Adverbial comparatives as event modifiers

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- Certain unexpected readings of adverbial comparatives suggest that some adverbial comparatives are interpreted as event modifiers.
- This hypothesis accounts for
  - restrictions on the class of adverbial which can trigger the unexpected readings, and
  - restrictions on available readings when *er* scopes out of an embedded clause.
- English must have 3-place *er*, casting doubt on hypothesis that all English phrasal comparatives have clausal reduction analysis (Lechner 2001, Bhatt and Takahashi 2011).

An unexpected interpretation (c)

(1) John defended himself in court more skillfully than OJ Simpson's lawyer.
  a. John defended John more skillfully than OJS's lawyer defended OJS's lawyer.
  b. John defended John more skillfully than OJS's lawyer defended John.
  c. John defended John more skillfully than OJS's lawyer defended OJS.

Derive (c) reading via direct analysis? No

(2) $\qquad\qquad\qquad$ [λ_1 [$_{VP}$ John is [[er [than Bill]] tall]]

[$_{TP}$ John $\qquad\qquad$ [λ_1 [$_{VP}$ [t_1] is $\quad$ [[er [than Bill]] tall]]]]]

[$_{TP}$ John [[er [than Bill] [λ_2 [λ_1 [$_{VP}$ [t_1 is [t_2 tall]]]]]]]] $\qquad$ (derivation of 'John is taller than Bill')

(3) $[\![$er$]\!] = \lambda x_e.\lambda P_{d,et}.\lambda y_e.\max\{d \mid P(d,y)\} > \max\{d \mid P(d,x)\}$

(4) [John [[er [than OJS's lawyer]]

$\qquad$ [λ_2 [λ_1 [$_{VP}$ t_1 defended himself in court [t_2 skillfully]]]]]]

- **The direct analysis cannot derive the (c) reading.**
- The direct analysis crucially depends on the **reuse** of a [λd [λx_e [...]]] predicate constructed in the syntax.
- If *himself* in (4) is bound via λ_1, reading (b) is derived. If *himself* refers to John, reading (a) is derived.

Derive (c) reading via ellipsis analysis? No

(5) $[\![$er$]\!] = \lambda P_{dt}.\lambda Q_{dt}.\max(Q) > \max(P)$

(6) [[er [than [Op$_1$ [OJS's lawyer defended OJS [t_1 skillfully]]]]]]]
$\qquad$ [λ_2 [John [defended himself [t_2 skillfully]]]]]

- Ellipsis operation involved would certainly have to be much less constrained than VP ellipsis.
- And arguably less constrained than the ellipsis operations typically assumed in ellipsis analyses of phrasal comparatives (e.g. Lechner 2004).

Problem 1: restrictions on choice of adverb

- The (c) reading is available only for some choices of adverb.
- Unclear how ellipsis analysis could explain or enforce this restriction.

(7) John defended himself in court more **frequently** than OJ Simpson's lawyer.

$\qquad$ *John defended himself in court more frequently than OJS's lawyer defended OJS in court.

Problem 2: multiple standards

- Phrasal comparatives in English may have multiple standards. This is easily accounted for via ellipsis:

(8) [[er [λ_1 [than Jane was [t_1 happy] in Rome]]] ('John was happier in Venice than Jane in Rome.')
$\qquad$ [λ_2 [John was [t_2 happy] in Venice]]

- The (c) reading goes away in the presence of multiple standards:

(9) John defended himself more skillfully in the tribunal than OJ Simpson's lawyer in court.
$\qquad$ *'John defended himself more skillfully in the tribunal than OJ Simpson's lawyer defended OJS in court.'

- Phrasal comparatives with multiple standards derivable only via ellipsis (Bhatt and Takahashi, 2011); forcing ellipsis derivation makes (c) reading go away.

Problem 3: ellipsis likely not available in all languages

- Japanese translations of the troublesome examples have the same range of available readings:

(10) John-wa hootei-de OJ Simpson-no bengoshi-yori umaku zibun-o bengoshita
$\qquad$ John-TOP court-in OJ Simpson-GEN lawyer-than well self-ACC defended
$\qquad$ 'John defended himself in court better than OJ Simpson's lawyer.'

- Bhatt and Takahashi (2011) conclude that phrasal comparatives in Japanese do not have an ellipsis analysis (except in instances where there is clear surface syntactic evidence for the presence of a reduced clause, e.g. multiple standards). Sudo (2015) argues that Japanese has only phrasal comparatives, so that all apparently clausal comparatives in Japanese have a phrasal source.

Hypothesis: Adverbial comparatives as event modifiers

A setence such as (1) can be interpreted as a comparison between a degree of skill associated with the defending event and OJ Simpson's lawyer's degree of skill:

(1) John defended himself in court more skillfully than OJ Simpson's lawyer.

We now see a connection between the (c) reading of (1) and examples like (11), where a degree of height associated with the flying event is compared to the tallest building's degree of height:

(11) The plane flew higher than the tallest building.
  a. #The plane flew higher than the tallest building flew.
  b. The plane flew higher than the tallest building is tall.

- Manner adverbs such as *skillfully* do not modify events directly, but rather modify manners (Schäfer, 2008). Manners are connected to events via the relation **manner**(m,e).
- We'll assume that manners are individuals (type e). This is convenient because it means that the same predicate of degrees and individuals can be applied both to an individual such as Bill and to a manner.

(12) $[\![$ly$]\!] = \lambda P_{et}.\lambda e_v.\exists m_e[\mathbf{manner}(m,e) \wedge P(m)]$

- In a sentence such as 'John played skillfully', *skillful* combines with a contextually-supplied degree and then with *ly* to create a predicate of events:

(13) $[\![$skillful$]\!] = \lambda d.\lambda x_e.x$ is d skillful

(14) $[\![$skillfully$]\!] = [\![$ly$]\!]([\![$skillful$]\!](d)) = \lambda e_v.\exists m_e[\mathbf{manner}(m,e) \wedge [\![$skillful$]\!](d)(m)]$
$\qquad$ (where d is supplied contextually)

- This predicate of events can then combine with a VP via Predicate Modification.
- Phrases such as *more skillfully than OJS's lawyer* can also be interpreted as predicates of events:

(15) $[\![$er$]\!] = \lambda x_e.\lambda P_{d,et}.\lambda y_e.\max\{d \mid P(d,y)\} > \max\{d \mid P(d,x)\}$ $\qquad$ [= (3)]

(16) $[\![$[[er [than OJS's lawyer]] skillful$]\!] = \lambda x_e.x$ is more skillful than OJS's lawyer

(17) $[\![$[ly [[er [than OJS's lawyer]] skillful]]$]\!] =$
$\qquad$ $\lambda e_v.\exists m_e[\mathbf{manner}(m,e) \wedge m$ is more skillful than OJS's lawyer]

- The (c) reading of (1) can be derived from the LF in (18):

(18) John [$_{VP}$ [$_{VP}$ defended himself in court]
$\qquad$ [ly [er [than OJS's lawyer]] skillful]]]

- The denotation of [ly ...], given in (17), combines via Predicate Modification with the denotation of [$_{VP}$ defended himself], shown in (19).

(19) $[\![$[$_{VP}$ defended himself]$]\!] = \lambda e_v.\mathbf{defend}(\mathbf{John}, e)$

(20) **There was a defending event e, John was the agent and patient of e, and a manner of e was more skillful than OJS's lawyer is skillful.**

- The (c) reading can be derived only if the predicate of individuals constructed by *er* is suitable as a predicate of manners.
- $[\![$frequent$]\!](m)$ is undefined for any manner m.

Covert conversion to a predicate of events

- Conversion to a predicate of events can occur without any overt morphological trigger, as for example with *higher* in (11), or adverbial PPs such as *with more skill than OJ Simpson's lawyer*:

(21) John defended himself with more skill than OJ Simpson's lawyer.
$\qquad$ [compatible with (c) reading]

- We'll assume adverbial PPs are predicates of individuals and that a degree argument is present somewhere within them. The addition of a degree abstractor yields a predicate of degrees and individuals:

(22) $[\![$[λ_1 [$_{PP}$ with t_1 skill]]$]\!] = \lambda d.\lambda x_e.x$ has degree d of skill

- (21) can now be given the following LF:

(23) [$_{PP}$ with [[er [than OJS's lawyer]] skill]]]
$\qquad$ [er [than OJS's lawyer]] [λ_1 [$_{PP}$ with [t_1 skill]]]]
$\qquad$ [ly [er [than OJS's lawyer]] [λ_1 [$_{PP}$ with [t_1 skill]]]]]
$\qquad$ John [$_{VP}$ [$_{VP}$ defended himself]
$\qquad\qquad$ [ly [er [than OJS's lawyer]] [λ_1 [$_{PP}$ with [t_1 skill]]]]]]]

(24) $[\![$[er [than OJS's lawyer]] [λ_1 [$_{PP}$ with t_1 skill]]]$]\!]$
$\qquad$ $= \lambda x_e.\max\{d \mid x$ has degree d of skill $\} >$
$\qquad\qquad$ $\max\{d \mid$ OJS's lawyer has degree d of skill$\}$

$\qquad$ $[\![$[ly [er [than OJS's lawyer]] [λ_1 [$_{PP}$ with t_1 skill]]]]$]\!]$
$\qquad$ $= \lambda e_v.\exists m_e[\mathbf{manner}(m,e) \wedge$
$\qquad\qquad$ $\max\{d \mid m$ has degree d of skill $\} >$
$\qquad\qquad$ $\max\{d \mid$ OJS's lawyer has degree d of skill$\}]$

$\qquad$ $[\![$[$_{VP}$ defended himself]$]\!] = \lambda e_v.\mathbf{defend}(\mathbf{John}, e)$

$\qquad$ $[\![$[$_{VP}$ [$_{VP}$ ...] ...]$]\!] = \lambda e_v.\mathbf{defend}(\mathbf{John}, e) \wedge$
$\qquad\qquad$ $\exists m_e[\mathbf{manner}(m,e) \wedge$
$\qquad\qquad$ $\max\{d \mid m$ has degree d of skill $\} >$
$\qquad\qquad$ $\max\{d \mid$ OJS's lawyer has degree d of skill$\}]$

Restrictions on wide scope *er*

(25) John claimed to defend himself in court more skillfully than OJ Simpson's lawyer.
  a. John claimed that the max d such that John defended himself d-skillfully was greater than the max d such that OJS's lawyer defended OJS d-skillfully.
  b. *The max d such that John claimed to defend himself in court d-skillfully is greater than the max d such that OJS's lawyer claimed to defend OJS d-skillfully.

(26) John [$_{VP}$ claimed to [$_{VP}$ [$_{VP}$ defend himself in court] $\qquad\qquad$ **reading (a)**
$\qquad$ [ly [[er [than OJS's lawyer]] skillful]]]

(27) [er [than OJS's lawyer]] [λ_1 [John [$_{VP}$ claimed to [$_{VP}$ [$_{VP}$ defend himself in court] $\qquad$ **type mismatch**
$\qquad$ [ly t_1 skillful]]]]]]

(28) John [[er [than OJS's lawyer]] [λ_2 [λ_1 [$_{VP}$ t_1 claimed to [$_{VP}$ [$_{VP}$ defend himself in court] **NOT reading (b)**
$\qquad$ [ly [t_2 skillfully]]]]]]]

A final puzzle

(29) The plane was flown higher than the tallest building.
  a. #The plane was flown higher than the tallest building was flown.
  b. The plane was flown higher than d (= max degree to which TB is high).

(30) The plane was flown more skillfully than Bill.
  a. #The plane was flown more skillfully than Bill was flown.
  b. *The plane was flown more skillfully than d (= max degree to which Bill is skillful).

Generalization: Analysis of [ly [[er [than X]] Adj] as a predicate of events is impossible for agent-oriented manner adverbs in passives.

Rajesh Bhatt and Shoichi Takahashi (2011). "Reduced and unreduced phrasal comparatives". In: *Natural Language and Linguistic Theory*, pp. 581–620. **Winfried Lechner** (2001). "Reduced and phrasal comparatives". In: *Natural Language and Linguistic Theory* 19.4, pp. 683–735. — (2004). *Ellipsis in Comparatives*. Berlin/New York: Mouton de Gruyter. **Martin Schäfer** (2008). "Resolving scope in manner modification". In: *Empirical Issues in Syntax and Semantics 7*. Ed. by O Bonami and P Cabredo Hofherr. Colloque de Syntaxe et Sémantique à Paris, pp. 251–372. **Yasutada Sudo** (2015). "Hidden nominal structures in Japanese clausal comparatives". In: *Journal of East Asian Linguistics* 24, pp. 1–51.