

Equating by quantifying over kinds

Zo...als equatives in Dutch and beyond

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Outline

- 1 Introduction
- 2 Analysis
 - Morpho-semantic Ingredients
 - Composition
 - Degrees and Manners
- 3 Evidence
 - Non-equative *zo*
 - Distribution of Readings
 - Scope ambiguity
- 4 Cross-Germanic variation
 - English
 - German
- 5 Conclusions
- 6 Appendix

Introduction

- Dutch equatives involve two morphosyntactic ingredients: *zo* and *als*.
- Descriptively, *zo* is a parameter marker (PM) marking what is being measured
- *Als* is a standard marker (SM) marking the standard of comparison.

(1) John is *as* tall *as* Sue (is).
comparee copula PM parameter SM standard (copula)
(Haspelmath and Buchholz, 1998)

(2) Jan is *zo* groot *als* Sue.
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- When the parameter is verbal, Haspelmath and Buchholz (1998) observe in a typological survey that **languages typically use the same SM as with adjectival equatives but lack a PM.**

(3) John (**as*) ran *as/like* Mary ran/did.
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- Rett (2013) observes that **the lack of a PM correlates with interpretive differences**: (3) only has a *manner reading* and not a *degree reading*.
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- Dutch *zo...als* equatives seem to be **an exception to this tendency**. In verbal equatives, the verb is marked with *zo*, exactly as with adjectival equatives (2).

(4) Nadine had *zo* <*als* Sigrid> gespeeld <*als* Sigrid>.
Nadine has so as Sigrid played as Sigrid
'Nadine played as Sigrid played.'

- Nonetheless, like English verbal equatives, the only available reading here is that Nadine played *in the same way* Sigrid played, not the same number of times or duration.
- English and Dutch thus **differ in the morphosyntactic ways of building equatives**, though **the distribution of readings across syntactic categories is identical**.

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- Provide a **compositional syntax-semantics of both adjectival and verbal equatives in Dutch** by providing the semantics of the PM *zo* and the SM *als*.
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Overview of analysis

- The PM *zo* compositionally introduces *kinds*. (Anderson and Morzycki, 2015).
- Assume **quantificational semantics** for *zo...als* equatives (cf. quantificational analyses for comparatives (Heim, 2000, 2006)).
- Quantificational semantics is encoded in the SM *als* (cf. Alrenga et al., 2012; Alrenga and Kennedy, 2014 for comparatives).

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Morpho-semantic Ingredients

- We follow Anderson and Morzycki (2015) in proposing **zo simply compositionally introduces a kind variable**.
- kinds are taken to be a primitive type in the model, represented here as type π .
- A kind: “the plurality of all possible objects of some type” (Chierchia, 1998; Anderson and Morzycki, 2015).
- Zo is a function from kinds to properties of objects, asserting that the object instantiates the kind, i.e., $\cup k(o)$ (Chierchia, 1998).
- The variable o ranges over either states (adjectives) (e.g., Wellwood, 2015) or events (verbs).

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- We deviate from Anderson and Morzycki (2015) in what contributes quantificational semantics.
- Following proposals in e.g. Alrenga et al. (2012); Alrenga and Kennedy (2014), we **attribute quantificational semantics to the SM als**.
- *Als* takes as arguments two sets of kinds and asserts that the first is a subset of the second (e.g., Rett, 2020; Hohaus and Zimmermann, 2021).

$$(6) \quad \text{JalsK} : \lambda K_{\pi t} . \lambda K'_{\pi t} . \text{fk} : K(k) = 1g \quad \text{fk}' : K'(k') = 1g$$

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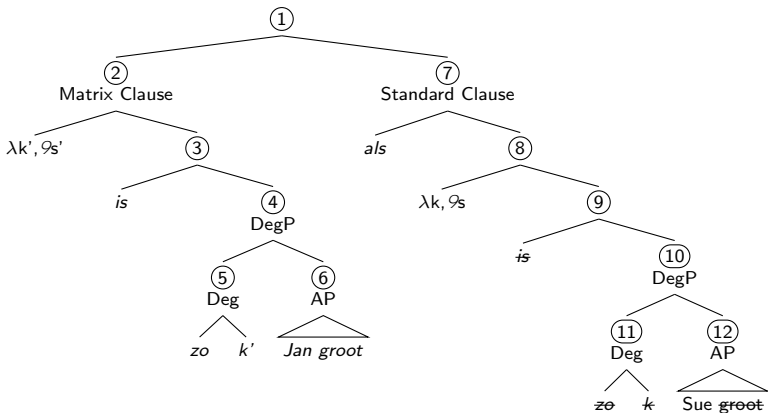
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Composition: Adjectival Equatives

- (7) Jan is *zo* groot *als* Sue.
 John is *zo* *ALS* Sue tall *ALS* Sue
 'John is as tall as Sue.'



Composition: Adjectival Equatives

- Matrix clause:

- (8) a. $J_{(5)}K: \lambda o. \cup k'(o)$
 b. $J_{(6)}K: \lambda s'. TALL(s', jan)$
 c. $J_{(3)}K: \lambda s'. TALL(s', jan) \wedge \cup k'(s')$ (identical to (4), PM)
 d. $J_{(2)}K: \lambda k'. \mathcal{G}s'[TALL(s', jan) \wedge \cup k'(s')]$

- Standard clause:

- (9) a. $J_{(11)}K: \lambda o. \cup k(o)$
 b. $J_{(12)}K: \lambda s. TALL(s, sue)$
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- Final steps where *als* takes the two sets of kinds as argument:

- (10) $J_{(7)}K: \lambda K'_{\pi t}. \hat{f}k: \mathcal{G}s'[TALL(s, sue) \wedge \cup k(s)] = 1g \quad \hat{f}k': K'(k) = 1g$
 (11) $J_{(1)}K: \hat{f}k: \mathcal{G}s'[TALL(s, sue) \wedge \cup k(s)] = 1g \quad \hat{f}k': \mathcal{G}s'[TALL(s', jan) \wedge \cup k'(s')] = 1g$
 'the set of state kinds Sue's height instantiates is a subset of the set of state kinds John's height instantiates'

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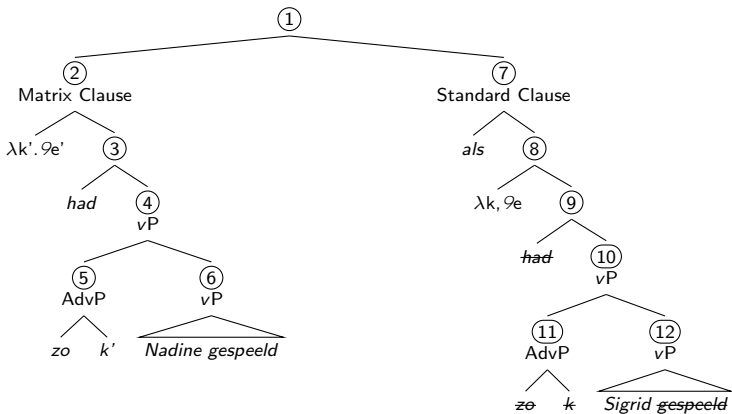
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Composition: Verbal Equatives

- (12) Nadine had *zo* <*als* Sigrid> gespeeld <*als* Sigrid>.
 Nadine has *zo* ALS Sigrid played ALS Sigrid
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Composition: Verbal Equatives

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- (13) a. $J_{(5)K}: \lambda o. \cup k'(o)$ (trace of QR of standard clause provides k')
 b. $J_{(6)K}: \lambda e'. \text{PLAY}(e', \textit{nadine})$
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Degrees and Manners

- What is a state/event kind?

'There is a sense that, in the case of states associated with gradable predicates, **degrees are a central part of what states are for**. The principal reason we talk about such states is to **compare them in a scalar fashion to others, or to a standard**.'

'Nevertheless, it seems reasonable to suppose that a **core part of what it is to be an event is to be realized in a certain manner**. To be sure, for some events, we care a great deal about their temporal extent, and for others, about their spacial extent. But for virtually any event, **we care about how it took place**. We don't talk about events chiefly to measure them. We talk about them chiefly **to characterize or explain them**.'

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Degrees and Manners

- Degrees and manners are special sorts of properties of states and kinds since they correspond to **particular pluralities of such objects**.
- Anderson and Morzycki (2015): degrees and kinds are **distinguished properties** of eventualities
- *Zo* accesses only such properties, implemented as a presupposition.

(17) a. $\text{DIST}(o,P)$ is true iff P is among the distinguished properties of o .

b. $\text{JzoK}: \lambda k.\lambda o:\text{DIST}(o, \cup k).\cup k(o)$

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Non-equative zo

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Supporting Evidence: non-equative *zo*

- **we expect *zo* to be a general kind introducer referring to degrees or manners.**
- This is indeed what we find; in non-equative contexts, *zo* behaves like an **anaphoric pro-form**, referring to contextually provided degrees or manners.

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Supporting Evidence: non-equative zo

- (18) Jan is 1.80m groot. Jane is ook *zo* groot.
 John is 1.80m tall Jane is also *zo* tall
 'John is 1.80m tall and Jane is 1.80m tall too.'
 # 'John is 1.80m tall, and Jane is also tall at 1.85m.'
 (proform for degrees, not evaluative)
- (19) Jan gedroeg zich erg goed vandaag. Jane gedroeg zich ook *zo*.
 John behave himself very bad today Jane behave herself also *zo*
 'John behaved badly today and Jane behaved so too.'
 (proform for manners)

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Supporting Evidence: Distribution of Readings

- Sensitivity to syntactic category of the parameter in the distribution of degree and manner readings **carries over to equatives** if *zo* introduces kinds that are distinguished properties of its complement.
- Indeed, *zo...als* equatives only have **degree readings with adjectival parameters**, and only have **manner readings with verbal parameters**.

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Supporting Evidence: Adjectival Equatives Only Have Degree Readings

(20) Jan is *zo* *<*als* Sue> groot <*als* Sue>.

John is ZO ALS Sue tall ALS Sue

'John is as tall as Sue.'

(21) Continuations for (20)

a. #Jan is 1m85 en Sue 1m80.

John is 1m85 and Sue 1m80

'John's height is 1m85 and Sue's is 1m80.'

(evaluative)

b. Jan is 1m68 en Sue ook.

John is 1m68 and Sue too

'John's height is 1m68 and Sue is 1m68 too.'

(degree)

Supporting Evidence: Verbal Equatives Only Have Manner Readings

(22) Nadine had *zo* <*als* Sigrid> gespeeld <*als* Sigrid>.
 Nadine has ZO ALS Sigrid played ALS Sigrid
 'Nadine played as Sigrid played.'

(23) Continuations for (22)

a. Namelijk moedig.

namely brave

'Namely bravely.'

(manner)

b. #Namenlijk vier keer

namely four times

'Namely four times.'

(degree)

Supporting Evidence: Verbal Equatives Only Have Manner Readings

- Dutch Verbal equatives never have degree readings **even with particular verbs classes that have been argued to involve degree variables in their semantics.**
- Deadjectival degree achievement verbs, which indicate that some object has undergone a change in holding some degree of a property over the course of an event (e.g., Kennedy and Levin, 2008).
- It seems *zo* can only access the manner properties of the event.

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Supporting Evidence: Verbal Equatives Only Have Manner Readings

- (24) We hebben de pizza *zo* afgekoeld *als* de lasagne
 we have the pizza ZO cooled.down ALS the lasagne
 'We cooled down the pizza like the lasagna.'
- a. Namelijk door te blazen.
 namely by to blow
 'Namely by blowing.'
- b. #Namelijk tot 21 graden.
 namely until 21 degrees
 'Namely to 21 degrees.'

(degree achievements with *zo...als*)

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Supporting Evidence: Scope Ambiguity with Matrix Modals

- Evidence for a quantificational analysis of comparatives: **the scope of comparison interacts with other scope-taking elements like matrix modal verbs** (Heim, 2000, 2006, *a.m.o.*).

(25) CONTEXT: My draft is 20 pages long.

- De definitieve versie mag exact vijf pagina's langer zijn
the final version may exactly five pages longer be
dan de kladversie.
than the draft
'The final paper is allowed to be exactly five pages longer than this draft.'
- Maar zelfs tien pagina's meer dan wat je nu hebt is nog
but even ten pages more than what you now have is still
oké.
okay
'But even ten pages more than what you have now will still be okay.'
(minimum length 25 pages, modal DegP)
- Maar in geen geval langer.
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- **The same scope ambiguity for adjectival equatives.** This is derived **by attaching the *als*-clause to the embedded clause under the modal, or to the matrix clause above the modal.**

(26) CONTEXT: You just submitted your B.A. thesis and proudly show it to me. I inquire after its length and you tell me that it's 60 pages. I'm currently writing my master's thesis and I tell you...

- a. Mijn master thesis mag net zo lang zijn als jouw bachelor paper.
 my master's thesis may exactly 20 long be ALS your bachelor paper.
 'My master's thesis is allowed to be exactly as long as your B.A. thesis.'
- b. Maar vijf pagina's korter dan wat je nu ingediend hebt zou ook al oké zijn en tot 70 pagina's is ook nog toegelaten.
 but 5 pages shorter than what you now submitted have would also already okay be and until 70 pages is also still allowed
 'But even 5 pages shorter would be okay and 70 pages is allowed as well.'
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 and no page more
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Supporting Evidence: Scope Ambiguity with Matrix Modals

- **The same scope ambiguity holds for verbal equatives.**

(27) CONTEXT: A foreign colleague can spend their research funds on equipment, books, and conference travel. She asks about how I may spend my funds and I reply...

- a. Ik mag mijn beurs exact *zo <als jij>* gebruiken *<als jij>*.
 I may my funding exactly *ZO ALS* you use *ALS* you
 'I may spend my funds in exactly the same way as you.'
- b. Maar ik mag ze ook gebruiken om sprekers uit te nodigen.
 but I may her also use to speakers PRT PRT invite
 'But I may also spend it on inviting speakers.' (modal *zo...als*)
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Cross-Germanic variation: English

- English adjectival equatives use a PM, English verbal adjectives do not.
- The presence of a PM corresponds with a degree reading.
- The absence of a PM corresponds with a property/manner reading.

- (28) a. Sue is **as** tall as Bill, but she is short
(degree reading, non-evaluative)
- b. Sue is tall **like** Bill, # but she is short.
(no PM, property reading, evaluative)
- (29) a. Kim (***as**) cooled the pizza **as** Sue did, namely by blowing on it.
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- b. Kim cooled the solution **as much** as Sue did, by 10 degrees Celsius.
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English PM as a Degree Quantifier

- Rett (2013) analyzes the **English PM** as as a **degree quantifier**, and **SM** as as a **generalized set abtractor**.

$$(30) \quad \begin{array}{l} \text{a. } J_{as_{PM}}K: \lambda D. \lambda D'. \text{MAX}(D) \quad \text{MAX}(D') \\ \text{b. } J_{as_{SM}}K: \lambda P^{\delta}. \lambda \alpha. J_{P^{\delta}}K \quad [\delta \rightarrow \alpha] \end{array}$$

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English Verbal Equatives

- **Manner is taken by Rett (2013) to be a semantic primitive** introduced by a null head (ρ) that can be abstracted over.
- ρ takes an event predicate and introduces a relation $<$ between an event variable and a free manner variable.

(31) John danced as Sue danced.

a. $\llbracket \text{John danced} \rrbracket = \text{JOP}_m \llbracket \text{John danced} \rrbracket \rho^m \llbracket \text{K} = \lambda m. \exists e [\text{DANCED}(e, \text{john}) \wedge <(e, m)]$

b. $\llbracket \text{Jas Sue danced} \rrbracket = \llbracket \text{Jas Sue danced} \rrbracket \rho^{m'} \llbracket \text{K} = \lambda m'. \exists e' [\text{DANCED}(e, \text{sue}) \wedge <(e', m')]$

c. $\llbracket \text{John danced as Sue danced} \rrbracket = \exists m, e, e' [\text{DANCED}(e, \text{john}) \wedge <(e, m) \wedge \text{DANCED}(e, \text{sue}) \wedge <(e', m)]$

PREDICATE MODIFICATION, EXISTENTIAL CLOSURE

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- In prose: **there is a manner that characterizes John and Mary's dancing.**

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English vs. Dutch

- **Presence of a PM (zo) in Dutch adjectival equatives correlates with degree readings**, exactly as in English. A PM blocks property/manner readings.
- Presence of a PM in Dutch does not block manner readings in verbal equatives; in fact, it is **degree readings that are blocked**. This alone necessitates a different analysis of the PM zo.
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Cross-Germanic Variation: German

- Morphosyntax of German equatives is closely related to Dutch
- It uses a PM *so* and an SM *wie*.
- Both *so* and *wie* are **ambiguous between being anaphoric to kinds, degrees, and manners in non-equative contexts** (Anderson and Morzycki, 2015; Umbach et al., 2022).
- **This ambiguity carries over to equative contexts.**

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German Adjectival Equatives

- German adjectival equatives **permit both degree and property readings.**
- Non-gradable adjectives in equatives
- In English and Dutch this is ungrammatical or has a highly coerced (degree) reading along some gradable scale of prototypicality (*x is as much a prototypical amphibian as y is*) (Rett, 2013).

(32) Nadine ist *so* groß *wie* Anna.
Nadine is SO tall WIE Anna
'Nadine is as tall as Anna.' (degree)

(33) Freddie der Frosch ist *so* amphibisch *wie* Moritz der Molch.
Freddie the frog is SO amphibian WIE Moritz the newt
'Fred the frog is amphibian in the same way Moritz the newt is;
they share all relevant amphibian properties.' (property)
(Hohaus and Zimmermann, 2021, p. 100-101)

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German Verbal Equatives

- German verbal equatives are **ambiguous between a manner and degree reading.**
- Degree achievement verbs

(34) Wir haben die pizza *so* abgekühlt *wie* die lasagn.
we have the pizza SO cooled WIE the lasagne
'We cooled the pizza as we cooled the lasagne.'

- Nämlich durch Pusten.
namely through blow
'Namely through blowing on it.'
- Nämlich auf 21 grad raumtemperatur.
namely to 21 degrees room.temperature
'Namely to 21 degrees.'

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German PM as a (Partially) Type-Neutral Quantifier

- Hohaus and Zimmermann (2021) Propose that **so is a quantifier that can quantify over either degrees (gradable adjectives) or properties (of individuals or events)**.
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German vs. Dutch

- German and Dutch pattern together morpho-syntactically; **PMs are used across all types of equatives** regardless of syntactic category of the parameter.
- The distribution of degree versus manner readings crucially differ.
- An analysis of Dutch *zo* as a type-neutral quantifier along the lines of German *so* will face **the challenge of trying to rule out the property version with adjectival equatives**, and the degree version with verbal equatives involving a degree achievement verb parameter.

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Conclusions

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- The **proposed semantics is cross-categorical and identical across adjectival and verbal equatives.**
- Distribution of degree versus manner readings across syntactic categories arises from **what count as distinguished properties of states versus events.**
- Supporting evidence:
 - zo has anaphoric pro-form uses in non-equative contexts
 - identical distribution of degree and manner readings across non-equative and equative contexts
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- **Dutch patterns with German in its morphosyntax;**
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References I

- Alrenga, P. and Kennedy, C. (2014). *No more shall we part*: Quantifiers in English comparatives. *Natural Language Semantics*, 22:1–53.
- Alrenga, P., Kennedy, C., and Merchant, J. (2012). A new standard of comparison. In Arnett, N. and Bennett, R., editors, *Proceedings of the 30th West Coast Conference on Formal Linguistics*, pages 32–42. Somerville, MA: Cascadilla Proceedings Project.
- Anderson, C. and Morzycki, M. (2015). Degrees as kinds. *Natural Language & Linguistic Theory*, 33:791–828.
- Chierchia, G. (1998). Reference to kinds across languages. *Natural Language Semantics*, 6(4):339–405.
- Haspelmath, M. and Buchholz, O. (1998). Equative and similitive constructions in the languages of Europe. In van der Auwera, J. and Ó Baoill, D., editors, *Adverbial constructions in the languages of Europe*, pages 277–334. Berlin: Mouton de Gruyter.
- Heim, I. (1985). Notes on comparatives and related matters. Ms., University of Texas, Austin.
- Heim, I. (2000). Degree operators and scope. In Jackson, B. and Matthews, T., editors, *Proceedings of the 10th Semantics and Linguistic Theory conference*, pages 40–64. Ithaca: Cornell University.
- Heim, I. (2006). Remarks on comparative clauses as generalized quantifiers. Ms., Massachusetts Institute of Technology.
- Hohaus, V. and Zimmermann, M. (2021). Comparisons of equality with German *so...wie*, and the relationship between degrees and properties. *Journal of Semantics*, 38:95–143.
- Kennedy, C. and Levin, B. (2008). Measure of change: The adjectival core of degree achievements. In McNally, L. and Kennedy, C., editors, *Adjectives and adverbs: Syntax, semantics and discourse*, pages 156–182. Oxford: Oxford University Press.
- Penka, D. (2016). Degree equatives: The same as comparatives? Presented at Equative Constructions Workshop, Universität zu Köln.
- Rett, J. (2013). Similitives and the argument structure of verbs. *Natural Language & Linguistic Theory*, 31:1101–1137.
- Rett, J. (2020). Separate but equal: A typology of equative constructions. In Hallman, P., editor, *Interactions of degree and quantification*, pages 163–204. Boston: Brill.
- Umbach, C., Hinterwimmer, S., and Gust, H. (2022). German *wie*-complements: Manners, methods and events in progress. *Natural Language & Linguistic Theory*, 40:307–343.
- Wellwood, A. (2015). On the semantics of comparison across categories. *Linguistics & Philosophy*, 38:67–101.

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Appendix: Type-Shifting the Standard Clause

- While the proposed analysis largely follows Anderson and Morzycki (2015), we differ in what introduces quantificational semantics. Proposal for Dutch: the SM *als* is a quantifier over kinds.
- Anderson and Morzycki (2015) do not propose a dedicated quantifier over kinds.
- Rather, they assume that **type-shifting rules apply to the standard clause** to resolve type-mismatches with the kind-introducing PM in equatives.

Appendix: Type-Shifting the Standard Clause

- This is motivated in part by the language they investigate in detail: Polish.
- In Polish, **the PM appears to be *tak*, and the standard is marked by *jak***, which is typically translated as a *wh*-word that is ambiguous between degree and manner much like German *wie*.

(35) Floyd jest *tak* wysoki *jak* Clyde.
Floyd is TAK tall WH Clyde
'Floyd is as tall as Clyde.'

(36) Floyd śpiewał *tak jak* Clyde śpiewał.
Floyd sang TAK WH Clyde sang
'Floyd sang as Clyde sang.'

(Anderson and Morzycki, 2015, p. 816-817)

Appendix: Type-Shifting the Standard Clause

- Anderson and Morzycki (2015) note the **morphological similarity between tak and jak in Polish**; taking this seriously, they assume **both to be elements that introduce kinds**.

(37) a. $\text{JtakK}: \lambda k. \lambda o. \cup k(o)$
b. $\text{JjakK}: \lambda k. \lambda o. \cup k(o)$

- The standard clause in both adjectival and verbal equatives therefore denotes predicates of kinds.

Appendix: Type-Shifting the Standard Clause

- (38) a. Floyd jest **tak** wysoki **jak** Clyde.
 Floyd is TAK tall WH Clyde
 'Floyd is as tall as Clyde.'
- b. $\int \lambda k \text{ jest } [AP [DegP \text{ jak } k \text{ Clyde } \text{wysoki}]] K:$
 $\lambda k. \mathcal{S}[TALL(s, clyde) \wedge \cup k(s)]$

(adjectival equative)

- (39) a. Floyd śpiewał **tak jak** Clyde śpiewał.
 Floyd sang TAK WH Clyde sang
 'Floyd sang as Clyde sang.'
- b. $\int \lambda k \text{ jak } k \text{ Clyde } \text{śpiewał}] K:$
 $\lambda k. \mathcal{E}[SING(e, clyde) \wedge \cup k(e)]$

(verbal equative)

Appendix: Type-Shifting the Standard Clause

- Assuming the standard analysis in the comparatives literature that the standard clause is a complement of the degree morpheme, **the predicate of kinds denoted by the standard clauses are assumed to be complements to tak**, which requires a kind as its first argument.
- This is the familiar type-mismatch problem; however, **the standard clause is not a quantifier in the analysis** and therefore cannot undergo QR.
- At this point of the composition, Anderson and Morzycki (2015) assume that **type-shifting rules apply to resolve such a type-mismatch**. Two rules such rules are widely assumed in the literature: IOTA SHIFT or EXISTENTIAL CLOSURE SHIFT.

Appendix: Type-Shifting the Standard Clause

- (40) IOTA SHIFT (from $\langle \tau, t \rangle$ to τ , where τ is any atomic type):
shift $P_{\tau t}$ to $\iota x_{\tau}[P(x)]$
(preferred when defined)
- (41) EXISTENTIAL CLOSURE SHIFT (from $\langle \tau, t \rangle$ to $\langle \langle \tau, t \rangle, t \rangle$):
shift $P_{\tau t}$ to $\lambda Q_{\tau t}.\exists x_{\tau}[P(x) \wedge Q(x)]$
(dispreferred)
- (Anderson and Morzycki, 2015, p. 814)

Appendix: Type-Shifting the Standard Clause

- With that much in place, Anderson and Morzycki (2015) suggest that **different type-shifting rules are employed in adjectival and verbal equatives**.
- The default IOTA SHIFT is employed in the standard clause of adjectival equatives.
- This is because with degree state kinds, **there is indeed a unique state kind that any state instantiates**, namely, the equivalence class of states (degrees) that it is a member of.
- IOTA SHIFT, is however, undefined with verbal equatives; **there is no unique kind or manner that an event instantiates**. EXISTENTIAL CLOSURE SHIFT is employed for verbal equatives instead.

Appendix: Type-Shifting the Standard Clause

- Adjectival equatives:

(42) Floyd jest *tak* wysoki *jak* Clyde.
 Floyd is TAK tall WH Clyde
 'Floyd is as tall as Clyde.'

- $J \lambda k \text{ jest } [_{AP} [_{DegP} \text{ jak } k \text{ Clyde } \text{ wysoki}]] K:$
 $\lambda k. \mathcal{Q}_S[\text{TALL}(s, \text{clyde}) \wedge \cup k(s)]$ (standard clause)
- $J \text{SHIFT } \lambda k \text{ jest } [_{AP} [_{DegP} \text{ jak } k \text{ Clyde } \text{ wysoki}]] K:$
 $\cup k[\mathcal{Q}_S[\text{TALL}(s, \text{clyde}) \wedge \cup k(s)]]$ (shift standard clause)
- $J [\text{tak } \text{SHIFT } \lambda k \text{ jest } [_{AP} [_{DegP} \text{ jak } k \text{ Clyde } \text{ wysoki}]]] K:$
 $\lambda o. \cup \cup k[\mathcal{Q}_S[\text{TALL}(s, \text{clyde}) \wedge \cup k(s)]](o)$ (*tak* complement)
- $J \text{Floyd jest } \text{wysoki}] K: \lambda s'. \text{TALL}(s, \text{floyd})$ (matrix clause)
- $J [\text{tak } \text{SHIFT } \lambda k \text{ jest } [_{AP} [_{DegP} \text{ jak } k \text{ Clyde } \text{ wysoki}]] [\text{Floyd jest } \text{wysoki}]] K:$
 $\lambda s'. \text{TALL}(s, \text{floyd}) \wedge \cup \cup k[\mathcal{Q}_S[\text{TALL}(s, \text{clyde}) \wedge \cup k(s)]](s')$

- In prose: **Floyd's tallness state instantiates the unique degree state kind that Clyde's tallness instantiates.**

Appendix: Type-Shifting the Standard Clause

- Verbal equatives:

(43) Floyd śpiewał *tak jak* Clyde śpiewał.
 Floyd sang TAK WH Clyde sang
 'Floyd sang as Clyde sang.'

- $J \lambda k [jak k Clyde śpiewał] K: \lambda k. \mathcal{R}e[SING(e, clyde) \wedge U_k(e)]$
 (standard clause)
- $J_{SHIFT} \lambda k jak k Clyde śpiewał] K:$
 $\lambda Q. \mathcal{R}k[\mathcal{R}e[SING(e, clyde) \wedge U_k(e)] \wedge Q(k)]$ (shift standard clause)
- $J \lambda k' [Floyd śpiewał tak k'] K: \lambda k'. \mathcal{R}e'[SING(e, floyd) \wedge U_{k'}(e')]$
 (matrix clause after QR of standard clause)
- $J_{SHIFT} \lambda k jak k Clyde śpiewał] K (J \lambda k' [Floyd śpiewał tak k'] K):$
 $\mathcal{R}k[\mathcal{R}e[SING(e, clyde) \wedge U_k(e)] \wedge \mathcal{R}e'[SING(e, floyd) \wedge U_{k'}(e')]]$

- In prose: **there is a manner kind which both Floyd's singing and Clyde's singing instantiates.**

Appendix: Type-Shifting the Standard Clause

- Anderson and Morzycki's analysis involving type-shifting leads to several consequences. First, **in adjectival equatives the standard clause is effectively a degree (state kind) definite description** (see e.g., Penka, 2016 for German). That means it is **interpreted in-situ and does not undergo QR**.
- **QR is motivated only for verbal equatives**. In addition, verbal equatives involve **existential quantification over manners (event kinds)**.

Appendix: Type-Shifting the Standard Clause

- It is clear that the analysis **cannot apply to Dutch because of two predictions** (it is an empirical question if these hold in Polish).
- Prediction 1: since the standard clause in adjectival equatives is a degree definite description interpreted in-situ, **it should not show any kind of scopal interactions with other scope-taking elements**.
- This, of course, seems to not be borne out in Dutch adjectival equatives, which exhibits scope ambiguities with matrix modal verbs (26).
- In fact, Anderson and Morzycki (2015) provide the same analysis for comparatives, where the presence scope ambiguities is well-established (in English) since Heim (1985, 2000, 2006).

Appendix: Type-Shifting the Standard Clause

- Prediction II: **Verbal equatives in their analysis do involve an existential quantifier** and therefore, QR and scope-taking. This, however, predicts rather weak truth conditions for verbal equatives; **two events need only share a manner in which it is carried out** to satisfy this, e.g., (43-d).
- This is, in fact, **the same prediction made by Rett's analysis for English**, which involves PREDICATE MODIFICATION of two sets of manners and then EXISTENTIAL CLOSURE of the manner variable.
- Two further consequences follow from a meaning built on existential quantification over manners.

Appendix: Type-Shifting the Standard Clause

- First, we expect that the context below, which makes explicit that **the two events involve just one manner in common**, to be felicitously described by the (English) verbal equative, which **does not seem to be borne out**.

- (44) CONTEXT: Floyd and Clyde both sang at the party last night.
 Floyd sang really melodically and slowly. Clyde sang melodically
 as well, though he sang really hurriedly.
- a. #? Floyd sang as Clyde sang.
 - b. #? Clyde sang as Floyd sang.

Appendix: Type-Shifting the Standard Clause

- Rather, a stronger meaning seems to be described by the verbal equative; it requires the comparee event to have **at least all of the same manners of the standard event, if not more**.
- In other words, this is **the sub-set relation**, as has been standardly assumed for equative quantifiers and also adopted here for Dutch.

(45) CONTEXT: Floyd and Clyde both sang at the party last night.
 Clyde sang really melodically and slowly. Floyd sang really
 melodically and slowly too, but also really goofyly.

- a. Floyd sang as Clyde sang (though Floyd also sang goofyly).
- b. ??Clyde sang as Floyd sang (though Floyd also sang goofyly).

Appendix: Type-Shifting the Standard Clause

- Finally, even if there is QR of the existential quantifier over kinds in Anderson and Morzycki's analysis, it is unclear if it would explain the scope ambiguity in verbal equatives, as in Dutch (27) or in German (Hohaus and Zimmermann, 2021).
- Again, this seems to be because existential quantification seems too weak to capture the relevant interpretations.

Appendix: Type-Shifting the Standard Clause

- Even with QR, **the relevant interpretations seem indistinguishable**, which is not what is observed in Dutch, where two distinct interpretations are available.

(46) CONTEXT: A foreign colleague can spend their research funds on equipment, books, and conference travel. She asks about how I may spend my funds and I reply...

Ik mag mijn beurs exact zo <als jij> gebruiken <als jij>.
I may my funding exactly ZO ALS you use ALS you

'I may spend my funds in exactly the same way as you.'

- $\mathcal{Q}w'[wRw' \wedge \mathcal{R}k[\text{colleague spends her funds in } k\text{-manner in } w'] \wedge I \text{ spend my funds in } k\text{-manner in } w']$, i.e., some world where we happen to spend funds identically
- $\mathcal{R}k[\text{colleague uses her funds in } k\text{-manner in } w \wedge \mathcal{Q}w'[wRw' \wedge I \text{ spend my funds in } k\text{-manner in } w']$, i.e., there is some k -manner colleague spends her funds and there is some world I spend my funds in k -manner