

Equating by degrees or state-kinds, or both

Yenan Sun

The University of Chicago
yenansun@uchicago.edu

Abstract

This paper provides novel data of a cross-categorial equation construction in Mandarin Chinese to support the cross-linguistic connection between kinds, manners, and degrees. I further identify two modes of scalar equatives in Mandarin, showing that equating by state-kinds represents a distinct equation mode than equating by degree objects. The syntactic and semantic differences between the two modes motivate us to preserve both degree state-kinds and degree objects in our ontology.

1 Introduction

Anderson and Morzycki [1] (A&M henceforth) observe that a variety of languages exhibit a systematic connection between kinds, manners, and degrees. English uses the same preposition *as* to introduce arguments for kind modifiers, manner modifiers, and degree modifiers:

- (1) a. Such dog as Toby is adorable. (KIND)
b. Fiddo barked as Toby did. (MANNER)
c. Fiddo is as tall as Toby is. (DEGREE)

In Polish, *tak* ‘such’ can be anaphoric to kinds (2-a), manners (2-b), and degrees (2-c); a single *wh*-word *jak*, is used to question those three categories (3).

- (2) a. **taki** pies (KIND)
such-MASC dog
‘such a dog’
b. **tak** się zachowywać (MANNER)
such REFL behave
‘behave that way’
c. **tak** wysoki (DEGREE)
such tall
‘that tall’
- (3) a. **jaki** pies (KIND)
WH-MASC dog
‘what kind of dog’
b. **Jak** się zachowywał (MANNER)
WH REFL behave-3MASC
‘How did he behave?’
c. **Jak** wysoki jest Toby (DEGREE)
WH tall is Toby
‘How tall is Toby?’

Motivated by those facts, A&M propose that manners and degrees are both Chierchia-style kinds of eventualities. Based on Chierchia [6], a kind is the plurality of all of its possible instances. For instance, the kind DOG is the plurality of all the dogs in every possible world. Turning to manners and degrees, they can be viewed as kinds of events and kinds of states respectively: all possible events performed fast constitute the event-kind FAST, and all possible states that have six feet as their measure along the spatial dimension constitute the degree-kind SIX-FEET. The introduction of kinds over eventualities renders possible a uniform analysis of Polish *tak* in various equation constructions.

One issue raised by their paper is, if degree can be represented as a particular state-kind, whether we still need degree objects¹ in ontology. Though a dual analysis to keep both auto-

¹I will use ‘degree objects’ henceforth to refer to the objects in the model and ‘degree’ for the abstract concept.

matically achieves a wider empirical coverage as admitted by A&M², the question remains why languages will have these two systems co-exist if much of the work they do overlap.

This paper argues that both degree state-kinds and degree objects should be kept in our ontology based on the data from Mandarin Chinese. First of all, just like Polish *tak* and many other languages, Mandarin has the cross-categorial *na-yang* ‘such’ which can express equation across kinds, manners, and degrees. This supports a cross-linguistic connection between those three categories (Section 2.1). Moreover, Mandarin has an equation construction involving the (stressed) *yi-yang*_{EMP}, which is specific to equating degrees thus NOT cross-categorial. I show that there is a correlation for an equation construction in Chinese between being cross-categorial and triggering an obligatory positive inference of the standard (Section 2.2). I argue that this correlation points to an important difference between equating by state-kinds and equating by degrees for a scalar property, which shows both are needed in our model (Section 3). Section 4 concludes.

2 Equation constructions in Mandarin

This section first talks about a cross-categorial equation construction in Mandarin to support A&M’s claim (Section 2.1) and then turns to an equation construction that is specific to degree equation (not cross-categorial) to identify two modes of scalar equatives (Section 2.2).

2.1 Mandarin cross-categorial *na-yang*

Mandarin exhibits a striking parallel to Polish: a single morpheme *-yang*, which literally means ‘sort, kind’ (Liao and Wang [10]), is used to build the anaphoric form with the demonstrative *na* ‘that’ for kinds, manners, and degrees, as in (4).³

- (4) a. **na-yang** de shu zhide du
that-kind MOD book worth read
‘That kind of book worths reading.’ (KIND)
- b. Yuehan hui **na-yang** tiaowu.
John will that-kind dance
‘John will dance that way.’ (MANNER)
- c. Yuehan shi **na-yang** gao
John be that-kind tall
‘John is that tall.’ (DEGREE)

That same morpheme can be used to form the *wh*-word to question those three categories, as shown in (5).

- (5) a. ni xihuan **zen-yang** de shu?
you like WH-kind MOD book
‘What kind of book do you like?’ (KIND)
- b. ni hui **zen-yang** tiaowu?
you will WH-kind dance
‘How will you dance?’ (MANNER)

²For instance, A&M mention that the standard degree approaches can better account for phenomena like differential comparatives and factor phrases (*two times taller*).

³Abbreviations in this paper: CL=classifier, PERF=perfective marker, MOD=modification marker, YNQ=yes-or-no question marker.

- c. wulun Yuehan **zen-yang** congming, ta haishi yinggai shang ke
 no.matter John WH-kind clever he still should take class
 ‘No matter how clever John is, he still should take classes’ (DEGREE)

We will focus on the data of *na-yang* in this paper. Notice (4) involve the anaphoric use of *na-yang*, namely there is a salient kind in the context feeding the interpretation of those modifiers. For instance, if (4-a) is uttered in a discourse like (6), the referent introduced by the previous discourse will highlight a relevant kind like CLASSIC (which constitute all possible classic books). Following the comparative literature we call such a relevant kind the *standard* of equation.

- (6) a. A: shangzhou wo du-le Zhanzhengyuheping
 last.week I read-PERF War.and.Peace
 ‘Last week I read *War and Peace*’
 b. B: hao! ni yinggai duo du **na-yang** de shu
 good you should more read that-kind MOD book
 ‘Great! You should read that kind (=CLASSIC) of books more.’

Alternatively, such a standard can be overtly introduced by the preposition *xiang* ‘like’ as in (7), which are often called non-anaphoric use.

- (7) a. xiang Zhanzheng.yu.heping **na-yang** de shu...
 like War.and.Peace that-kind MOD book
 ‘such book like *War and Peace*...’
 b. Yuehan hui xiang Bier **na-yang** tiaowu
 John will like John that-kind dance
 ‘John will dance in such way like Bill does.’
 c. Yuehan xiang Bier **na-yang** gao
 John like Bill that-kind tall
 ‘John is such tall like Bill.’

This cross-categorial equation construction involving *na-yang* provides support for A&M’s proposal to render manners and degrees as kinds of eventualities.

2.2 Non-cross-categorial *yiyang*_{EMP} and two modes of equatives

In Mandarin there is another equation construction that can only equate degrees but not kinds and manners, which is featured by *yi-yang*_{EMP} (8).

- (8) a. ?*gen Zhanzheng.yu.heping **yi-yang**_{EMP} de shu
 as War.and.Peace one-kind MOD book
 Int: ‘such book like *War and Peace*...’ (KIND)
 b. ?*Yuehan hui gen Bier **yi-yang**_{EMP} tiaowu
 John will like John one-kind dance
 Int: ‘John will dance in such way like Bill does’ (MANNER)
 c. Yuehan gen Bier **yi-yang**_{EMP} gao
 John as Bier one-kind tall
 ‘John is as tall as Bill.’ (DEGREE)

The subscript ‘EMP’ indicates it bears some salient intonation in the sentence, in order to distinguish it from another *yi-yang*_{LIGHT}, which does not bear stress and behaves essentially like

the cross-categorical *na-yang*. We will turn back to this *yi-yang*_{LIGHT} later. Comparing the scalar equative involving the non-cross-categorical *yi-yang*_{EMP} and the scalar equative involving the cross-categorical *na-yang*, we find they differ both in syntax and semantics.

Firstly, they select different prepositions, either *gen* or *xiang*, to introduce the standard in the equation as in (9). Switching the prepositions leads to ungrammaticality:

- (9) a. Yuehan {gen, *xiang} Bier **yi-yang**_{EMP} gao
 John as like Bier one-kind tall
 ‘John is as tall as Bill.’
 b. Yuehan {*gen, xiang} Bier **na-yang** gao
 John as like Bier that-kind tall
 ‘John is such tall like Bill.’

Secondly, the *na-yang* equative invokes a positive interpretation of the standard in the equation. Take (9) for instance, when uttering (9-b), the speaker not only commits to the equation statement that John’s height equals Bill’s height, but also a positive interpretation of Bill’s tallness, namely Bill’s height must exceed the contextually relevant standard of being tall. For (9-a), only the equation of John’s height and Bill’s height is asserted and no such positive interpretation is enforced. This contrast can be shown in (10) by having a denial of the positive inference as the follow-up.

- (10) a. Yuehan gen Bier **yi-yang**_{EMP} gao. suiran Bier hen ai.
 John as Bier one-kind tall though Bill very short
 ‘John is as tall as Bill. Though Bill is quite short.’
 b. Yuehan xiang Bier **na-yang** gao. #suiran Bier hen ai.
 John like Bier that-kind tall though Bill very short
 ‘John is such tall like Bill. #Though Bill is quite short.’

Testing with this extra inference from the *na-yang* equative, we further find it to be a presupposition which survives under negation or interrogative operators, as shown in (11).

- (11) a. Yuehan bu xiang Bier **na-yang** gao. #suiran Bier yijing gou ai le.
 John NEG like Bill that-kind tall though Bill already enough short SFP
 ‘John isn’t so tall like Bill. #Though Bill is short enough.’
 b. Yuehan xiang Bier **na-yang** gao ma? #suiran Bier yijing gou ai le.
 John like Bill that-kind tall YNQ though Bill already enough short SFP
 ‘Is John so tall like Bill? #Though Bill is short enough.’

The fact that the cross-categorical equation construction has this positive inference in the case of scalar equatives is not random – the unstressed *yi-yang*_{LIGHT} is another way of equating things in Mandarin and it shares almost identical properties with *na-yang*:

- (12) a. {??gen, xiang} Zhanzheng.yu.heping **yi-yang**_{LIGHT} de shu
 as like War.and.Peace one-kind MOD book
 ‘such book like *War and Peace*...’ (KIND)
 b. Yuehan hui {??gen, xiang} houzi **yi-yang**_{LIGHT} tiaowu
 John will as like monkey one-kind dance
 Int: ‘John will dance in such way like monkeys’ (MANNER)
 c. Yuehan {??gen, xiang} Bier **yi-yang**_{LIGHT} gao
 John as like Bill one-kind tall
 ‘John is such tall like Bill.’ (DEGREE)

Crucially, under this use, the standard must be (or at least strongly preferred to be) introduced by the preposition *xiang* and the positive inference of the standard is presupposed as well, shown by the impossibility of denying Bill is tall when uttering (12-c):

- (13) Yuehan xiang Bier **yi-yang**_{LIGHT} gaO. #suiran Bier hen ai.
 John like Bill one-kind tall though Bill very short
 ‘John is such tall like Bill. #Though Bill is quite short.’
- (14) Yuehan bu xiang Bier **yi-yang**_{LIGHT} gaO. #suiran Bier yijing gou ai le.
 John not like Bill one-kind tall though Bill already enough short SFP
 ‘John isn’t’s such tall like Bill. #Though Bill is short enough.’

In short, we identify two modes of scalar equatives, one represented by *yi-yang*_{EMP} and another represented by *na-yang* and *yi-yang*_{LIGHT}. Their properties are summarized in Table 1.

	Non-cross-categorial	Cross-categorial
The preposition used to introduce the standard	<i>gen</i> ‘as’	<i>xiang</i> ‘like’
The positive interpretation of the standard	NA	presupposed

Table 1: Two modes of equatives

We are particularly interested in the correlation between the existence of a positive interpretation of the standard in a certain equative, and its ability to equate manners and kinds besides degrees. The next section proposes an analysis to capture such a correlation.

3 The analysis

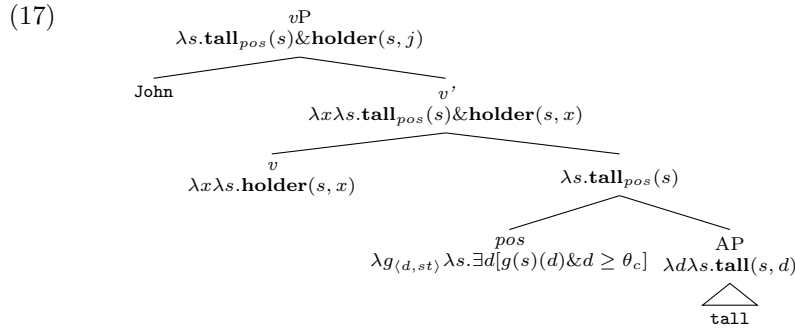
I propose that the two modes of scalar equatives differ in whether state-kinds or (sets of) degree objects are equated. The equative involving *na-yang* (or *yi-yang*_{LIGHT}) equates state-kinds, while the equative involving *yi-yang*_{EMP} equates sets of degree objects. In other words, both state-kinds and degree objects are required in our ontology. Based on A&M [1] and other standard models which include degree objects, I assume the following subsets of the domain D :

- (15) a. D_k is a set of kind objects in D (represented by k, k', \dots)
 b. D_o is a set of non-kind objects in D :
 D_e is a set of non-kind individuals in D_o (x, y, z, \dots)
 D_v is a set of non-kind events in D_o (e, e', \dots)
 D_s is a set of non-kind states in D_o (s, s', \dots)
 D_d is a set of degree objects in D_o (d, d', \dots)

I further assume Kratzer [9]’s version of event semantics. For instance, an intransitive verb like *dance* denotes a set of dancing events, and the agent is introduced by v (voice head) via Event Identification, as in (16).

- (16)
- $$\begin{array}{c}
 vP \\
 \lambda e. \mathbf{dance}(e) \& \mathbf{ag}(e, j) \\
 \text{John} \quad v' \\
 \lambda x \lambda e. \mathbf{dance}(e) \& \mathbf{ag}(e, x) \\
 v \quad VP \\
 \lambda x \lambda e. \mathbf{ag}(e, x) \quad \lambda e. \mathbf{dance}(e) \\
 \mathbf{dance}
 \end{array}$$

For scalar adjectives like *tall*, I argue it relates a state to the degree it has as its measure along the spatial dimension (based on Wellwood [12], Baglini [2]) and under its positive interpretation, a null *pos* morpheme whose semantics is adapted to fit the event semantics (Cresswell [7]; Bierwisch [4]; Kennedy [8]) is inserted, as in (17). For convenience, the result of applying *tall* to *pos* is abbreviated as ‘ $\lambda s.\mathbf{tall}_{pos}(s)$ ’ henceforth. Similarly, the holder of a state is introduced by the voice head.



Now we are ready to analyze two modes of equatives in Mandarin, repeated in (18). We need to account for the following facts: (i) *na-yang* is cross-categorial whereas *yi-yang*_{EMP} is not; and (ii) the scalar equative with *na-yang* additionally presupposes the positive interpretation of the standard, namely ‘Bill is tall’ in (18-b).

- (18) a. Yuehan xiang Bier **na-yang** gao
 John like Bier that-kind tall
 ‘John is such tall like Bill.’
 b. Yuehan gen Bier **yi-yang**_{EMP} gao
 John as Bier one-kind tall
 ‘John is as tall as Bill.’

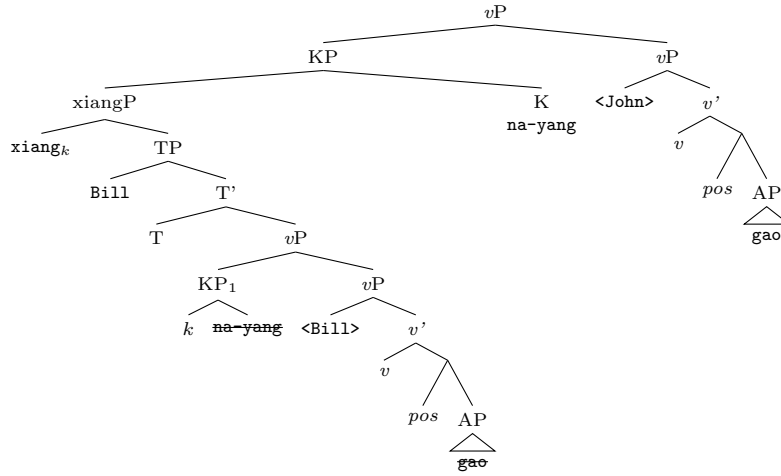
I assign *na-yang* the same semantics of Polish *tak* (based on A&M) as in (19-a): it takes a kind and a non-kind object (which can be either an individual, state, or event) as arguments, and asserts the object is a realization of that kind. The ‘ \cup ’ operator is used in the familiar way as in Chierchia [6] such that $\cup k$ is the property counterpart for a kind k . In contrast, *yi-yang*_{EMP} is a standard degree quantifier that equates sets of degree objects as in (19-b).

- (19) a. $\llbracket \text{na-yang} \rrbracket = \lambda k\lambda o.\cup k(o)$
 b. $\llbracket \text{yi-yang}_{\text{EMP}} \rrbracket = \lambda D_{dt}\lambda D'_{dt}.D = D'$

(20) illustrates the syntax of (18-a). I assume *na-yang* heads the projection called ‘KP’⁴, which selects an elided clause introduced by the preposition *xiang* as its complement. Moreover, KP merges as a modifier of *vP*, instead of a AP-modifier as assumed in A&M.

⁴I do not label it as ‘DegP’ since it is cross-categorial and does not involve any notion of degrees when equating manners or nominal kinds.

(20)



The standard clause (i.e. *xiangP*) is elided and contains a free kind variable which is abstracted over by the preposition *xiang*. The resulted denotation is shown in (21):

- (21) a. $\llbracket [{}_{vP} \text{ Bill pos gao}] \rrbracket = \lambda s. \mathbf{tall}_{pos}(s) \& \mathbf{holder}(s, b)$
 b. $\llbracket [{}_{vP} [{}_{KP1} k \text{ na-yang}] [{}_{vP} \text{ Bill pos gao}]] \rrbracket = \exists s [\mathbf{tall}_{pos}(s) \& \mathbf{holder}(s, b) \& {}^U k(s)]$
 c. $\llbracket [\text{xiangP}] \rrbracket = \lambda k. \exists s [\mathbf{tall}_{pos}(s) \& \mathbf{holder}(s, b) \& {}^U k(s)]$

Since *na-yang* does not head a DegP over AP, it does not saturate the degree argument of the predicate *gao* 'tall'. Thus the predicate *gao* goes through its regular composition with *pos*.

Following A&M, the type mismatch between $\llbracket [\text{xiangP}] \rrbracket$ and *na-yang* triggers Iota type shift (Caponigro [5]), since there is precisely one degree state-kind that a state instantiates:

$$(22) \quad \llbracket [\text{SHIFT xiangP}] \rrbracket = \iota k [\exists s [\mathbf{tall}_{pos}(s) \& \mathbf{holder}(s, b) \& {}^U k(s)]]$$

This unique kind saturates the first argument of *na-yang* in the matrix clause and results in a property of states:

$$(23) \quad \llbracket [{}_{KP} [\text{SHIFT xiangP}] \text{ na-yang}] \rrbracket = \lambda o. {}^U \iota k [\exists s [\mathbf{tall}_{pos}(s) \& \mathbf{holder}(s, b) \& {}^U k(s)]](o)$$

This property intersects with the property contributed from the matrix clause:

- (24) a. $\llbracket [\text{John pos gao}] \rrbracket = \lambda s'. \mathbf{tall}_{pos}(s') \& \mathbf{holder}(s', j)$
 b. $\llbracket [{}_{KP} [\text{SHIFT xiangP}] \text{ na-yang}] [\text{John pos gao}] \rrbracket = \lambda s'. {}^U \iota k [\exists s [\mathbf{tall}_{pos}(s) \& \mathbf{holder}(s, b) \& {}^U k(s)]](s') \& \mathbf{tall}_{pos}(s') \& \mathbf{holder}(s', j)$

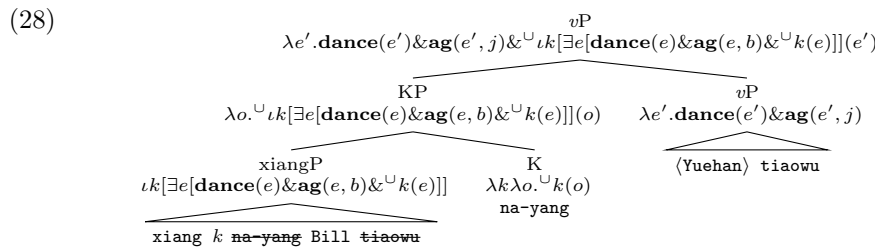
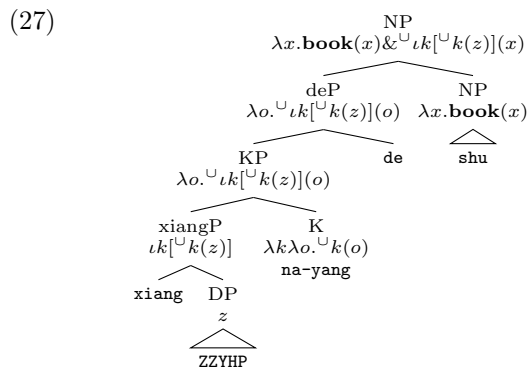
After the existential closure of the state variable, we derive the semantics for the scalar equative (18-a) in (25): there is a state of having a positive (i.e. exceeding the contextual threshold of being tall) height which is held by John such that it instantiates a unique degree state-kind which is instantiated by a state of having a positive height whose holder is Bill.

$$(25) \quad \llbracket [(18-a)] \rrbracket = \exists s' [{}^U \iota k [\exists s [\mathbf{tall}_{pos}(s) \& \mathbf{holder}(s, b) \& {}^U k(s)]](s') \& \mathbf{tall}_{pos}(s') \& \mathbf{holder}(s', j)]$$

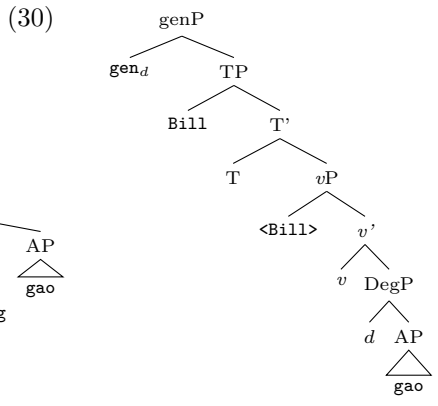
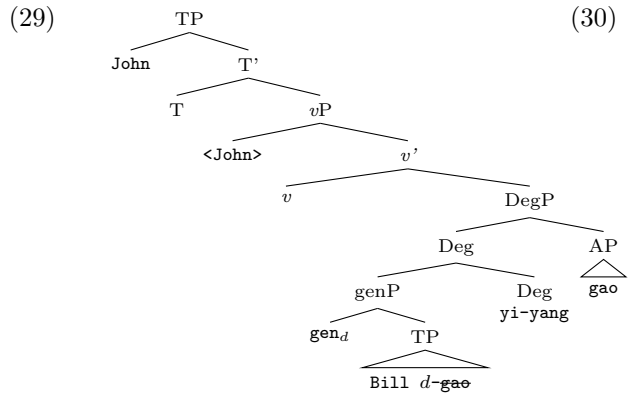
This is equivalent to saying John's state of having some positive height has the same measure along the spatial dimension as Bill's state of having some positive height. We further capture the presupposition that the standard (Bill) must be considered as tall by the ι -closure in the formula: since a unique degree state-kind which is instantiated by Bill's state of having some

positive height is presupposed (under the scope of the ι operator), we expect the inference that Bill is tall can project. Finally, since *na-yang* equates general kinds instead of specific degrees, it is expected that it is cross-categorical. We briefly present how the current proposal extends to the equation of nominal kinds and manners (26) in (27)-(28).

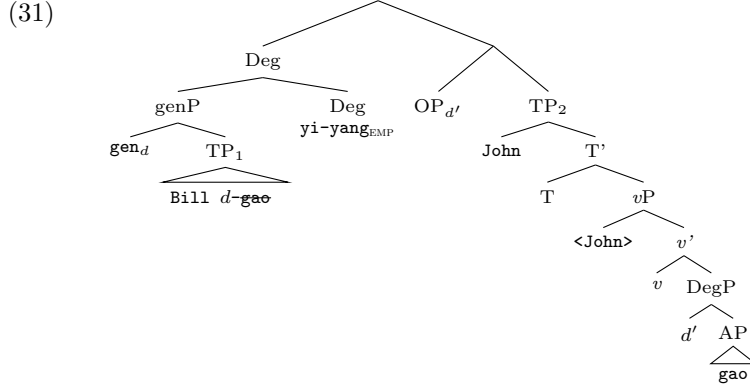
- (26) a. xiang Zhanzheng.yu.heping **na-yang** de shu...
 like War.and.Peace that-kind MOD book
 ‘such book like *War and Peace*(ZZYHP)...’
 b. Yuehan hui xiang Bier **na-yang** tiaowu
 John will like John that-kind dance
 ‘John will dance in such way like Bill does.’



Turning to the non-cross-categorical *yi-yang*_{EMP} in (18-b), I assume it is a regular Deg head which selects an elided clause introduced by the preposition *gen* and AP, as in (29). The syntax of the elided clausal standard is elaborated in (30).



Following a common approach to comparatives (Bhatt and Takahashi [3], Rett [11], a.o.), the Deg head scopes out together with genP to form the LF in (31) and some operator (a null one in matrix clause and the preposition *gen* in the elided clause, following Rett [11]) abstracts over the occurrences of free degree variable to form a set of degrees.



The corresponding semantic composition is as follows:

$$(32) \quad \llbracket \text{yi-yang}_{\text{EMP}} \rrbracket = \lambda D_{dt} \lambda D'_{dt} . D = D'$$

$$(33) \quad \begin{array}{l} \text{a. } \llbracket d' \text{ gao} \rrbracket = \lambda s . \mathbf{tall}(s, d') \\ \text{b. } \llbracket v\text{P} \rrbracket = \exists s [\mathbf{tall}(s, d) \& \mathbf{holder}(s, j)] \\ \text{c. } \llbracket \text{OP}_{d'} \text{ TP}_2 \rrbracket = \lambda d' . \exists s [\mathbf{tall}(s, d) \& \mathbf{holder}(s, j)] \end{array}$$

$$(34) \quad \llbracket \text{genP} \rrbracket = \lambda d . \exists s [\mathbf{tall}(s, d) \& \mathbf{holder}(s, b)]$$

$$(35) \quad \llbracket (18\text{-b}) \rrbracket = \llbracket [\text{genP } \text{yi-yang}_{\text{EMP}}] [\text{OP}_{d'} \text{ TP}_2] \rrbracket = \\ (\lambda d . \exists s [\mathbf{tall}(s, d) \& \mathbf{holder}(s, b)]) = (\lambda d' . \exists s [\mathbf{tall}(s, d') \& \mathbf{holder}(s, j)])$$

Since *yi-yang_{EMP}* is a degree quantifier, it cannot equate the nominal kinds or manners. With a standard treatment for the scalar equative involving *yi-yang_{EMP}*, we also capture the fact that it does not presuppose Bill counts as tall in (18-b).

In sum, I extend A&M's proposal of Polish *tak*, with some revisions, to capture that equatives involving *na-yang* are (i) cross-categorial between degrees, kinds, and manners; and (ii) presuppose the positive interpretation of the standard wrt the relevant scalar property. I also show that degree objects should still be kept in our ontology since equatives with *yi-yang_{EMP}* indeed equate degree objects, and thus is non-cross-categorial and lacks such presupposition.

4 Concluding remarks

This paper investigates the equation constructions in Mandarin Chinese and especially how they contribute to Anderson and Morzycki [1]'s proposal that degrees and manners are kinds of eventualities. First, the existence of the cross-categorial *na-yang* 'such', which just like Polish *tak* can express the equation of nominal kinds, manners, and degrees, provides support for their proposal. Second, Mandarin has a non-cross-categorial equation construction featured by *yi-yang_{EMP}*, which is restricted to equation of degrees. Those two different equation constructions exhibit differences in syntax and semantics when expressing the equation of degrees. Crucially, there is a correlation for an equation construction between being cross-categorial and presupposing the positive interpretation of the standard for a relevant scalar property. The current

analysis accounts for the correlation by proposing that the cross-categorial *na-yang* equates state-kinds (and also heads a syntactically higher projection as the modifier of *vP*), whereas the non-cross-categorial *yi-yang*_{EMP} equates sets of degree objects (as a standard degree quantifier). Such a proposal relies on the co-existence of state-kinds and degree objects in our ontology. While the distinction between two modes of equatives in a single language like Mandarin might not be enough to fully answer A&M's question that whether state-kinds should be the only representation of degree in our model, I believe it is an interesting starting point, and it is worthwhile to look into more languages to see if it is a cross-linguistic tendency for a language to have certain means to distinguish between equating by state-kinds and by degree objects.

References

- [1] Curt Anderson and Marcin Morzycki. Degrees as kinds. *Natural Language & Linguistic Theory*, 33(3):791–828, 2015.
- [2] Rebekah Baglini. Stative predication and semantic ontology: A crosslinguistic study. *Chicago IL: University of Chicago PhD dissertation*, 2015.
- [3] Rajesh Bhatt and Shoichi Takahashi. Reduced and unreduced phrasal comparatives. *Natural Language & Linguistic Theory*, 29(3):581–620, 2011.
- [4] Manfred Bierwisch. The semantics of gradation. *Dimensional adjectives*, 71:261, 1989.
- [5] Ivano Caponigro. The semantic contributions of wh-words and type shifts: Evidence from free relatives crosslinguistically. In *Semantics and linguistic theory*, volume 14, pages 38–55, 2004.
- [6] Gennaro Chierchia. Reference to kinds across language. *Natural Language Semantics*, 6(4):339–405, 1998.
- [7] Max J Cresswell. The semantics of degree. In B. Partee, editor, *Montague grammar*, pages 261–292. New York: Academic Press, 1976.
- [8] Christopher Kennedy. Projecting the adjective: The syntax and semantics of gradability and comparison: Uc santa cruz dissertation. *Published in*, 1999.
- [9] Angelika Kratzer. Severing the external argument from its verb. In *Phrase structure and the lexicon*, pages 109–137. Springer, 1996.
- [10] Wei-wen Roger Liao and Yuyun Wang. The same difference: Comparative syntax-semantics of english same and chinese tong/xiang-tong. *Chinese Syntax in a Cross-Linguistic Perspective*, 128, 2014.
- [11] Jessica Rett. Similitives and the argument structure of verbs. *Natural Language & Linguistic Theory*, 31(4):1101–1137, 2013.
- [12] Alexis Wellwood. States and events for s-level gradable adjectives. In *Semantics and linguistic theory*, volume 26, pages 166–184, 2016.