



# Interpreting Topics in Quantificational Structures

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SFB 632-A2 Quantification and Information Structure  
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## Quantificational Adverbs and Topicality

(Hinterwimmer 2005)

- Adverbial quantifiers choose their semantic arguments on the basis of **information structure**.
- Focal material is interpreted in the **nuclear scope**, **topical material** in the **restrictor**.

### Is there a direct or indirect relationship between the pragmatic and the semantic component of the language faculty?

- Is there a **mapping algorithm** that has **direct access** to information like focus-marking (Rooth, 1995; Krifka, 1995) and/or topic-marking (Chierchia 1995)?
  - Or only an **indirect interaction** in the form of a **free context variable** (von Stechow, 1994; Beaver and Clark, 2003)?
- In contrast to singular indefinites, **universally quantified DPs** only receive **co-varying interpretations** when they are **c-commanded** by the respective **Q-adverb**.
    - I love teaching classes on formal semantics at this university.
      - Usually, every student is SMART.
      - ?Every student is usually SMART.
  - In (1), co-variation with situations quantified over only possible if NP-complement of *every* contains a (covert) situation variable bound by the Q-adverb.
  - Binding only possible under c-command.
  - In case of singular indefinites, co-variation possible without an NP-internal situation variable being bound by the Q-adverb.
  - Hence, only material that is **c-commanded** by the **Q-adverb** at LF is interpreted in the **nuclear scope**, material that **c-commands it** at LF can either be interpreted in the **restrictor** or with **scope over the Q-adverb**.
  - Only focal DPs can be reconstructed into their base positions at LF.
    - Someone from New York is likely to win the LOttery.  
≈ There is some particular person from New York such that it is likely that this person will win the lottery.
      - Someone from New YORK is likely to win the lottery.  
≈ It is likely that some person or other from New York will win the lottery.
  - Hence, **co-variation possible** in (3b):
    - Death-metal concerts are spooky.
      - Every MAle musician usually wears a long black COAT, and every Female musician usually has painted BLOOD stains all over her face.
- Interpretation of adverbially quantified sentences is **not a purely pragmatic process**.
  - Syntax** (c-command relations) plays an important role.
  - But pragmatic information like focus marking can alter c-command relations at LF.

## Quantificational Determiners and Topicality

(Ebert/Endriss, 2004; Endriss, in progress)

### How does topicality influence scopal interaction?

- Aboutness topicality** (Reinhart, 1981): topic is the *address* or *link*, where remaining information is stored.
- Indefinites and quantifiers in general introduce new discourse referents  $\Rightarrow$  they cannot be *familiar*.
- If indefinites used as topics, there is no address where to store the information  $\Rightarrow$  **A representative is created**, which serves as address; good representatives are **minimal witness sets** of the GQ.
- Creation process results in a wide scope taking existential quantifier.
 
$$(4) \text{ Assert}((\text{Topic}, \text{Comment}) = c + \exists P [P \in \text{MinWit}(\text{Topic}) \wedge \text{Comment}(P)])$$
 (here *c* is common ground;  $\text{MinWit}(\text{Topic})$  are the minimal witness sets of the quantificational topic *Topic*)
 
$$(5) \text{ If } [\text{three relatives of mine}]_{\text{Top}}, \text{ die, I will inherit a fortune}$$
 Minimal Witness set of GQ three relatives of mine  $\Rightarrow$  a set of three relatives of mine.
 
$$(6) \text{ Assert}((\exists \text{relatives}, \lambda R. \text{ If } R \text{ die then I will inherit a fortune}))$$

$$= c + \exists P [P \subseteq \text{relatives} \wedge |P| = 3] \wedge [P \subseteq \text{die} \rightarrow \text{inherit-fortune}(I)]$$
- Topical quantifier takes wide scope over all operators.
- Only certain quantifiers can be properly represented by minimal sets  $\Rightarrow$  those can receive exceptional wide scope.**  
For instance: singular indefinites (e.g. *some relative of mine*) and bare numeral quantifiers (e.g. *three relatives of mine*).
- Intermediate scope readings: **Embedded topic-comment-structures**. Topical indefinite takes widest scope only with respect to its own topic-comment-structure, but narrower scope than the structure-embedding operator.
 
$$(7) \text{ Every student announced to leave the party immediately if } [\text{some lecturer}]_{\text{Topic}} \text{ shows up.}$$

$$\text{Assert}((\forall x[\text{student}(x) \rightarrow \text{announce}(x, \langle \text{some\_lecturer}, \lambda R.R(\text{show}) \rightarrow \text{leave}(x)) \rangle])$$

$$= c + \forall x[\text{student}(x) \rightarrow \exists P [P \subseteq \text{lecturer} \wedge |P| = 1] \wedge \text{announce}(x, P \subseteq \text{show} \rightarrow \text{leave}(x))])$$
- Topical Quantifiers can be functional (see e.g. Frey, 2004)
 
$$(8) \text{ a. Seinen Doktorvater, den verehrt jeder Linguist } \quad \text{b. EIN Bild von sich, das hat jeder Schüler mitgebracht.}$$

*Some picture of himself RP has every pupil brought*
- (8b) only has a wide scope functional reading and can be continued by (9a), but not by a pair-list enumeration such as (9b).
 
$$(9) \text{ a. Nämlich das jeweilige Einschulungsbild. } \quad \text{b. Nämlich Peter Bild A, Paul Bild B, Maria Bild C, ...}$$

*Namely the respective picture-of-his-first-day-at-school namely Peter picture A Paul picture B Maria picture C*
- Exceptional wide (island-insensitive) scope results from topical interpretation** (cf. Cresti, 1995; Portner/Yabushita, 1998).
- Choice function mechanisms can only account for functional wide scope readings, not for genuine (non-functional) wide scope readings (Schwarz, 2001).
- We can account for quantificational functional topics by extending the aboutness concept to functional items, without the need to postulate a separate mechanism such as existential closure of choice/Skolem functions.

Underlying Generalisation:  
 • Quantification is a higher order predication process (cf. Krifka, 1984):  
   nuclear scope  $\Leftrightarrow$  predicational part  
   restrictor  $\Leftrightarrow$  object of predication/topical part  
 • Principle possibly underlying the Topic Occurrence Principle:  
*Topical material resists predicative environment*

- Adverbial quantifiers choose their arguments on basis of information structure.
- Topical material escapes interpretation in the nuclear scope of the respective A-quantifier and is interpreted in the restrictor (= Observation 1).

## Semantic Effects of Topicality

(Endriss/Hinterwimmer, to appear)

**Observation 1**  
 Topical material tends to be interpreted in the restrictor of an adverbial quantifier (see e.g. Partee, 1991)

**Observation 2**  
 Topical material tends to take wide scope (see e.g. Cresti, 1995)

**Topic Occurrence Principle**  
 Topical material cannot be interpreted in the nuclear scope of a quantifier

Consider the Surface Structure:  $DP_1 (... (... [DP_2]_{\text{Top}} ...))$   
 (Im)possible Interpretations:

- $\times Q_1 [...]_{\text{Restr}} [...]_{\text{Nuc}} \quad \times Q_2 [...]_{\text{Restr}} [...]_{\text{Nuc}}$   
because D-quantifiers choose their arguments syntactically  $\Rightarrow$  material that does not belong to the syntactic complement cannot end up in the restrictor.
- $\times Q_1 [...]_{\text{Restr}} [...]_{\text{Nuc}} \quad \times Q_2 [...]_{\text{Restr}} [...]_{\text{Nuc}}$   
Topic Occurrence Principle  $\Rightarrow$  it also cannot be interpreted in the scope.
- $\checkmark Q_2 [...]_{\text{Restr}} [...]_{\text{Nuc}}$   
 $\Rightarrow$  Topical material must take **wide scope** (= Observation 2).