Brasoveanu's example

(15) Every person who buys a book on Amazon and has a credit card uses it to pay for it.
→ every book-buying credit-card owner uses **one** of her credit cards to pay for **all** of her books.

(16) **Current predictions:**

a. **strong reading:** every book-buying credit-card owner uses **all** of her credit cards to pay for **all** of her books.

b. **weak reading:** every book-buying credit-card owner uses **some** of her credit cards to pay for **some** of her books.

- The target reading is *intermediate* between a uniformly ∃ reading and a uniformly ∀ reading.
- But how to exclude (14)?
- (Within Kriz's aproach, one would have to say that the issue that elicits those fillings are *unnatural*.)

Summary

- CBH does not postulate **ambiguity** and therefore does not run afoul of the problems raised by the other approached.
- It still misses a complete pragmatic story to be entirely successful.
- It postulates that the vagueness is located in the quantifiers.
- One reason is that in my world-view, quantifiers have no lexically-encoded effect in the context; they cannot serve the purpose of creating the vagueness that CBH needs.

4 CBH revisited

4.1 One empirical argument: very low pseudo-scope

(17) a. Every school children who has a Game Boy plays with it every day.

b. Every visitor who has received a pink pen from our museum is required to sign the attendance sheet with it.

- I readily accept these sentences against the following scenarios.

(18) a. Josh has two Game Boys ; he plays with his old Game Boy Color on even days and plays with his new Game Boy Advance on odd days. All the other kids have only one Game Boy and play with it every day.

b. Bruno has received two pink pens. The museum's chart says any visitor must sign with a pink pen from the museum if they were given one. The museum's chart does not have further requirements.

- This seems to elicit a reading of the form in (19), where the existential associated with the pronoun takes a very low (pseudo-)scope.

(19) for **every** visitor x that received a pink pen,
for **every** legally complying world w,
for **some** pink pen p that x owns,
x signs with p in world w. ($\forall\Box\exists$)

- If we locate the source of the vagueness in the quantifier as CBH does, then we predict the sentence to be false in the scenarios in (18). The weak reading CBH predicts is Chierchia's E-Lift reading:

(20) for **every** visitor x that received a pink pen,
for **some** pink pen p that x owns,
for **every** legally complying world w,
x signs with p in world w. ($\forall\exists\Box$)

→ The museum chart has specific requirements regarding which pink pen to use.

- It is difficult to see how one could retool CBH-Lift so that it gives pseudo-scope below an embedded modal.
- The confusion approach to be presented correctly predicts the weak reading.

4.2 Main proposal

4.2.1 Confusion principle

- Introduce the vagueness at the level of the pronoun. Specifically:

Confusion vagueness/presupposition If Q(*him/her/it*) is a smallest t-node that contains a pronoun, then Q(*him/her/it*) is:
- **true** iff for every referential target x, Q(x) is **true**.
- **false** iff for every referential target x, Q(x) is **false**.
- # otherwise

- I leave the definition of *referential target* at the intuitive level: for each donkey-owning farmer, the referential targets are the donkeys that he owns.
- I also leave unspecified lexical entry of the pronoun that achieves this principle.

4.2.2 Strong Kleene projection

- Assume that # projects as in Strong Kleene logic: a sentence is true, if no matter how the # are valuated, the sentence is true, and respectively for false.
- What do we predict for the truth/falsity-conditions of standard donkey-sentences?[2]

  1. x beats it (referential targets: x's donkeys)
     - **true** if x beats all of his donkeys.
     - **false** if x beats none of his donkeys.
  2. every farmer who owns a donkey $\lambda x.\ x$ beats it
     - **true** if every donkey-owning farmer beats all of his donkeys.
     - **false** if one donkey-owning farmer beats some of his donkeys.
     - # otherwise

- This is CBH's truth/falsity conditions. Does this procedure give the same result as CBH for all quantifiers?
  → No, only for *right-monotonic quantifiers*.
- **Interim summary**
  - I assume that it is pronouns that give rise to *vagueness*.
  - I assume that vagueness percolates as Strong Kleene logic would have it.
  - The predictions are mostly identical ; CBH predictions are not tied to Chierchia's lifting.
  - Can we still find some meaningful difference?

4.3 General confusion

- By locating the source of the vagueness in the pronouns, I created another issue that CBH didn't have...
- Now, cross-sentential or cross-conjunction sentences yield problematic results.

(21) Camelia had a donkey and she beat it.

(22) CBH truth-conditions (standard DS truth-conditions):

a. **true** iff Camelia was a donkey-owner and beat at least one of her donkeys.

b. **false** otherwise

(23) My truth/falsity-conditions:

a. **true** iff Camelia was a donkey-owner and beat all of her donkeys.

b. **false** iff Camelia was a donkey-owner and beat none of her donkeys.

c. # otherwise.

[2] Strong Kleene logic is compositional, which justifies my choice of looking at parts of sentences before the rest.

- This is not the standard DS reading.
- The readings are obscured by the existence of a uniqueness implicature (only one donkey).
- Nevertheless, it leads me to expect the existence of a stronger ∀ reading.
- To test this prediction, we need to find a way to remove the implicature.
  → the "*betcha*" context.

(24) I bet you 10 dollars that some students will fail the test.
→ if **all** students failed, you still owe me 10 dollars.

- See now an upgraded version of (21):

(25) I bet you ten dollars that Camelia had a donkey and (that) she beat it.

- It seems to me that if Camelia had two donkeys, but only beat one of them, you owe me some money. (∃ reading)
- Another context with items known to bias toward another reading of the pronoun.

(26) **Context:** *on a rainy day, . . .*
I bet you ten dollars that Camelia has an umbrella and (that) she left it at home.

- It seems to me that if Camelia has 10 umbrellas and left nine of them at home, I owe you. (∀-reading)