Specific Indefinites & Dynamic Presuppositions

Specific indefinites

- **Exceptional wide scope**
- Specificity marking (potentially heterogeneous)

> I saw a (certain) cat.

> | | | | |
> |---|---|---|---|
> | Ali | bir | kitab(-ı) | aldı. |
> | Ali | one | book(-ACC) | bought |
>
> 'Ali bought a book.' (Turkish; Enç 1991: 5)

Exceptional wide scope

- Locality

> If {every/some} relative of John's dies, he'll inherit a fortune.

- Semantic constraints, e.g. inverse scope wrt negative quantifiers

> No student read {every/a} book about binding.

- Scope freezing (examples omitted)

Theories of exceptional wide scope

- Presupposition projection (Cresti 1995, Van Geenhoven 1998, Yeom 1998, Jäger 2007, Geurts 2010, Onea 2015)
- Choice functions (Reinhard 1997, Winter 1997, Kratzer 1998, Matthewson 1998, Chierchia 2001, Schwarz 2001, Schlenker 2006, Scwarz 2011)
- Alternatives (Charlow 2014, 2020, 2025)
- Dependency marking (Farkas 1994, 1997, 2002a,b, Brasoveanu & Farkas 2011)
- Reference (Fodor & Sag 1982, Schwarzschild 2002)

This talk

A new presuppositional theory of specific indefinites

- Main issues of previous presuppositional theories largely come from the presupposition-as-anaphora theory of presupposition (van der Sandt 1992, Geurts 1999)
- I will adopt: **Heim-Stalnaker view** of presupposiition + **dynamic presuppositions**

Why presuppositional approach?

Many theories predict specificity marking to have no truth-conditional effect in simple sentences; that feels wrong

> I saw a (certain) cat.

> | | | | |
> |---|---|---|---|
> | Ali | bir | kitab(-ı) | aldı. |
> | Ali | one | book(-ACC) | bought |
>
> 'Ali bought a book.' (Enç 1991: 5)

What this talk is *not* about

I won't provide a principled account of

- anaphora
- presupposition projection

but will make some assumptions about them

No time for all the formal details 😎

Roadmap

1. Dynamic presupposition
2. Wide scope via presupposition projection
3. Quantifiers: nuclear scope, restrictor, intermediate scope
4. *Certain*

Dynamic presupposition

Heim-Stalnaker view

Frege-Strawson: Presuppositions are preconditions for truth/falsity

Stalanker-Heim is a dynamic version of this

> Presuppositions are pre-conditions for successful update

Standard implementation

P = presupposition of $\mathbf{S}$ A = assertion of $\mathbf{S}$

$$c + \mathbf{S} = \begin{cases} c[A] & \text{if } P \text{ is redundant wrt } c \\ \# & \text{otherwise} \end{cases}$$

In File Change Semantics:

- c is a set of world-asssignment pairs $\langle w, g\rangle$
- ϕ is redundant wrt c iff for each $\langle w, g\rangle \in c$, there is g' such that $g \leq g'$ and $\langle w, g'\rangle \in c[\phi]$

Dynamic presuppositions

$$c + \mathbf{S} = \begin{cases} c[\underline{P}][A] & \text{if } P \text{ is redundant wrt } c \\ \# & \text{otherwise} \end{cases}$$

P has two functions:

1. Satisfaction check
2. Update

Whenever P is redundant wrt c,

- P is propostionally vacuous, i.e., $W(c) = W(c[P])$
- But P may be **anaphorically non-vacuous**

Evidence for dynamic presuppositions

Elliott & Sudo (2021) raise evidnece for dynamic presuppositions

> Daniel {doesn't **know**/is **unaware**} that there's a philosopher in the audience, but he clearly saw <u>her</u>.

> ??Daniel {doesn't **think/doubts**} that there's a philsopher in the audience, but he clearly saw <u>her</u>.

Remarks on assertion

Presupposition has two functions; assertion does too

$$c + \mathbf{S} = \begin{cases} c[P][A] & \text{if } P \text{ is redundant wrt } c \\ & \quad \underline{\text{and } A \text{ is not redundant wrt } c} \\ \# & \text{otherwise} \end{cases}$$

This is close to Stalnaker's view (modulo assignments)

assertion :: presupposition = foreground :: background

Specificity and Presupposition

Dynamic intermediate language

- A 'lifted' version of DPL as intermedaite langauge
  - $[\![\cdot]\!]$ maps a formula to a function over contexts
  - $\exists x$ introduces a **discourse referent** x
  - $c[\![(\exists xFx \wedge Gx)]\!] = c[\![\exists xFx]\!][\![Gx]\!] = c[\![\exists x(Fx \wedge Gx)]\!]$
- Bi-dimensional representation: both dynamic
  - $\dashrightarrow_a$: 'translates in the assertive dimension'
  - $\dashrightarrow_p$: 'translates in the presuppositional dimension'

Plain indefinites

Assumption: **Plain** and **specific** indefinites

Plain readings are normal indefinites (triggering random assignment)

$$\mathbf{a}^{8}_{\text{plain}}\ \textbf{train arrived} \dashrightarrow_{a} \exists x_8\, \textsf{train}\, x_8 \wedge \textsf{arrived}\, x_8$$

$$\mathbf{a}^{8}_{\text{plain}}\ \textbf{train arrived} \dashrightarrow_{p} \top$$

Specific indefinites

Proposal: Specific indefinites involve $\exists$ in the presupposition

$$\mathbf{a}^{8}_{\text{specific}}\ \mathbf{train\ arrived} \dashrightarrow_a \text{arrived}\ x_8$$

$$\mathbf{a}^{8}_{\text{specific}}\ \mathbf{train\ arrived} \dashrightarrow_p \exists x_8\ \text{train}\ x_8$$

Let $\mathbf{S} \dashrightarrow_a A$ and $\mathbf{S} \dashrightarrow_p P$

$$c + \mathbf{S} = \begin{cases} c[\![P]\!][\![A]\!] & \text{if } P \text{ is redundant wrt } c \\ \# & \text{otherwise} \end{cases}$$

Specific indefinites

Proposal: Specific indefinites involve $\exists$ in the presupposition

$$\mathbf{a}^{8}_{\text{specific}}\ \textbf{train arrived} \dashrightarrow_a \textsf{arrived}\ x_8$$

$$\mathbf{a}^{8}_{\text{specific}}\ \textbf{train arrived} \dashrightarrow_p \exists x_8\ \textsf{train}\ x_8$$

$$c + \mathbf{a}^{8}_{\text{specific}}\ \textbf{train arrived}$$

$$= \begin{cases} c[\![\exists x_8\ \textsf{train}\ x_8]\!][\![\textsf{arrived}\ x_8]\!] & \text{if } \exists x_8\ \textsf{train}\ x_8 \text{ is redundant wrt } c \\ \# & \text{otherwise} \end{cases}$$

Remarks

$$\mathbf{a}^{8}_{\text{plain}}\ \textbf{train arrived} \begin{cases} \dashrightarrow_a & \exists x_8\, \textsf{train}\, x_8 \wedge \textsf{arrived}\, x_8 \\ \dashrightarrow_p & \top \end{cases}$$

$$\mathbf{a}^{8}_{\text{specific}}\ \textbf{train arrived} \begin{cases} \dashrightarrow_a & \textsf{arrived}\, x_8 \\ \dashrightarrow_p & \exists x_8\, \textsf{train}\, x_8 \end{cases}$$

Same update effects, but different presuppositions

Remarks (cont.)

- Specificity ➜ ∃ in presupposition
  ✅ Meaning of specificty marking in simple sentences
- Some indefinites seem to prefer plain readings (e.g., 'a'-indefinites with light NPs, bare plurals, 'there'-constructions, modified numerals) (Fordor & Sag 1982, Van Geenhoven 1998, Endriss 2009, Ionin 2010)
- Domain specificity is a different kind of specificity (Enç 1991, Diesing 1992, von Fintel 1998)

Wide scope via projection

Negation

Let $\mathbf{S} \dashrightarrow_a A$ and $\mathbf{S} \dashrightarrow_p P$

$$\begin{aligned} \textbf{not S} \quad &\dashrightarrow_a \quad \neg A \\ \textbf{not S} \quad &\dashrightarrow_p \quad P \end{aligned}$$

Dynamic negation:

$$c[\![\neg\phi]\!] := \{\langle w, g\rangle \in c \mid \text{for no } g', \, g \leq g' \text{ and } \langle w, g'\rangle \in c[\![\phi]\!]\}$$

Negation with plain indefinite

$$\textbf{not a}^{8}_{\text{plain}}\ \textbf{train arrived} \dashrightarrow_a \neg(\exists x_8\, \mathsf{train}\, x_8 \wedge \mathsf{arrived}\, x_8)$$

$$\textbf{not a}^{8}_{\text{plain}}\ \textbf{train arrived} \dashrightarrow_p \top$$

$$c + \textbf{not a}^{8}_{\text{plain}}\ \textbf{train arrived}$$

$$= \begin{cases} c[\![\top]\!][\![\neg(\exists x_8\, \mathsf{train}\, x_8 \wedge \mathsf{arrived}\, x_8)]\!] & \text{if } \top \text{ is redundant wrt } c \\ \# & \text{otherwise} \end{cases}$$

Negation with specific indefinite

$$\textbf{not a}^{8}_{\text{specific}}\ \textbf{train arrived} \dashrightarrow_a \neg\textsf{arrived}\ x_8$$

$$\textbf{not a}^{8}_{\text{specific}}\ \textbf{train arrived} \dashrightarrow_p \exists x_8\ \textsf{train}\ x_8$$

$$c + \textbf{not a}^{8}_{\text{specific}}\ \textbf{train arrived}$$

$$= \begin{cases} c[\![\exists x_8\ \textsf{train}\ x_8]\!][\![\neg\textsf{arrived}\ x_8]\!] & \text{if } \exists x_8\ \textsf{train}\ x_8 \text{ is redundant wrt } c \\ \# & \text{otherwise} \end{cases}$$

(Material) conditional

Let $\mathbf{S}_1 \dashrightarrow_a A_1, \mathbf{S}_1 \dashrightarrow_p P_1, \mathbf{S}_2 \dashrightarrow_a A_2, \mathbf{S}_2 \dashrightarrow_p P_2$

$$\begin{aligned} &\textbf{if } \mathbf{S}_1\textbf{, then } \mathbf{S}_2 \quad \dashrightarrow_a \quad (A_1 \to A_2) \\ &\textbf{if } \mathbf{S}_1\textbf{, then } \mathbf{S}_2 \quad \dashrightarrow_p \quad (P_1 \wedge (A_1 \to P_2)) \end{aligned}$$

💡 Projection of P_1

Dynamic material implication: $(\phi \to \psi) \equiv \neg(\phi \wedge \neg\psi)$

Conditional with plain indefinite

Let $\mathbf{S} \dashrightarrow_a A$ and $\mathbf{S} \dashrightarrow_p P$

$$\textbf{if } \mathbf{a}^8_{\mathrm{p}} \textbf{ train arrived, then S} \dashrightarrow_a ((\exists x_8\, \mathsf{train}\, x_8 \wedge \mathsf{arrived}\, x_8) \to A)$$

$$\textbf{if } \mathbf{a}^8_{\mathrm{p}} \textbf{ train arrived, then S} \dashrightarrow_p (\top \wedge ((\exists x_8\, \mathsf{train}\, x_8 \wedge \mathsf{arrived}\, x_8) \to P))$$

$$c + \textbf{if } \mathbf{a}^8_{\mathrm{plain}} \textbf{ train arrived, then S}$$

$$= \begin{cases} c[\![(\top \wedge ((\exists x_8\, \mathsf{train}\, x_8 \wedge \mathsf{arrived}\, x_8) \to P))]\!][\![((\exists x_8\, \mathsf{train}\, x_8 \wedge \mathsf{arrived}\, x_8) \to A)]\!] \\ \qquad \text{if } (\top \wedge ((\exists x_8\, \mathsf{train}\, x_8 \wedge \mathsf{arrived}\, x_8) \to P)) \text{ is redundant wrt } c \\ \# \qquad \text{otherwise} \end{cases}$$

💡 No entailment that there is a train

Conditional with specific indefinite

Let $\mathbf{S} \dashrightarrow_a A$ and $\mathbf{S} \dashrightarrow_p P$

$$\textbf{if a}^8_{\text{sp}}\ \textbf{train arrived, then S} \quad \dashrightarrow_a \quad (\text{arrived}\ x_8 \to A)$$

$$\textbf{if a}^8_{\text{sp}}\ \textbf{train arrived, then S} \quad \dashrightarrow_p \quad (\exists x_8\ \text{train}\ x_8 \wedge (\text{arrived}\ x_8 \to P))$$

$$c + \textbf{if a}^8_{\text{specific}}\ \textbf{train arrived, then S}$$

$$= \begin{cases} c[\![(\exists x_8\ \text{train}\ x_8 \wedge (\text{arrived}\ x_8 \to P))]\!][\![(\text{arrived}\ x_8 \to A)]\!] & \\ \quad \text{if } (\exists x_8\ \text{train}\ x_8 \wedge (\text{arrived}\ x_8 \to P)) \text{ is redundant wrt } c \\ \# & \text{otherwise} \end{cases}$$

💡 Entails there is a train!

Open issue: Weak Crossover (WCO)

> *Its$_5$ owner fed a$^5_{\text{specific}}$ cat.

Elliott & Sudo (2021): Projected presuppositions exhibit WCO effects

> a. Daniel is **unaware** that there's a^1 philosopher in the audience, but he clearly saw <u>her</u>$_1$.
>
> b. *Her$_1$ supervisee is **unaware** that there's a^1 philosopher is in the audience.

Quantifiers

Projection through quantifiers

Quantifiers pose a major issue for previous presuppositional theories of specific indefinites

My theory fares better, but needs some tweaks

- ⚠️ Presupposition projection through quantifiers is largely an unsolved issue
- ⚠️ I won't explain all the formal details

Nuclear scope of 'every'

Presuppositions seem to project universally, suggesting:

Let $\mathbf{VP} \dashrightarrow_a A$ and $\mathbf{VP} \dashrightarrow_p P$

$$\mathbf{every}^3\ \mathbf{cat}\ \mathbf{VP} \dashrightarrow_a \forall x_3(\mathsf{cat}\, x_3 \rightarrow A x_3)$$

$$\mathbf{every}^3\ \mathbf{cat}\ \mathbf{VP} \dashrightarrow_p (\underbrace{{}^{\downarrow}\exists x_3 \mathsf{cat}\, x_3}_{\text{existence}} \wedge \underbrace{\forall x_3(\mathsf{cat}\, x_3 \rightarrow P x_3)}_{\text{projection}})$$

$${}^{\downarrow}\phi \equiv \neg\neg\phi$$

'Every cat' with indefinites

$\textbf{every}^3\ \textbf{cat saw}\ \textbf{a}^7_{\text{pl}}\ \textbf{mouse} \dashrightarrow_a \forall x_3(\mathsf{cat}\, x_3 \to \underline{\exists x_7(\mathsf{mouse}\, x_7} \wedge \mathsf{saw}\, x_3 \underline{x_7}))$

$\textbf{every}^3\ \textbf{cat saw}\ \textbf{a}^7_{\text{pl}}\ \textbf{mouse} \dashrightarrow_p ({}^{\downarrow}\exists x_3 \mathsf{cat}\, x_3 \wedge \forall x_3(\mathsf{cat}\, x_3 \to \underline{\top}))$

$\textbf{every}^3\ \textbf{cat saw}\ \textbf{a}^7_{\text{sp}}\ \textbf{mouse} \dashrightarrow_a \forall x_3(\mathsf{cat}\, x_3 \to \mathsf{saw}\, x_3 \underline{x_7})$

$\textbf{every}^3\ \textbf{cat saw}\ \textbf{a}^7_{\text{sp}}\ \textbf{mouse} \dashrightarrow_p ({}^{\downarrow}\exists x_3 \mathsf{cat}\, x_3 \wedge \forall x_3(\mathsf{cat}\, x_3 \to \underline{\exists x_7\, \mathsf{mouse}\, x_7}))$

x_7 won't be bound by $\exists x_7$!

Plurality

Let $\mathbf{VP} \dashrightarrow_a A$ and $\mathbf{VP} \dashrightarrow_p P$

$$\mathbf{every}^3\ \mathbf{cat}\ \mathbf{VP} \quad \dashrightarrow_a \quad \forall x_3(\mathsf{cat}\, x_3 \to Ax_3)$$

$$\mathbf{every}^3\ \mathbf{cat}\ \mathbf{VP} \quad \dashrightarrow_p \quad ({}^{\downarrow}\exists x_3 \mathsf{cat}\, x_3 \wedge P\underline{\sigma x_3[\mathsf{cat}\, x_3]})$$

E.g. the presupposition of 'woke up' involves distributivity (≈ universal quantification)

$$\mathbf{every}^3\ \mathbf{cat}\ \mathbf{woke}\ \mathbf{up} \quad \dashrightarrow_a \quad \forall x_3(\mathsf{cat}\, x_3 \to \mathsf{woke.\,up}\, x_3)$$

$$\mathbf{every}^3\ \mathbf{cat}\ \mathbf{woke}\ \mathbf{up} \quad \dashrightarrow_p \quad ({}^{\downarrow}\exists x_3 \mathsf{cat}\, x_3 \wedge \delta^{x_3}_{\underline{\sigma x_3[\mathsf{cat}\, x_3]}} \mathsf{asleep}\, x_3)$$

Wide scope reading

The presupposition of the VP 'saw a_{sp} mouse' denotes a constant function from dynamic plural individuals to $[\![\exists x_7\ \textsf{mouse}\ x_7]\!]$

$$\lambda X.\ [\![\exists x_7\ \textsf{mouse}\ x_7]\!]$$

Applying this to $[\![\sigma x_3[\textsf{cat}\ x_3]]\!]$:

$$\textbf{every}^3\ \textbf{cat saw}\ \textbf{a}^7_{\text{sp}}\ \textbf{mouse} \dashrightarrow_a \forall x_3(\textsf{cat}\ x_3 \to \textsf{saw}\ x_3 \underline{x_7})$$

$$\textbf{every}^3\ \textbf{cat saw}\ \textbf{a}^7_{\text{sp}}\ \textbf{mouse} \dashrightarrow_p ({}^{\downarrow}\exists x_3 \textsf{cat}\ x_3 \wedge \underline{\exists x_7\ \textsf{mouse}\ x_7})$$

Specific indefinites with bound variables

What if there's δ?

$$\textbf{every}^3 \textbf{ cat ate } \textbf{a}^7_{\text{sp}} \textbf{ mouse it}_3 \textbf{ saw}$$

$$\dashrightarrow_a \forall x_3(\mathsf{cat}\, x_3 \rightarrow \mathsf{ate}\, x_3 \underline{x_7})$$

$$\textbf{every}^3 \textbf{ cat ate } \textbf{a}^7_{\text{sp}} \textbf{ mouse it}_3 \textbf{ saw}$$

$$\dashrightarrow_p ({}^{\downarrow}\exists x_3 \mathsf{cat}\, x_3 \wedge \delta^{x_3}_{\sigma x_3[\mathsf{cat}\ x_3]}(\underline{\exists x_7\, \mathsf{mouse}\, x_7 \wedge \mathsf{saw}\, x_3\, x_7}))$$

Again x_7 won't be bound.

Specificity

We could analyze the above to be just uninterpretable

The sentence will be interpretable with a plain indefinite

But a language with specificty marking, e.g. Turkish

Her	kedi	*pro*	gördüğü	bir	fare(**-yi**)	yedi.
every	cat	*pro*	saw	one	mouse(**-ACC**)	ate

'Every cat ate a mouse that it saw.'

Quantificational subordination via δ

Quantificational subordination (Van den Berg 1996, Nouwen 2003, Brasoveanu 2007, etc.)

> The cats all saw a mouse. They all ate **it**.

I adopt a theory where the distributivity operator δ enables quantificational subordination

The assertion of 'every' is reanalyzed with δ

(See Nouwen 2003, 2007 for a solution to an issue that arises from reusing the same variable)

Narrow scope via δ

$$\textbf{every}^3 \textbf{ cat ate } \textbf{a}^7_{\text{sp}} \textbf{ mouse it}_3 \textbf{ saw}$$

$$\dashrightarrow_a \boxed{\delta^{x_3}_{\sigma x_3[\text{cat } x_3]}}(\text{ate } x_3 \underline{x_7})$$

$$\textbf{every}^3 \textbf{ cat ate } \textbf{a}^7_{\text{sp}} \textbf{ mouse it}_3 \textbf{ saw}$$

$$\dashrightarrow_p ({}^{\downarrow}\exists x_3 \text{cat } x_3 \wedge \boxed{\delta^{x_3}_{\sigma x_3[\text{cat } x_3]}}(\underline{\exists x_7 \text{ mouse } x_7 \wedge \text{saw } x_3\, x_7}))$$

This amounts to a 'narrow scope' reading

> The cats all saw a mouse. Every cat ate **it**.

Optional δ

δ enables quantificational subordination

If δ is present in the presupposition of 'Every cat ate a$_{\text{sp}}$ mouse', a narrow scope reading will ensue

$$\textbf{every}^3\ \textbf{cat}\ \Delta_p\ \textbf{saw}\ \textbf{a}^7_{\text{sp}}\ \textbf{mouse} \dashrightarrow_a \boxed{\delta^{x_3}_{\sigma x_3[\mathsf{cat}\ x_3]}}(\mathsf{ate}\ x_3 \underline{x_7})$$

$$\textbf{every}^3\ \textbf{cat}\ \Delta_p\ \textbf{saw}\ \textbf{a}^7_{\text{sp}}\ \textbf{mouse} \dashrightarrow_p \boxed{\delta^{x_3}_{\sigma x_3[\mathsf{cat}\ x_3]}}({}^{\downarrow}\exists x_3 \mathsf{cat}\ x_3 \wedge \underline{\exists x_7\ \mathsf{mouse}\ x_7})$$

Evidence for optional δ

The flexibility seems to be desirable

E.g., a plain indefinite in a factive presupposition

> Every cat is unaware that there is a mouse.
>
> a. It is hiding behind the sofa. [wide]
>
> b. But eventually they will all catch it. [narrow]

Interim summary

> Every cat saw a mouse.

- Plain: no presupposition ➔ narrow
- Specific without δ: there is a mouse ➔ wide
- Specific with δ: (for every cat) there is a mouse ➔ narrow

> Every cat ate a mouse it saw.

- Plain: no presupposition ➔ narrow
- Specific with δ: every cat saw a mouse ➔ narrow

Other quantifiers

No: universal projection + δ over $\neg$

$$\textbf{no}^3\ \textbf{cat ate}\ \textbf{a}^7_{\text{sp}}\ \textbf{mouse} \quad \dashrightarrow_a \quad \boxed{\delta^{x_3}_{\sigma x_3[\mathsf{cat}\ x_3]}}(\neg\mathsf{ate}\ x_3\underline{x_7})$$

$$\textbf{no}^3\ \textbf{cat ate}\ \textbf{a}^7_{\text{sp}}\ \textbf{mouse} \quad \dashrightarrow_p \quad ({}^{\downarrow}\exists x_3\mathsf{cat}\ x_3 \wedge \underline{\exists x_7\ \mathsf{mouse}\ x_7})$$

Some: existential projection + dynamic binding

$$\textbf{some}^3_{\text{sp}}\ \textbf{cat ate}\ \textbf{a}^7_{\text{sp}}\ \textbf{mouse} \quad \dashrightarrow_a \quad \mathsf{ate}\ x_3\underline{x_7}$$

$$\textbf{some}^3_{\text{sp}}\ \textbf{cat ate}\ \textbf{a}^7_{\text{sp}}\ \textbf{mouse} \quad \dashrightarrow_p \quad (\exists x_3\mathsf{cat}\ x_3 \wedge \underline{\exists x_7\ \mathsf{mouse}\ x_7})$$

Other mechanisms of Q subordination?

Or we need other ways of achieving quantificational subordination than (just) δ (cf. Brasoveanu 2007, Heim 2018)

> Every student was assigned a book.
>
> **One of them read it.** The other ones didn't read it.

But not too general, e.g., "Everyone was assigned a book. #Somebody's supervisor wrote it."

Restrictor

Restrictor of 'every'

Stipulative analysis: x_3 stands for the domain of quantification

Let $\mathbf{NP} \dashrightarrow_a A$ and $\mathbf{NP} \dashrightarrow_p P$

$$\mathbf{every}^3\ \mathbf{NP\ is\ hungry} \quad \dashrightarrow_a \quad \delta^{x_3}_{x_3}(\text{hungry}\, x_3)$$
$$\mathbf{every}^3\ \mathbf{NP\ is\ hungry} \quad \dashrightarrow_p \quad (\exists x_3 P x_3 \wedge x_3 = \sigma x_3[A x_3])$$

- Need to process P first to enable dynamic binding into A
- Existence entailed

Restrictor with specific indefinite

every^3 cat that saw a$^2_{\text{sp}}$ mouse is hungry

$\dashrightarrow_a \ \delta^{x_3}_{x_3}(\text{hungry}\, x_3)$

every^3 cat that saw a$^2_{\text{sp}}$ mouse is hungry

$\dashrightarrow_p \ (\exists x_3 \underline{\exists x_2\, \text{mouse}\, x_2} \wedge x_3 = \sigma x_3[(\text{cat}\, x_3 \wedge \text{saw}\, x_3 \underline{x_2})])$

This is the wide scope reading

Restrictor with specific indefinite and δ

$\textbf{every}^3\textbf{cat that } \Delta_p \textbf{ saw a}^2_{\text{sp}}\textbf{mouse is hungry}$

$\dashrightarrow_a \delta^{x_3}_{x_3}(\mathsf{hungry}\, x_3)$

$\textbf{every}^3\textbf{cat that } \Delta_p \textbf{ saw a}^2_{\text{sp}}\textbf{mouse is hungry}$

$\dashrightarrow_p (\exists x_3 \boxed{\delta^{x_3}_{x_3}} (\underline{\exists x_2\, \mathsf{mouse}\, x_2}) \wedge x_3 = \sigma x_3^{\sqsubseteq x_3}[(\mathsf{cat}\, x_3 \wedge \mathsf{saw}\, x_3 \underline{x_2})])$

Here we need another mechanism of Q subordination (e.g. $\sqsubseteq$)

Intermediate scope

Intermediate scope reading

> Every professor rewarded every student who read a book he had recommended. (Abusch 1993: 90)

- Narrow: [every professor > every student > a book]
- Intermediate: [every professor > a book > every student]

The intermediate scope reading is accounted for with δ for "every professor" in the presupposition

Every^{1} **professor rewarded**

every^{2} **student who read** $\mathbf{a}^{3}_{\mathrm{sp}}$ **book he had recommended**

Assertion:

$$\boxed{\delta^{x_1}_{x_1}}(\delta^{x_2}_{x_2}(\textsf{rewarded}\,x_1 x_2))$$

Presupposition:

$$^{\downarrow}\exists x_1\,\textsf{prof}\,x_1 \wedge x_1 = \sigma x_1[\textsf{prof}\,x_1] \wedge$$
$$\boxed{\delta^{x_1}_{x_1}}\begin{pmatrix}\exists x_2 \exists x_3(\textsf{book}\,x_3 \wedge \textsf{recommended}\,x_1 x_3) \wedge \\ x_2 = \sigma x_2[\textsf{student}\,x_2 \wedge \textsf{read}\,x_2 x_3]\end{pmatrix}$$

Intermediate scope w/o bound pronouns

> Everybody told several stories that involved some member of the Royal family (Farkas 1981: 64)

- Narrow: [everbody > several stories > some member]
- Intermediate: [everybody > some member > several stories]
- Wide: [some member > everybody > several stories]

My theory has enough flexibility to account for all

Intermediate scope with negation

> John wasn't examined by every professor who is competent on some problem. (Ruys & Spector 2017: 32)

- [not > some > every]

This requires local accommodation under the negation 🤨

Certain

Certain

Certain as a specificity marker (Enç 1991, Schwarz 2001, Farkas 2002, Schlenker 2006, Endriss 2009, Solomon 2011, Ionin 2015)

Schwarz's observation: Adding *certain* allows for a functional reading

> a. No boy tried every dish that a female relative of his had made.
> b. No boy tried every dish that a certain female relative of his had made. (Schwarz 2001: 890)

There is a 'natural function' from each boy to a female relative of his ...

Functional indefinite

Idea: *Certain* introduces a 'natural function' in the presupposition + an argument (x_6) for it

$\mathbf{a}^8_\mathrm{p}\mathbf{certain}^9_6\ \mathbf{train\ arrived} \dashrightarrow_a \exists x_8(\text{train}\, x_8 \wedge \underline{f_9(x_6) = x_8} \wedge \text{arrived}\, x_8)$

$\mathbf{a}^8_\mathrm{p}\mathbf{certain}^9_6\ \mathbf{train\ arrived} \dashrightarrow_p \underline{\exists f_9\, \text{NF}(f_9)}$

- x_6 is resolved to a contextually salient individual (e.g., Speaker)
- The presupposition is practically always satisfied
- "a" may be specific

Internal reading

The argument x_2 of f_9 in the assertion can be bound by a quantifier (δ)
= **internal reading**

$$\textbf{Every cat}^2\ \textbf{saw a}^8_{\mathrm{p}}\textbf{certain}^9_6\ \textbf{mouse.}$$

$$\dashrightarrow_a \delta^{x_2}_{x_2}(\exists x_8(\mathsf{mouse}\, x_8 \wedge \underline{f_9(\boxed{x_2}) = x_8} \wedge \mathsf{saw}\, x_2 x_8)$$

$$\dashrightarrow_p \exists x_2 \top \wedge x_2 = \sigma x_2[\mathsf{cat}\, x_2] \wedge \underline{\exists f_9\, \mathsf{NF}(f_9)}$$

Schlenker's example

> If each student makes progress in a certain area, nobody will flunk the exam. (adapted from Schlenker 2006: 2999)

This is accounted for in the same way as the previous example + projection from the antecedent

Spector's observation

Spector (2004): No Schlenker readings with some quantifiers

> If {**many/most/no/the**} students make progress in a certain area, few will flunk the exam.

- Quantifiers like *many*, *most*, etc. cannot bind the variable in *certain*
- Only 'external readings' are possible

Solomon's idea

Solomon (2011): the same constraint with *different*

> a. {**Each/every**} student read a different paper.
>
> b. {**Many/most/no/the**} students read a different paper.

- 💡 Both *different* and *certain* allow for external and internal readings via a hidden variable
- The restriction on the binder ultimately needs a principled explanation

Concluding remarks

Highlights

- Specificty as a presuppositional phenomenon
- **Dynamic presuppositions** with non-trivial anaphoric effects

$$c + \mathbf{S} = \begin{cases} c[\![P]\!][\![A]\!] & \text{if } P \text{ is redundant wrt } c \\ \# & \text{otherwise} \end{cases}$$

- *Certain* as a functional specific indefinite + Solomon's analogy to internal vs. external readings of *different*