Presupposition Projection in Quantificational Sentences

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Summary

The empirical status of presupposition projection under quantificational NPs (QPs) is controversial. We hypothesize that the different judgments reflect different populations of speakers, and propose a new theory of presupposition projection based on a trivalent approach ([2,4,5]) that predicts four populations of speakers. We also present the design of an experiment to test these predictions.

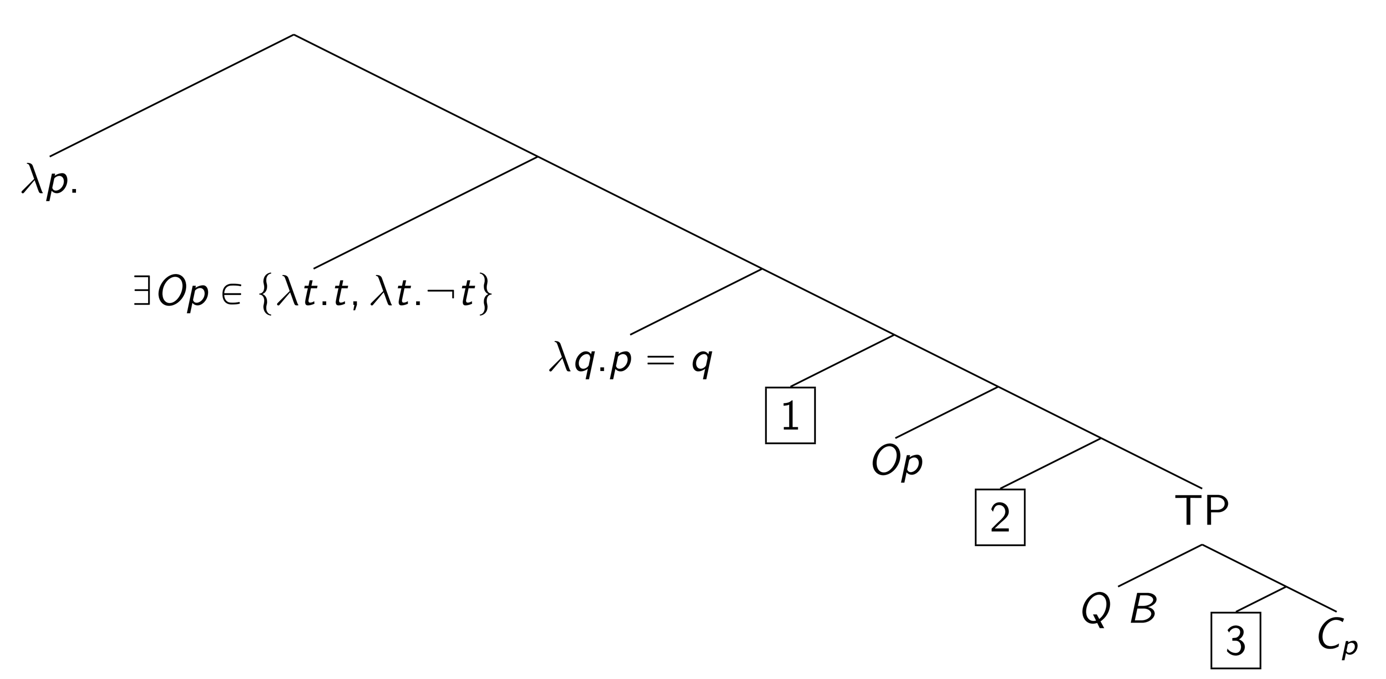
Debate

$Q(B)(\lambda x.C(x)_{p(x)})$ presupposes

- **Universal Projection** ([6]): $\forall x \in B : p(x)$
- **Existential Projection** ([1]): $\exists x \in B : p(x)$
- **Nuanced Projection** ([8,5,3]): Depends on the properties of Q

The Theory

- Presuppositions are truth value gaps
- **Stalnaker's Bridging Principle:**
  A sentence *S* is assertable given a context set *C* only if for all *w* in *C,* the denotation of *S* in *w* is 0 or 1
- $[\![\mathrm{A}]\!] = \lambda p_t. \begin{cases} 1 & \text{if } p = 1 \\ 0 & \text{if } p = 0 \text{ or } \# \end{cases}$
- The A-operator is optional and can apply at any node of type *t*
- Yes/no questions have three positions where the A-operator can appear



Predictions

Case 1: No A-Operator Universal presupposition for all quantifiers

Some	$\exists x \in B : C(x)_{p(x)}$
No	$\neg\exists x \in B : C(x)_{p(x)}$
?Some	$\{\exists x \in B : C(x)_{p(x)},\ \neg\exists x \in B : C(x)_{p(x)}\}$

All of these presuppose:

$\rhd\ [\exists x \in B : C(x) \wedge p(x)] \vee [\forall x \in B : p(x)]$

Which is strengthened to:

$\rightsquigarrow [\forall x \in B : p(x)]$

Case 2: A below QP No presupposition for any quantifiers

$$[\![\mathrm{QP}]\!](\lambda x.[\![\mathrm{A}]\!](C(x)_{p(x)})) = [\![\mathrm{QP}]\!](\lambda x.C(x) \wedge p(x))$$

Case 3: Global application of A

Some
$$[\![\mathrm{A}]\!](\exists x \in B : C(x)_{p(x)}) = [\exists x \in B : C(x)] \wedge [(\exists x \in B : C(x) \wedge p(x)) \vee (\forall x \in B : p(x))] = \exists x \in B : C(x) \wedge p(x)$$

No
$$[\![\mathrm{A}]\!](\neg\exists x \in B : C(x)_{p(x)}) = [\neg\exists x \in B : C(x)] \wedge [(\exists x \in B : C(x) \wedge p(x)) \vee (\forall x \in B : p(x))] = [\neg\exists x \in B : C(x)] \wedge [\forall x \in B : p(x)]$$

?Some
$$\{p : \exists Op[p = [\![\mathrm{A}]\!](Op(\exists x \in B : C(x)_{p(x)}))\} = \{\exists x \in B : C(x) \wedge p(x),\ [\neg\exists x \in B : C(x)] \wedge [\forall x \in B : p(x)]\}$$

Because yes/no questions presuppose that one of the answers is true,

$\rhd\ (\exists x \in B : C(x) \wedge p(x)) \vee ([\neg\exists x \in B : C(x)] \wedge [\forall x \in B : p(x)])$

$=\ (\exists x \in B : C(x) \wedge p(x)) \vee (\forall x \in B : p(x))$

Strengthening yields:

$\rightsquigarrow\ \forall x \in B : p(x)$

Case 4: A above QP

Some and **No** are the same as Case 3

?Some
$$\{p : \exists Op[p = Op([\![\mathrm{A}]\!](\exists x \in B : C(x)_{p(x)}))\} = \{\exists x \in B : C(x) \wedge p(x),\ \neg\exists x \in B : C(x) \wedge p(x)\}$$
No presupposition

Proposal: Application of the A-operator is different between populations but consistent within those same populations

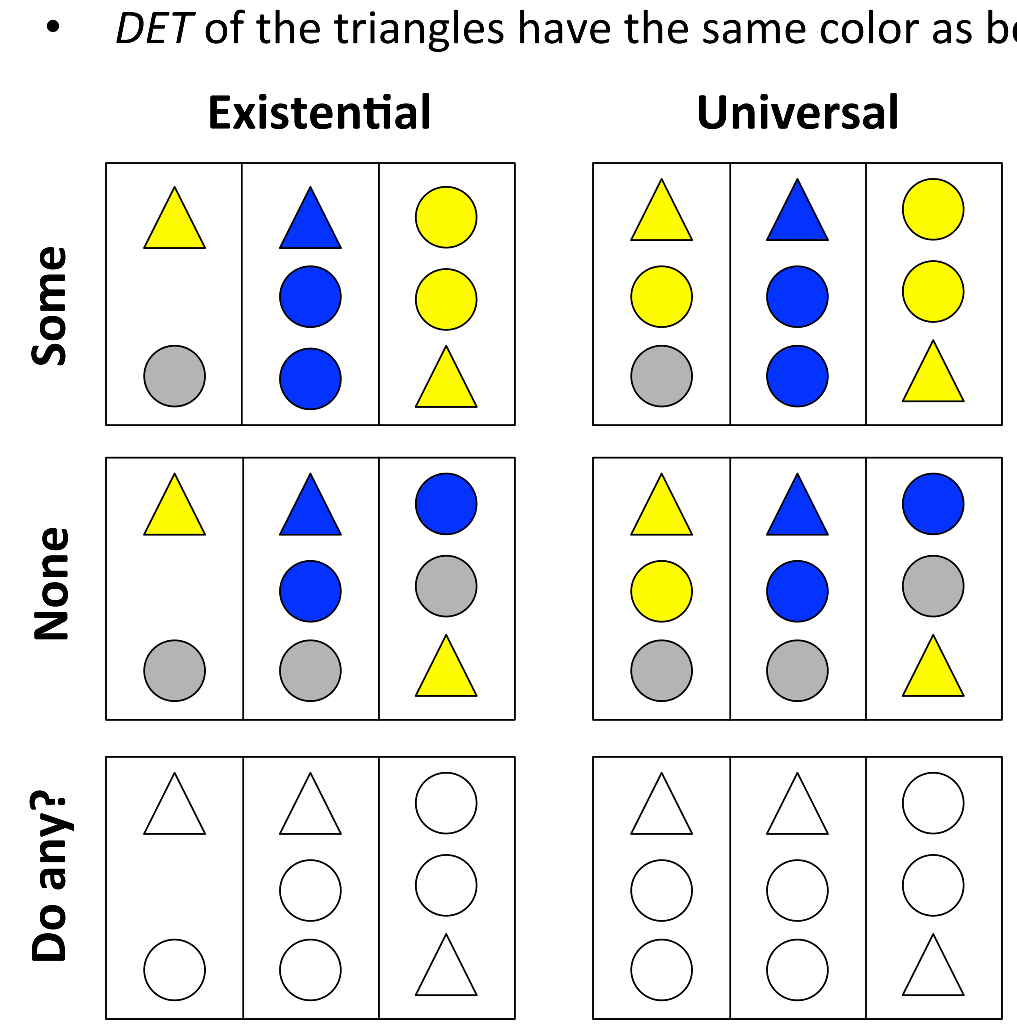
Population 1	Some	Universal P	**Population 3**	Some	Existential E
	No	Universal P		No	Universal E
	?Some	Universal P		?Some	Universal P
Population 2	Some	None	**Population 4**	Some	Existential E
	No	None		No	Universal E
	?Some	None		?Some	None

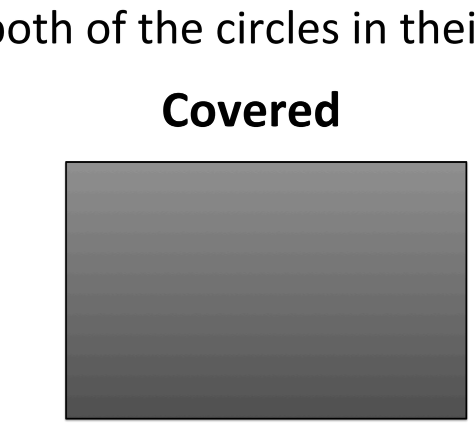
Covered Box Experiment

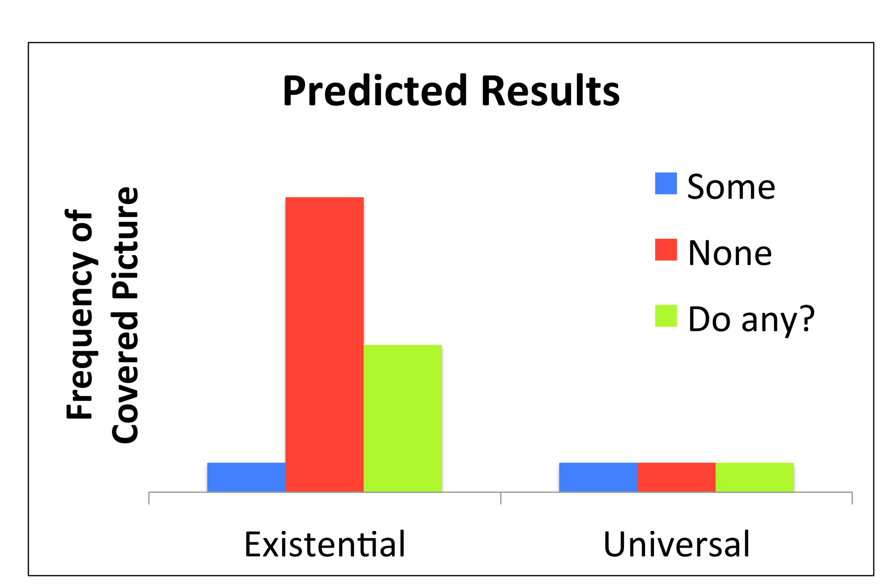
- 'Covered box' task ([7]): Two pictures, one is covered: Choose the covered one if the visible one does not match the sentence

  3 types of Determiners: **Some, None, Do any?**
  2 types of picture: **Existential, Universal**

- *DET* of the triangles have the same color as both of the circles in their own cell







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