Some accidental homophonies:

(1)  a. **manner:** How did he do it?  
b. **degree:** How tall is he?

(2)  a. **kind:** such a dog as this  
b. **manner:** Clyde behaved as I did.  
c. **degree:** Clyde is as tall as Floyd.

The received view: Meh.
The empirical argument:

- not an accident
- reflects a deep connection among degrees, manners, & kinds
- there is evidence for this connection in a number of languages
Theoretical issues:

- adjectives probably have degree arguments
- adjectives possibly have state arguments
- do we need both?
- what’s exactly is a ‘degree’, anyway?

Proposal:

- no need for a separate degree argument
- degrees are Carlsonian kinds of Davidsonian states (building on Landman & Morzycki 2003, Landman 2006)
- this explains the cross-categorial parallels
cross-categorical parallels
how can degrees be kinds?
semantics of cross-categorical kind modifiers
semantics of their clausal complements
final remarks
Anaphors:

(3) a. **kind:**
    takisuch-MASCpies
    'such a dog', 'a dog of that kind'

b. **manner:**
    taksięzachowywać
    such REFLbehave
    'behave that way'

c. **degree:**
    takwysoki
    such tall
    'that tall'
Same *wh*-word across domains:

(4) a. **kind:**
   `jak__ pies`
   `WH-MASC dog`
   ‘what kind of dog’

b. **manner:**
   `Jak się zachowywał?`
   `WH REFL behaved-3MASC`
   ‘How did he behave?’

c. **degree:**
   `Jaki wysoki jest Clyde`
   `WH-MASC tall is Clyde?`
   ‘How tall is Clyde?’
Combined, *tak* and *jak* abstract over the three domains:

(5)  

a. **kind:**

\[
\text{taki pies jak ten such-MASC dog WH this} \\
\text{‘such a dog as this’, ‘a dog of this kind’}
\]

b. **manner:**

\[
\text{zachowywać się tak jak Clyde} \\
\text{behave REFL such WH Clyde} \\
\text{‘behave like Clyde’}
\]

c. **degree:**

\[
\text{taki wysoki jak Clyde} \\
\text{such-MASC tall WH Clyde} \\
\text{‘as tall as Clyde’}
\]
Same word for ‘same’:

(6)  

a. **kind:**

taki sam pies
such-MASC same dog
‘a dog of the same kind’

b. **manner:**

zachowywać się tak samo
behave REFL such same-ly
‘behave the same way’

c. **degree:**

tak samo wysoki jak Clyde
such same-ly tall WH Clyde
‘as tall as Clyde’, ‘of the same height as Clyde’
Least appealing account possible:

- *tak*, *jak*, and *sam* are each 3-ways ambiguous
- ambiguity happens to be precisely the same for all of them

But on standard assumptions, what’s the alternative?
German anaphor so:

(7)  a. **kind:**
    so einen Hund
    such a dog
    ‘a dog of the same kind’

b. **manner:**
    so getanzt
    such danced
    ‘danced like that’

c. **degree:**
    Ich bin so groß
    I am such tall
    ‘I am this tall.’
As in Polish, a corresponding *wh*-word, *wie*:

(8)  

a. **kind:**  
   so ein Hund *wie* dieser  
   such a dog *WH* this  
   ‘a dog such as this’

b. **manner:**  
   Jan hat so *wie* Maria getanzt.  
   John has such *WH* Mary danced  
   ‘John danced the way Mary did.’

c. **degree:**  
   Ich bin so *groß wie* Peter.  
   I am such tall as Peter  
   ‘I am as tall as Peter.’
Cross-categorial parallels: English

English as:

(9)  a. **kind**: such a dog **as** this
    b. **manner**: Clyde behaved **as** I did.
    c. **degree**: Clyde is as tall **as** Floyd.
Deeper similarity to Polish & German facts: so.

(10)  a. **degree:**  so tall (as this)

    b. **manner:**  stand so as not to block your view

Cognate with German so.

No kind use...
But wait. English *such*, cognate with *so*:

(11) such a dog

Such and so are very similar:

- Bresnan (1973): such derived from so via transformation
- Carlson (1977): same
- Landman (2006): such is so-like
Such, like so, has a degree(-like) reading:

(12) Clyde is such \{a tall man, an idiot\}.

Such, like so, triggers DP-internal fronting (Abney 1987, Matushansky 2002):

(13) a. *a \{so such\} tall man

b. \{so such\} a tall man
Apparently AP-modifying use of *so is obligatorily pronounced *such with mass nouns:

\[
\begin{align*}
\text{fine food} \\
\{ \text{*so} \\
\text{such} \} \\
\end{align*}
\]
Both *such* and *so* license *that*-phrases (in addition to *as*-phrases):

(15) a. such a tall man that he might not fit in the car
b. so tall a man that he might not fit in the car
c. abuse him so much that he might not get in the car
Therefore:

- *such* is a superficial variant of *so*
- English only narrowly missed having a three-way parallel
English also has some two-way parallels (Landman 2006, Anderson 2010):

(16) a. **kind:** a dog like this  
    b. **manner:** behave like this

(17) a. **degree:** how tall is he?  
    b. **manner:** how did he behave?
Also:

(18) He’s \{kind of sort of\} tall.

Even:

(19) a. He’s some kind of tall.
    b. Those things are some kind of tasty.

Title of a movie and 3 distinct songs:

(20) Some Kind of Wonderful
Lots of other potential examples. French (Desmets & Moline 2007):

(21)  a. **kind:**
    un chien *comme* Hildy
    a dog *like* Hildy
    ‘a dog like Hildy’

    b. **manner or degree:**
    Jean travaille *comme* son père.
    John works *like* his father
    ‘John works like his father/as his father did.’

    c. **degree:**
    Comme il *travaille!*
    like *he works*
    ‘How he works!’
Japanese:

(22) a. **kind:**

Dono-yoo-na hon-o yomimasu ka.

WH book-ACC read Q

‘What kind of book do you read?’

b. **manner:**

Dono-yoo-ni setsumee-shimashita ka.

WH explanation-did Q

‘How did you explain it?’
Best-documented and most important two-way parallel (Haspelmath & Buchholz 1998, Rett 2011): homophony in morphemes that mark.

- equative clauses (same degree: *as tall as Clyde is*)
- similative clauses (same manner: *die as Clyde did*)
Languages with this parallel (in Europe alone, but not all Indo-European):

(23)  a. Romance: Spanish, Portuguese; Catalan; Occitan; Italian
    b. Balto-Slavic: Slovene; Russian; Slovak; Lithuanian
    c. Germanic: Dutch; Yiddish; Danish, Swedish; Icelandic; Faroese
    d. Romani
    e. Modern Greek
    f. Finnish
    g. Georgian
    h. Armenian
    i. Turkish
    j. Lezgian
    k. Abkhaz
    l. Kabardian

Of 43 they examined, 27 had identical morphemes.
Overall picture:

- similar expressions for kinds, manners, & degrees in lots of places in lots of languages
- too systematic and too widespread to be an accident
- suggests a profound connection among these domains
✓ cross-categorial parallels
  - how can degrees be kinds?
  - semantics of cross-categorial kind modifiers
  - semantics of their clausal complements
  - final remarks
Different ideas about what degrees are:

- nothing (Kamp 1975, Klein 1980, 1982)
- equivalence classes (Cresswell 1976)
- points on an abstract scale (Seuren 1973, von Stechow 1984)
- intervals on an abstract scale (Kennedy 1997, Schwarzschild & Wilkinson 2002)
Problems for any typical view (Moltmann 2007, 2009):

- nominalizations
- non-degree modification
Problem of nominalizations:

(24)  a. Clyde’s height is \{striking, impressive\}.
    b. Six feet is \{striking, impressive\}.

(25)  a. We were amazed at Clyde’s height.
    b. We were amazed at six feet.

(26) a. Clyde is \{\begin{align*}
\text{visibly happy} \\
\text{happy in a visible way} \\
\text{strangely beautiful} \\
\text{beautiful in a strange way}
\end{align*}\}.

b. The talk was \{\begin{align*}
\text{oddly unnerving} \\
\text{fatally flawed}
\end{align*}\}.

c. These examples might be misleadingly exceptional.
Moltmann’s alternative is TROPES (or ‘accidents’ or ‘modes’): concrete particular instantiations of a property.
Moltmann (2009) informs us that she is looking at a red box.
The particular redness of this box is a trope. It has:

- a precise shade
- a spatial location: here, on this slide
- a temporal location: now
- no other box has its redness
The particular redness of this box is a trope. It has:
- a precise shade
- a spatial location: here, on this slide
- a temporal location: in the past
- no other box has its redness
Useful! But:

- on its own, doesn’t get us connection to kinds
- Davidsonian states are more familiar
- if we can get away with those, we should
- will focus here on compositional issues here
model needs to include kinds anyway (*bears, the grizzly bear*; Carlson 1977)
- will adopt Chierchia (1998) representation of kinds
The plurality of actual rabbits:

Might be the denotation of *all the rabbits* (more or less).
Chierchia: The kind **RABBIT** consists of all possible rabbits:

**ACTUAL WORLD:**

**WORLD 1:**

**WORLD 2:**

**WORLD 3:**

Denotation of kind-denoting *rabbits*. 
Kinds of states and events come for free.

Then:

- State-kinds (can) represent degrees.
To get there, start with a Cresswell-style equivalence class of people who are precisely 6 feet tall:

**ACTUAL WORLD:**
Floyd + Clyde + Bertha + Edna

**WORLD 1:**
Floyd + Clyde + Gertrude

**WORLD 2:**
Bugs + Bertha + Daffy + Tweety

**WORLD 3:**
Sam + Sylvester

This is a Chierchia-style individual kind (possibly denotation of ? the six-foot tall).
To get there, start with a Cresswell-style equivalence class of people who are precisely 6 feet tall. Then intensionalize it:

**ACTUAL WORLD:**  Floyd + Clyde + Bertha + Edna

**WORLD 1:**  Floyd + Clyde + Gertrude

**WORLD 2:**  Bugs + Bertha + Daffy + Tweety

**WORLD 3:**  Sam + Sylvester

This is a Chierchia-style individual kind (possibly denotation of *the six-foot tall*).
Davidsonian spin on this: the kind SIX-FEET-TALL consists of all possible STATES of being six feet tall:

**ACTUAL WORLD:** \((\text{Floyd’s-6’}} + \text{Clyde’s-6’}} + \text{Bertha’s-6’}} + \text{Edna’s-6’}}\)

**WORLD 1:** \((\text{Floyd’s-6’}} + \text{Clyde’s-6’}} + \text{Gertrude’s-6’}}\)

**WORLD 2:** \((\text{Bugs’s-6’}} + \text{Bertha’s-6’}} + \text{Daffy’s-6’}} + \text{Tweety’s-6’}}\)

**WORLD 3:** \((\text{Sam’s-6’}} + \text{Sylvester’s-6’}}\)

All possible ways of being 6 feet tall.
Not all state-kinds are degree state kinds:

- There is a state-kind BEAUTIFULLY-TALL.
- It’s not ordered with respect to 6-FEET-TALL.
Assumptions:

- $\cup k$ is the property correlate of the kind $k$ (Chierchia)
- so $\cup k(x)$ is true iff $x$ realizes the kind $k$
- I will use type $k$ for kinds (individuals, states, events) and variables $k, k', \ldots$
- I will use type $o$ for non-kind objects (individuals, states, events) and variables $o, o', \ldots$
(27) Floyd is six feet tall.

(28) $\llbracket \text{tall} \rrbracket = \lambda x \lambda s . \text{tall}(s, x)$

NB: $\text{tall}(s, x)$ means $s$ is a state of $x$ having a certain tallness, not necessarily of being tall.

(29) $\llbracket \text{six feet} \rrbracket = \lambda s . \cup \text{SIX- FEET}(s)$

(30) $\llbracket \llbracket \text{six feet} \rrbracket \llbracket \text{Floyd tall} \rrbracket \rrbracket = \lambda s . \text{tall}(s, \text{Floyd}) \land \cup \text{SIX- FEET}(s)$
(31) Floyd is tall.

A version of Rett (2008)’s $\text{EVAL}$:

(32) $\mathbf{[EVAL]} = \lambda s . \exists k \in \text{degree-state-kinds}(s)[\bigcup k(s) \land k \succ_s \text{standard}_{s,c}]

(33) $\mathbf{[EVAL}[\text{Floyd tall }]]$
    $= \lambda s . \exists k \in \text{degree-state-kinds}(s)[\bigcup k(s) \land k \succ_s \text{standard}_{s,c}] \land \text{tall}(s, \text{Floyd})$
✓ cross-categorial parallels
✓ how can degrees be kinds?
  ■ semantics of cross-categorial kind modifiers
  ■ semantics of their clausal complements
  ■ final remarks
Cross-categorial kind modifiers: Simple version

*Tak* takes a kind argument:

(34) $[\textit{tak}] = \lambda k \lambda o . \mathcal{U} k(o)$

Often, supplied by context:

(35) $[\textit{tak} k] = \lambda o . \mathcal{U} k(o)$
(36)
\( (37) \quad \llbracket [\text{VP } \text{Floyd mówił }] \rrbracket = \lambda e . \text{spoke}(e, \text{Floyd}) \)
\( \llbracket [\text{VP } \text{Floyd mówił }] [\text{tak k}] \rrbracket 
= \lambda e . \text{spoke}(e, \text{Floyd}) \land \bigcup k(e) \)

\( (38) \quad \llbracket [\text{AP } \text{Floyd wysoki }] \rrbracket = \lambda s . \text{tall}(s, \text{Floyd}) \)
\( \llbracket [\text{tak k }] [\text{AP } \text{Floyd wysoki }] \rrbracket 
= \lambda s . \text{tall}(s, \text{Floyd}) \land \bigcup k(s) \)

If only it were so simple.
Can event-kinds be degrees? Should be possible: RUN-SIX-MILES.

Impossible for similatives to get degree readings (Rett 2011):

\[(39)\]

a. Floyd ran \{six miles for two hours\}, and Clyde ran as Floyd did.

b. Floyd cooled his coffee 5 degrees, and Clyde cooled his coffee as Floyd did.
Can state-kinds be manners? Should be possible: FATALLY-WOUNDED.

Impossible for AP-modifying kind anaphors to get manner readings:

(40)  a. Floyd was fatally wounded, and Clyde was (as) wounded as Floyd.
    b. Floyd was contemptuously rude, and Clyde was (as) rude as Floyd.
Problem in a nutshell:

- Why can’t event kind modifiers get degree readings?
- Why can’t state kind modifiers get manner readings?
A compositional answer?

- consequence of interaction between kind modifiers & degree heads
- but how would this block degree readings for event kind modifiers?

Morphological blocking (also or instead)?

- degree readings for VP kind modifiers impossible because blocked by e.g. *(ran) as much as*
- but how would this block manner readings for state kind modifiers?
This approach seems to miss something:

- degrees have a special status with respect to states
- manners have a special status with respect to events

What does ‘special status mean’?
Maybe degree state-kinds are natural kinds or well-established kinds?

Fishy.
Why are degree state-kinds special, intuitively?

- for tallness, kinds involving height are more fundamental than kinds involving manner of manifesting height (beautifully, disconcertingly, etc.)
- principal reason we talk about such states is to compare them in a scalar way to others
Why are manner event-kinds special, intuitively?

- A core part of what it is to be an event is to be realized in some manner.
- For **SOME** events, we might care a great deal about e.g. temporal extent.
- But for **EVERY** event, we care about how it took place.
- We don’t talk about events chiefly to measure them.
Embracing the problem:

- don’t know precisely ‘special’ actually means
- do know language cares about it
- as linguists, we should ask above all, **HOW** language cares
- deeper question of **WHY** it cares may be one to discuss with philosophers, psychologists, etc.
A way of thinking about (/quarantining) the problem:

- manners are **DISTINGUISHED PROPERTIES** of events
- ... and degrees of states

In symbols:

\[ \text{dist}(o, P) \text{ is true iff } P \text{ is among the distinguished properties of } o \]

So:

- \[ \text{dist}(s, \cup k) \text{ is true iff } k \text{ is a degree state-kind} \]
- \[ \text{dist}(e, \cup k) \text{ is true iff } k \text{ is a manner event-kind} \]
A presupposition:

\[(42) \ [\text{tak}] = \lambda k \lambda o : \text{dist}(o, \cup k) . \cup k(o)\]

Compositionally, this changes little:

\[(43) \ a. \ [\left[ \text{VP Floyd mówił } \text{[tak k]} \right]\]
= \lambda e : \text{dist}(e, \cup k) . \text{spoke}(e, \text{Floyd}) \land \cup k(e)\]

b. \[\left[ \text{tak k } \right][\text{AP Floyd wysoki }]\]
= \lambda s : \text{dist}(s, \cup k) . \text{tall}(s, \text{Floyd}) \land \cup k(s)\]

Will omit \text{dist} from now on.
 ✓ cross-categorial parallels
 ✓ how can degrees be kinds?
 ✓ semantics of cross-categorial kind modifiers
   ■ **semantics of their clausal complements**
   ■ final remarks
What I mean: in English, \textit{as} clauses.

Important, because:

- a major part of the parallelism
- in degree case, a basic degree construction: the equative
- a connection to free relatives \cite{Rett2011}
- nominal version, connection to ordinary\textit{(-ish)} relatives
Adnominal use:

(44) taki pies jak Floyd
    TAK-MASC dog WH Floyd
    ‘such a dog as Floyd.’

With elided clause:

(45) taki \[\lambda k \text{ Floyd jest jak } k\]
    TAK-MASC Floyd is WH
Wh word *jak* is identical to *tak*:

(46) \[ [jak] = \lambda k \lambda x . \cup k(x) \]

Clause denotes property of kinds:

(47) \[ [\lambda k \text{Floyd jest} \, jak \, k] = \lambda k . \cup k(\text{Floyd}) \]

...which causes a type clash, because *tak* expects a kind.
Resembles how Caponigro (2003, 2004) treats free relatives:

- denote properties
- often trigger type clash
- type shifts systematically rescue them
Two standard(-ish) type shifts (Partee 1987):

(48) **Iota Shift** (from $\langle \tau, t \rangle$ to $\tau$):
shift $P$ to $\iota x_\tau [P(x)]$

(49) **Existential Closure Shift** (from $\langle \tau, t \rangle$ to $\langle \tau t, t \rangle$):
shift $P$ to $\lambda Q_{\langle \tau, t \rangle} . \exists x_\tau [P(x) \land Q(x)]$

Caponigro: Iota preferred over Existential Closure.
(50) Captain Kirk went to where no man had gone to before.

To wants an individual-denoting complement. Gets a property. Iota not possible here, so Existential Closure applies:

(51) $\exists x \left[ \text{Captain Kirk went to } x \land \text{ no man had gone to } x \text{ before} \right]$
Type shift necessary to avoid a type clash:

(52)
Iota not possible, so Existential Closure applies:

\[(53)\]
lota not possible, so Existential Closure applies:

(53)

\[ \lambda k \text{ Floyd jest jak } k \]

\[ \text{pies} \]

\[ \text{... and then QR.} \]
A dog barked that realizes a kind Floyd also realizes.
Clausal complements of kind modifiers: Manner uses

(55) Floyd śpiewał tak jak Clyde śpiewał.
    Floyd sang TAK WH Clyde sang
    ‘Floyd sang as Clyde sang.’

Again, Existential Closure shift and QR:

(56) a. [Floyd sang tak [SHIFT λk Clyde sang jak k]]
    b. [SHIFT λk Clyde sang jak k] [λk’ Floyd sang tak k’]
There’s a kind that is realized by both an event of Clyde singing and an event of Floyd singing.
Clausal complements of kind modifiers: Degree uses

(58) Floyd jest tak wysoki jak Clyde.
Floyd is TAK tall JAK Clyde
‘Floyd is as tall as Clyde.’

With elided clause:

(59) tak [\(\lambda k \text{ is } [\text{AP } [\text{DegP } jak k ] \text{ Clyde tak } k ]]\]
Equative clause denotes property, but complement to *tak*, which needs a kind.

Here, Iota Shift *is* possible. So:

\[(60) \quad \text{SHIFT } \lambda k \text{ is } [AP [\text{DegP jak } k ] \text{ Clyde tall } ]
= \nu k [\exists s [\bigcup k(s) \land \text{tall}(s, \text{Clyde})]]\]

The degree state-kind which Clyde’s height realizes.
A property of states of Floyd’s tallness that also realize the degree state-kind Clyde’s height realizes.
Assuming degrees and manners are kinds made possible cross-categorial semantics for complement clauses that are normally analyzed differently.

Addressed a tricky issue:

- kind & manner complement clauses make existential claims
- degree complement clauses (equatives) don’t follow independently from Caponigro’s assumptions
✓ cross-categorial parallels
✓ how can degrees be kinds?
✓ semantics of cross-categorial kind modifiers
✓ semantics of their clausal complements

final remarks
Summary:

- deep connection between kinds, manners, and degrees
- in multiple places in multiple languages
- understandable if degrees are state-kinds
- makes possible cross-categorial analysis of kind modifiers
- ... and of their complement clauses
- equatives emerge as a special case of a more general phenomenon
Big-picture points:

- Moltmann’s right: there may be more to degrees than we think.
- This need not complicate the ontology.

Some questions:

- How to make sense of ‘distinguished properties’?
- How might this help/hurt with other constructions?
- After all this: maybe state-kinds simply ‘reconstruct’ degrees?
- What does this tell us about Davidsonian eventualities?
- Do we need tropes?
Thanks!


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