Degree intensifiers as expressives in Mandarin Chinese

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In this paper, we provide an empirical description and a theoretical analysis of the adverbial use of *hǎo* '(lit.) good', *lǎo* '(lit.) old', and *guài* '(lit.) strange' in Mandarin Chinese. The three adverbs represent a small yet theoretically interesting class of lexical items. Because they manifest certain similarities to canonical degree adverbs such as *hěn* 'very' and *fēicháng* 'extremely', they have been usually treated as pure degree adverbs in the descriptive linguistics literature. Empirical evidence, however, shows that these adverbs actually fuse together both degree intensification and expressive meanings. For instance, they convey strong emotion on the part of the speaker and cannot appear in non-veridical contexts such as negation, modals, information-seeking questions, and antecedents of conditionals. We argue that *hǎo, lǎo*, and *guài* are mixed-content lexical items. Based on their empirical behaviors, we follow recent advances in multidimensional semantics to propose a hybrid formal analysis of *hǎo, lǎo*, and *guài* by incorporating degree semantics into a multidimensional logic for conventional implicature.

Keywords: expressives, degree adverbs, degree intensification, multidimensional semantics, Mandarin Chinese

1. Introduction

There has been a recent resurgence of interest in the study of conventional implicature since Potts (2003; 2005) analyzed the phenomenon in a multidimensional compositional system. Within this broad research program, expressive lexical items, such as English *damn* and *bastard* and Japanese honorifics, have invited an enormous amount of discussion due to their particularly interesting yet elusive properties (Potts 2007), as well as crosslinguistic pervasiveness (Harada 1976; Aoun et al. 2001; Potts & Kawahara 2004, among others). Expressive content also displays a high degree of crosslinguistic diversity and complexity (McCready 2010; Gutzmann 2015; Sawada 2018). Descriptive ineffability, relative ubiquity, and crosslinguistic

heterogeneity, among many other factors, render expressive content a genuine case of incommensurability across languages, giving rise to interlanguage expressivity disparity that is rarely, if at all, observed elsewhere (McCready 2014). An example is Japanese honorifics, which McCready (2014) contends to have no meaning-preserving equivalents in English or many other languages.

We intend this paper to make a modest contribution to the current scholarship on crosslinguistic variability in expressive power as encoded in expressive lexical items. More specifically, we shall discuss three expressive lexical items in Mandarin Chinese that serve as degree intensifiers and that are not translatable *qua* lexical items/phrases into other languages (to the best of our knowledge, of course). The three items are *hǎo* '(lit.) good', *lǎo* '(lit.) old', and *guài* '(lit.) strange' used in contexts where they modify gradable adjectival, adverbial, or verb phrases to intensify the degree associated with the gradable element. The sentences in (1–3) illustrate the adverbial use of these three lexical items.[1] Example (1) can be used to express that the degree to which the exam questions are difficult is contextually very high; (2) conveys that the weight of the suitcase exceeds a contextual standard by a good measure;[2] for (3) to be true, the relevant story needs to be terrifying to a considerable extent.[3]

(1) *Jīntiān de   kǎoshì tímù   hǎo nán.*
    today   MOD exam question HAO difficult
    'The questions on today's exam are HAO difficult.'

(2) *Nà gè xiāngzi lǎo   chén le, wǒ tí bú dòng.*
    that CL suitcase LAO heavy ASP 1SG lift not moved
    'That suitcase is LAO heavy. I cannot lift it.'

(3) *Zhè gè gùshì tīngqǐlái guài   kěpà   de.*
    this CL story sound   GUAI terrifying MOD
    'This story sounds GUAI terrifying.'

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1. Abbreviations are listed in the section Abbreviations at the end of the paper.

2. One anonymous reviewer pointed out to us that there exist crossdialectal differences in the use of *lǎo* as a degree modifier. His/her example involves Taiwan Mandarin, in which *lǎo* cannot be used to modify adjectival phrases. This is an interesting case of crossdialectal lexical idiosyncrasy. Such idiosyncrasies are observed not only for *lǎo*, but even more frequently for *guài*, as noted by S. Liu (1993) and D. Liu (2006). They (hopefully) do not involve any parametric variation. We would like to stress that in this paper, examples that involve degree-intensifying *lǎo* are based on *Putonghua* used in Mainland China. Many of our examples are adapted from highly regarded descriptive works such as Ma (1991) and Lü (1999), or from web resources.

3. Because there is no exact lexical or phrasal equivalent of *hǎo, lǎo*, and *guài* in English, throughout this paper, in all the glosses and translations of sentences involving the three adverbs, we shall simply use HAO, LAO, and GUAI to stand for them.

In dictionaries and descriptive Chinese linguistics, the above three adverbs are usually paraphrased by way of the canonical degree adverbs *hěn* 'very' and *fēicháng* 'extremely' (4).[4] For instance, the widely-used dictionary in Mainland China, *Xīnhuá Zìdiǎn* 'The *Xinhua* Dictionary', uses *hěn* and its archaic counterpart *shèn* to paraphrase *hǎo* when used as a degree intensifier. In Lü's (1999) influential Chinese reference grammar and many other similar works, *hěn, hǎo, lǎo*, and *guài* are paraphrased almost interchangeably (5). In short, in the descriptive literature, *hǎo, lǎo*, and *guài* are generally treated on a par with *hěn* and taken to intensify the degree associated with the modified adjectival, adverbial, or verb phrases. This treatment is in line with the observation that Mandarin Chinese language users often use canonical degree modifiers like *hěn* and *fēicháng* to (loosely) paraphrase *hǎo, lǎo*, and *guài*, yielding similar, but not identical, meanings (as to be shown in this paper).

(4) *Jīntiān de   kǎoshì tímù   hěn/fēicháng   nán.*
today   MOD exam   question very/extremely difficult
'The questions on today's exam are very/extremely difficult.'

(5) hěn: express a high degree
hǎo: express a high degree, often used to convey exclamation
lǎo: express a high degree, used before mono-syllabic, positive-polar adjectives[5]
guài: express a considerable degree, used colloquially and typically together with 'de'

Our research on *hǎo, lǎo, and guài* does not entirely break away from the aforementioned descriptive tradition (e.g. Ma 1991; Shan 2004, among others). However,

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4. It is widely acknowledged in the literature (e.g. Grano 2012) that the degree modifier *hěn* has a degree intensification reading comparable to English *very* as well as a bleached degree morpheme reading comparable to the *pos* morpheme posited by Kennedy & McNally (2005).

5. We would like to draw the reader's attention to a potential confusion regarding the use of "positive" and "negative" in this paper. They are at times used to refer to the orientations of antonym pairs (e.g. positive(-polar) *yuǎn* 'far' vs. negative(-polar) *jìn* 'near'), and at times used to indicate whether an agent (typically the speaker) thinks favorably or unfavorably of an object or a proposition. The two uses, of course, are separate, and we shall so indicate in this paper as best we can. Regarding *lǎo*, Ma (1991) observes that it (normally) modifies positive(-polar) adjectives (e.g. *dà* 'big', *yuǎn* 'far', or *cháng* 'long'), but not negative(-polar) adjectives (e.g. *xiǎo* 'small', *jìn* 'near', or *duǎn* 'short'). Positive(-polar) adjectives are not necessarily associated with positive emotions. Awaiting further elaboration, the use of *lǎo* always conveys some sort of unsatisfactory, unpleasant feeling on the part of the speaker. The sentence in (i), for instance, involves the positive(-polar) predicate *yuǎn* but negative emotion on the part of the speaker, as indicated by the felicitous continuation *wǒ bù xiǎng qù* 'I do not want to go.'

(i) *nà   dìfang lǎo   yuan de, wǒ bù xiǎng qù.*
that place LAO far   MOD 1SG not want go
'That place is LAO far away, and I do not want to go.'

it is distinguished from that tradition in two main respects. First, the empirical description of the three adverbs in this paper is heavily guided by contemporary semantic theory and is (hopefully) more precise and comprehensive in the scope of discussion. We shall report several fresh, theoretically-informed observations in regard to the three adverbs. Most of the observations will highlight where and how *hǎo, lǎo*, and *guài* are similar to, and distinguished from, canonical degree adverbs such as *hěn* 'very' and *fēicháng* 'extremely'. Second, existing theoretical studies of degree adverbs in Mandarin Chinese primarily (and justifiably) focus on *hěn* (e.g. C. Liu 2010; Grano 2012) and leave many other degree modifiers untouched (cf., Xie 2014a, 2014b). On the other hand, existing descriptive work on *hǎo, lǎo*, and *guài* normally goes no further than merely noting that these adverbs encode some sort of emotional "side effect". In this paper, we take the first step toward providing a formal analysis of adverbial *hǎo, lǎo*, and *guài*. The three adverbs all demonstrate empirical properties of mixed-content items (Potts 2005, 2007; McCready 2009, 2010; Gutzmann 2015, among others), and thus can be analyzed as bundling together the at-issue content of degree intensification and a speaker-oriented emotive conventional implicature.

We organize the rest of the paper as follows. In § 2, we briefly discuss key similarities between the three adverbs and canonical degree modifiers represented by *hěn* 'very'. The similarities suggest that the previous descriptive literature is largely right in comparing *hǎo, lǎo*, and *guài* to canonical degree modifiers. In § 3, we turn our attention to where *hǎo, lǎo*, and *guài* differ from canonical degree modifiers. The distinctions point to the conclusion that degree intensification is not the sole function of *hǎo, lǎo, and guài*. They conventionally bear emotive attitudes on the part of the speaker, and hence are expressive elements in the sense of Potts (2005; 2007) and McCready (2009; 2010). In § 4, we introduce a multidimensional compositional system developed by McCready (2010), which is an extension of Potts (2005). Then, in § 5 we provide a theoretical analysis of adverbial *hǎo, lǎo, and guài* by incorporating degree semantics into a multidimensional logic based on McCready (2010).

2. Similarities between *hǎo/lǎo/guài* and canonical degree modifiers

There are many empirical similarities between the adverbs *hǎo, lǎo*, and *guài* on the one hand and canonical degree modifiers such as *hěn* and *fēicháng* on the other hand. The aforementioned near-interchangeability and native speakers' tendency to use *hěn* or *fēicháng* as paraphrases for *hǎo, lǎo, and guài* already speak to their similarities in terms of semantic meaning. It is precisely their similarities, we think, that trigger many descriptive Chinese linguists and grammarians to treat *hǎo, lǎo, and guài* as being pure degree modifiers. In this section, we shall review some

essential similarities as empirical evidence for the intuition that *hǎo, lǎo*, and *guài* contain a degree component in the semantics.

First of all, adjectival, adverbial, and verb phrases modified by *hǎo, lǎo, or guài* need to be gradable. Non-gradable adjectival, adverbial, or verb phrases cannot be modified this way (Luo & Wang 2016). This observation is attested by the contrast between the sentences in (6) containing gradable predicates *piàoliàng* 'beautiful', *kǔ* 'bitter', and *cháng* 'long' and the corresponding sentences in (7) containing non-gradable predicates *màn-tūntūn* '(of an animate entity) slow (vivid form)', *rè-hūhū* 'hot (vidid form)', *wèihūn* 'unmarried', and *bǐzhí* 'as straight as a pencil' (Zhu 1956; Peng 2009).[6, 7]

(6) a. *Tā   jīntiān hěn gāoxìng.*
         3SG today   very happy
         'He is very happy today.'

     b. *Zhè tiáo xiàngliàn hǎo   piàoliàng.*
         this CL   necklace HAO beautiful
         'This necklace is HAO beautiful.'

     c. *Tā   hē   de   yào   guài kǔ   de.*
         3SG drink MOD medicine GUAI bitter MOD
         'The medicine he takes is GUAI bitter.'

     d. *Nà gè rén   de   zhǐjiǎ   lǎo   cháng le.*
         that CL person MOD fingernail LAO long ASP
         'That person's fingernails are LAO long.'

(7) a. **Zhāngsān shuōhuà zuòshì dōu   hěn màn-tūntūn.*
         Zhangsan speak   act   DOU very slow-*tuntun* (vivid form)
         Intended: Zhangsan's speaking and acting are HEN slow.

     b. **Zhè wǎn tāng hǎo   rè-hūhū.*
         this bowl soup HAO hot-*huhu* (vivid form)
         Intended: 'This bowl of soup is HAO hot.'

     c. **Cóng fàngdàngbùjī de   xíngwéi kàn, tā guài   wèihūn   de.*
         from unconventional MOD behavior look he GUAI unmarried MOD
         Intended: 'From his unrestrained behavior, he is GUAI unmarried.'

     d. **Zhè tiáo mǎlù lǎo   bǐzhí   le.*
         this CL   road LAO pencil-straight ASP
         Intended: 'The road is LAO pencil straight.'

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6. It has been long observed (e.g. Zhu 1956; Huang 2006) that the so-called vivid form of adjectives describes temporary properties and is non-gradable.

7. We would like to point out that the unacceptability of (7a–d) is due to semantic mismatch between *màntūntūn, rèhūhū, wèihūn*, and *bǐzhí* on the one hand and the modified non-gradable adjectives on the other. In our best understanding, it cannot be attributed to syntactic restrictions of *màntūntūn, rèhūhū, wèihūn*, and *bǐzhí* or those of the modified gradable adjectives (Ma 1991).

Second, *hǎo, lǎo*, and *guài* behave similarly to canonical degree modifiers in that they all resist being modified by other degree adverbs, even when the modifying and modified adverbs have (roughly) the same intensifying force. Moreover, *hěn, fēicháng, hǎo, lǎo,* and *guài* cannot be stacked together among themselves:

(8) a. *Nà gè xuéshēng (*fēicháng) hěn cōngmíng.*
   that CL student   extremely   very smart

   b. *Nà gè xuéshēng (*fēicháng) hǎo   cōngmíng.*
   that CL student   extremely   HAO smart

   c. *(*Jíqí)   lǎo   cháng de   húzi, liú zhe gànma?*
   extremely LAO long   MOD beard keep ASP why

   d. *Xiǎomāo bù xiǎng chīfàn, (*xiāngdāng) guài   kělián de.*
   kitten   not want eat   considerably GUAI pitiable MOD

Relatedly, *hǎo, lǎo*, and *guài* and canonical degree modifiers are incompatible with comparative morphology such as the comparison markers *bǐ* and *gèng* '(even) more' (Ma 1991):

(9) a. *Nà gè xuéshēng (*bǐ lǎoshī) hěn cōngmíng.*
   that CL student   BI   teacher very smart

   b. *Shùxué   (*bǐ huàxué) hǎo   yǒuyìsi.*
   mathematics BI   chemistry HAO interesting

   c. *Zhè jiàn yīfú   (*bǐ nà jiàn) lǎo   tǔ   le.*
   this CL   clothes. BI   that CL   LAO old-fashioned ASP

   d. *Tā jīntiān xīn-lǐ   (*bǐ zuótiān) guài   nánshòu de.*
   3SG today   heart-inside BI   yesterday GUAI sad   MOD

Third, gradable elements modified by *hǎo, lǎo, or guài* can appear in both predicative and attributive positions (D. Liu 2006; Jiang 2014; Peng 2009).[8] In this regard, they are again similar to canonical degree modifiers. The predicative use has been illustrated many times above, and the attributive use is evident in (10):

(10) a. *Tā xiě   le yī   běn hěn cháng de   xiǎoshuō.*
   3SG write ASP one CL very long   MOD novel
   'He wrote a very long novel.'

   b. *Wǒ zài càishìchǎng   kàndào hǎo   piāoliàng de   lìzhī.*
   1SG at   grocery market see   HAO beautiful MOD lychee
   'I saw a lot of Hao beautiful lychees at the grocery market.'

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8. There is disagreement in the literature regarding whether gradable elements modified by *hǎo, lǎo*, or *guài* can serve as (manner) adverbial phrases. For instance, Wei & Xiong (2013) claim that "*hǎo* + gradable element" is generally unacceptable as manner adverbs, while Jiang (2014) holds that it can take such a function.

c.   *Tā   bào   zhe yī   zhī guài   kě'ài   de   xiǎo tùzi.*
3SG carry ASP one CL GUAI lovely MOD little rabbit.
'He is carrying a GUAI lovely bunny.'   (from D. Liu 2006)

d.   *Tā   qùnián   mǎi le yī   gè   lǎo   chén   de   jīn   liànzi.*
3SG last year buy ASP one CL LAO heavy MOD gold chain
'He bought a LAO heavy gold chain last year.'

The above parallel behaviors between the three adverbs on the one hand and ca-
nonical degree modifiers on the other are by no means an exhaustive list of their
similarities. They nevertheless suffice to reveal that *hǎo, lǎo*, and *guài* contain a
degree component in their meaning. That being said, degree modification is not
the sole function of *hǎo, lǎo*, and *guài*, because they also convey speaker evaluation
and emotion. In the next section, we shall discuss where *hǎo, lǎo*, and *guài* are
distinguished from canonical degree modifiers.

3.   Differences between *hǎo/lǎo/guài* and canonical degree modifiers

It has been observed in the literature (Ma 1991; Y. Zhang 2006; Wei & Xiong 2013,
among others) that *hǎo, lǎo*, and *guài* are associated with emotive attitudes. For
instance, in comparing *hǎo* and *hěn*, Wei & Xiong (2013) observe that the former
carries with it a relatively strong emotional inclination (*qínggǎn qīngxiàngxìng*),
making it especially suitable for use in spoken language and literary works, but less
suitable for use in (traditional) news media or scientific writings. Unfortunately, such
observations were mainly based on the gut feeling of individual researchers, with
little supporting empirical data. In this section, we discuss empirical evidence that
in addition to their function of intensifying degrees, *hǎo, lǎo*, and *guài* also convey
speaker emotions. (i.e. an ancillary commitment by the speaker regarding an inten-
sified degree). Hence, these adverbs have an expressive component within them.

First, though this difference may be a fine nuance for some native speakers of
Mandarin Chinese, many other speakers find adverbial *hǎo, lǎo*, and *guài* to fare
better with exclamatory *a/ya/la/ne* than canonical degree modifiers do, indicating
a heightened emotion state of the speaker (X. Zhang 2010; Wei & Xiong 2013).[9]
The sentences in (11) containing adverbial *hǎo, lǎo*, and *guài* are natural exclama-
tions. By contrast, the *a* particle in (12) is better understood not as an exclamation
marker, but a "refutive" *a* – indicated by a different intonation from the exclamatory
a – that is used to dispute the opinion of another interlocutor in the context who
thinks the scenery is not beautiful.

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9.   We should note that *lǎo* is less productive in exclamation sentences than *hǎo* or *guài*, probably
due to its overall restricted scope of use as a degree intensifier.

(11) a. *Zhèr de   fēngjǐng hǎo   měi   a!*
          here MOD scenery HAO beautiful exclamation marker
          'The scenery here is HAO beautiful!'
      b. *Tāde shèyǐng   jìshù lǎo   tǔ   la!*
          his   photography skills LAO outdated exclamation marker
          'His photography techniques are LAO outdated!'
      c. *Tā xiǎo-xiǎo niánjì, guài   yǒu gǔqì   de   a!*
          3SG small   age   GUAI have integrity MOD exclamation marker
          'Despite being young, he has GUAI (amount of) moral integrity!'

(12) *Zhèr de   fēngjǐng hěn/fēicháng   měi   a.*
      here MOD scenery very/extremely beautiful refutive marker
      'The scenery here is very/extremely beautiful.' (contrary to a relevant prior
      statement)

In connection to this, when introduced by a preceding exclamatory marker *a/
wa*, "*hǎo/lǎo/guài* + gradable element + *de* + NP" is judged by all our Mandarin
Chinese consultants to be more natural than "*hěn/fēicháng* + gradable element +
de + NP" (13). Although this observation is tendential, rather than categorical,
it suggests that there is an attitudinal component in *hǎo, lǎo*, and *guài* that is absent
in *hěn* and *fēicháng*.

(13) a. *Wa!   Hǎo/ ??hěn kě'ài de   māomī!*
          exclamation marker HAO/ very lovely MOD kitten
          'Look! What a HAO lovely kitten!'
      b. *A!   Guài/ ??hěn kělián   de   háizi!*
          exclamation marker GUAI/ very pitiable/poor MOD kid
          'Oh! What a GUAI poor kid!'

Second, the heightened emotions associated with *hǎo, lǎo*, and *guài* serve as an an-
cillary commitment the speaker makes in the discourse context. The commitment
is "firm" and cannot be downplayed by following it with such sentences as *dàn zhè
(yě) méi shénme* 'but it is nothing' and *dàn zhè (yě)méi guānxì* 'but this does not
matter' (14). By contrast, propositions in which canonical degree modifiers such
as *hěn* and *fēicháng* modify gradable elements can be downplayed (15) (Luo &
Wang 2016).

(14) a. *Zhè piān wénzhāng hǎo   yǒuyìsi,   #dàn zhè méishénme.*
          this CL   article   HAO interesting but   this nothing
          'This article is HAO interesting, #but this is nothing.'
      b. *Tā zhù de   lǎo   yuǎn le, #dàn zhè méi guānxì.*
          3SG live MOD LAO far   ASP but   this not matter
          'He lives LAO far away, #but this does not matter.'

    c.   *Tā   nàme zuò guài   biéniude,* #*dàn zhè méishénme.*
         3SG thus do GUAI awkward but this nothing
         'It was GUAI awkward for him to do like that, #but this is nothing'

(15) *Zhè piān wénzhāng hěn/fēicháng   yǒuyìsi, * ?*dàn zhè méishénme.*
      this CL   article   very/extremely interesting but this nothing
      'This article is very/extremely interesting, but this is nothing.'

Third, what exact speaker emotions are associated with adverbial *hǎo, lǎo*, and *guài* is generally difficult to qualify. That is, they manifest descriptive ineffability in the sense of Potts (2007). The adverbial use of *hǎo* has been highly grammaticalized and, to the best of our knowledge, can combine with almost all kinds of gradable predicate, despite the fact that when *hǎo* first appeared as a degree intensifier during the Tang-Song period more than 1,000 years ago, it only was able to combine with gradable predicates with positive connotations (Wu 2004). In this sense, in its contemporary use, adverbial *hǎo* is similar to *hěn* and *fēicháng*, which can combine with all kinds of gradable predicate. Nevertheless, intuitively speaking, the adverbial use of *hǎo* still carries a hue of speaker emotion. Such speaker emotions have a very wide range, and the exact emotion encoded in *hǎo* in a certain context is usually too elusive to articulate, a hallmark property of expressive items (Potts 2005; 2007). Still, there are attempts to qualify such emotions in general terms. Y. Zhang (2006), for instance, takes adverbial *hǎo* to indicate the speaker's enhanced subjectivity in his/her evaluation of the gradable property. Wei & Xiong (2013) claim that adverbial *hǎo* conveys a strong emotional inclination (*qinggan qingxiangxing*). The best approximation we can come up with in regard to the speaker emotion associated with the use of adverbial *hǎo* is that it indicates the speaker being more or less impressed by the extent to which the relevant gradable property holds of an object.

    Both *lǎo* and *guài* can only combine with a subset of gradable predicates that encode a narrower range of speaker emotion flavors. Ma (1991) reports that *guài* is typically associated with (near-)positive emotions such as affection, satisfaction, intimacy, and mischievous fondness. Building on Ma's research, D. Liu (2006) and H. Liu (2008) further note that *guài* also can combine with a limited set of gradable predicates that express certain "inner emotional experience" (*xingli huodong*), which does not necessarily have positive connotations (e.g. sad, lonely, shamed, terrified, disgusted, awkward). This diverse range of emotions with which *guài* are compatible makes it particularly difficult to give it an accurate paraphrase. The closest approximation we can offer is as follows. When *guài* is used to modify gradable predicates with positive connotations, it indicates the speaker's heightened affection of some sort toward an individual. The sentence in (16a) clearly conveys the speaker's heightened fondness of the boy (heightened as compared to the otherwise identical sentence with *hěn*). When *guài* is used to modify gradable

predicates with neutral or negative connotations, it indicates the speaker's (varied degrees of) sympathy toward an individual (16b). For lack of a more precise cover term, we shall simply use "benevolence" to umbrella both affection and sympathy (broadly construed).

(16) a. *Zhè gè xiǎo nánhái guài kěài de.*
   this CL small boy   GUAI lovely MOD
   'The little boy is GUAI lovely'

 b. *Zhè gè xiǎo nánhái guài kělián de.*
   This CL small boy   GUAI pitiable MOD
   'The little boy is GUAI pitiable'

Compared to adverbial *guài*, adverbial *lǎo* combines with an even smaller set of gradable predicates. These gradable predicates need to be monosyllabic and positive-polar (with a few exceptions like *tuōtà* 'tardy'). It is typically associated with dissatisfaction, distaste, disapproval, dislike, and the like. The sentence in (17a) (from Ma (1991)) is unacceptable because the positive evaluation in the second clause conflicts with the negative attitude expressed by the use of *lǎo cháng de* in the first clause. Changing the attitude expressed by the second clause to a negative one will result in a more natural continuation (17b). Although it is known that emotions associated with adverbial *lǎo* are generally on the negative side, language users are unable to articulate them in actual contexts. Thus, descriptive ineffability exists for *lǎo* as well, but arguably to a lesser extent than for *hǎo* and *guài*. In this paper, we shall use the word "disapprove" to broadly cover those negative attitudes associated with *lǎo*.

(17) a. #*Zhè gūniáng yǎnjiémáo lǎo cháng de, shífēn hǎokàn.*
   this girl   eyebrow LAO long MOD very good-looking
   Intended: 'The girl's eyebrows are LAO long, and they are very good-looking.'

 b. *Zhè gūniáng yǎnjiémáo lǎo cháng de, yīnggāi xiū yīxià.*
   This girl   eyebrow LAO long MOD should trim ASP
   'The girl's eyebrows are LAO long, and they should be trimmed.'

Fourth, the adverbial use of *hǎo, lǎo*, and *guài* cannot appear in non-veridical contexts, contexts which cannot entail the truth of an embedded proposition ((18), Giannakidou 1999). Typical non-veridical contexts include negation, modals, questions, antecedents of conditionals, and so on. Ma (1991) observes that adverbial *hǎo, lǎo*, and *guài* cannot appear in the scope of negation. X. Zhang (2010) notes that *guài* cannot form *yes*/no questions. Xing (1995) observes that *hǎo* is not allowed in antecedents of conditionals. Luo & Wang (2016) find that *hǎo* resists "being embedded in non-veridical contexts." Our generalization constitutes a further extension of these observations. The sentences in (19–22) illustrate the

incompatibility of *hǎo, lǎo*, and *guài* with such linguistic contexts as negation, epistemic modality, information-seeking *yes/no* questions, and antecedents of conditional sentences, which are typical examples of non-veridical contexts.[10] By contrast, canonical degree modifiers such as *hěn* and *fēicháng* can freely appear in non-veridical contexts (Peng 2009), as illustrated in (23).

(18) **Non-veridicality**
      A propositional operator F is veridical if and only if Fp entails p: F$p \rightarrow p$.
      Otherwise, F is non-veridical.

(19) **Negation**
      a. **Tāde húzi bú/búshì hǎo cháng.*
          his   beard NEG   HAO long
      b. **Tā dài yī fù jìngpiàn bù lǎo hòu de yǎnjìng.*
          3SG wear one pair lens   NEG LAO thick MOD glasses
      c. **Nà gè háizi bú/búshì guài dǒngshì de.*
          that CL child NEG   GUAI mature MOD

(20) **Modal elements**
      a. **Zhè háizi zhǎngdà yīdìng huì hǎo cōngmíng.*
          this child grow up must will HAO smart
      b. **Kàn tāde yàngzi, yīdìng lǎo lèi le.*
          look his manner must LAO tired ASP
      c. **/??Tā xiànzài huòxǔ guài nánshòu de.*
          he   now   probably GUAI sad   MOD

(21) **Information-seeking questions** (non-echoing, non-rhetorical)
      a. **Zhè píng jiàng hǎo là ma?*
          this bottle sauce HAO spicy Q
      b. **Nà tiáo shéngzi shì bú shì lǎo cháng?*
          that CL rope   be not be LAO long
      c. **Xiàtiān zhè suǒ dàxué guài piāoliàng de ma?*
          summer this CL university GUAI beautiful MOD Q

(22) **Antecedents of conditional sentences**
      a. **Yàoshì Xiǎomǐn hǎo piāoliàng, Zhāngsān yīdìng yuē tā.*
          if   Xiaomin HAO pretty   Zhangsan certainly date her
      b. **Rúguǒ tā jiā lǎo yuǎn de, wǒ jiù kāichē qù.*
          if   3SG home LAO far MOD I then drive go
      c. **Rúguǒ tāde huà guài fēngqù de, tīngzhòng jiù huì xiào.*
          if   his word GUAI funny MOD, audience then will laugh

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10. Some native speakers of Mandarin Chinese find *guài* marginally acceptable under epistemic modals (e.g. (20c)), a point we must leave aside in this paper.

(23) a. *Tā   bù   hěn   gāo.*
   3SG NEG very tall
   'He is not very tall.'

   b. *Nà   gè   jiāhuǒ   kěnéng hěn   lèi   le.*
   that CL guy   may   very tired ASP
   'That guy may be very tired.'

   c. *Zǒngtǒng de   nǚér   fēicháng yǒuqián ma?*
   president MOD daughter extremely rich   Q
   'Is the president's daughter extremely rich?'

   d. *Rúguǒ tā   hěn yǒuqián, jiù   bú huì kāi   pò   chē.*
   if   3SG very rich   then not will drive shabby car
   'If he is very rich, then he will not be driving a shabby car.'

The resistance of *hǎo, lǎo*, and *guài* to non-veridical contexts places them aside with English (pragmatic) *totally* and Catalan ad-adjectival modifier *ben* 'well,' which are both analyzed as expressive items (Castroviejo & Gehrke 2015; McCready & Kaufman 2013; Beltrama 2018).

(24) a. *Did a dude totally walk off a train and camp out?
   b. *You shouldn't totally click on that link

(25) a. **En Pere no és **ben** simpàtic.*
   the Peter not is well nice

   b. **En Pere és **ben** simpàtic?*
   the Peter is well nice

   c. **Si en Pere és **ben** simpàtic, estaré   contenta.*
   if the Peter is well nice   be.fut.1 glad

   d. **Ès possible que en Pere sigui   **ben** simpàtic.*
   is possible that the Peter is.pres.subj well nice

Fifth and lastly, in their adverbial use, *hǎo, lǎo*, and *guài* can be at best marginally used to answer degree questions. Many native speakers of Mandarin Chinese we consulted find (26b) more or less weird as an answer to (26a), although (26b) is judged perfectly acceptable if used alone. By contrast, canonical degree modifiers can appear in answers to degree questions, as evidenced by (26c) as a natural answer to (26a).

(26) a. *Nà ge nǚhái shēncái zěnmeyàng?*
   that CL girl body   how
   'How does the girl look like?'

   b. #/?? *Tāde shēncái hǎo   miáotiáo /guài miáotiáo de.*
   her body   HAO slim   GUAI slim   MOD

   c. *Tāde shēncái hěn/fēicháng   miáotiáo.*
   her body   very/extremely slim
   'She is very/extremely slim.'

The above five non-trivial differences between *hǎo/lǎo/guài* on the one hand and canonical degree modifiers on the other hand suggest the former elements are not mere degree intensifiers. Their following properties indicate that they are expressive elements: (i) they are associated with a heightened emotional state on the part of the speaker, (ii) the heightened emotional state is separate from the dimension of degree intensification associated with these elements, (iii) what emotions are heightened by the use of these elements is generally descriptively ineffable, and (iv) these elements are resistant to non-veridical contexts. Confirming this claim is the fact that the (near-)infelicity of adverbial *hǎo, lǎo*, and *guài* to answer degree questions: they provide superfluous emotive attitudinal information – emotive information that the degree question does not seek for, or even worse, the asker does not share.

Before proceeding to spell out our analysis, we would like to point out that adverbial *hǎo, lǎo*, and *guài* are not extreme degree modifiers such as *downright* and *flat-out* in English and *géwài* 'extraordinarily' and *juéduì* 'absolutely' in Mandarin Chinese. Extreme degree modifiers are compatible only with lexical and contextual extreme adjectives and adverbs, and cannot combine with other adjectives or adverbs, as postulated by Morzycki (2012). However, the adverbial use of *hǎo, lǎo*, and *guài* is not restricted to modifying extreme adjectives. This contrast is illustrated in (27) vs. (28).

(27) a. */²² *géwài*   *píngcháng*
       extraordinarily ordinary
    b. */²² *juéduì*   *píngcháng*
       absolutely ordinary

(28) a. *hǎo*   *píngcháng*
       HAO ordinary
       'HAO ordinary'
    b. *guài*   *píngcháng de*
       GUAI ordinary MOD
       'GUAI ordinary'

To briefly summarize the empirical description part of this paper, in § 2 and § 3 we showed that *hǎo, lǎo*, and *guài* share non-trivial properties with canonical degree modifiers such as *hěn* and *fēicháng* that strongly suggest that they all have a degree intensification component in their semantics. The phrase *guài yǒuqù de* 'GUAI interesting', for instance, behaves on a par with *hěn yǒuqù* in that both phrases express that an individual's degree of being interesting exceeds a contextually standard by a good measure. At the same time, *hǎo, lǎo*, and *guài* pattern with typical expressive elements in that they also convey the speaker's subjective emotive attitudes, although the exact emotions are usually difficult to qualify. Therefore, an adequate analysis of *hǎo, lǎo*, and *guài* needs to take into consideration both the degree intensification and expressive dimensions.

4. Theoretical background

We have shown in the previous two sections that in addition to their degree intensification function, *hǎo, lǎo, and guài* also carry an expressive dimension by which the speaker expresses his/her heightened emotion toward an intensified degree. They are, therefore, mixed-content lexical items that bundle in both an at-issue meaning and a conventional implicature (CI) meaning (Bach 1999; Horn 2007; McCready 2010; Gutzmann 2015; Beltrama 2018). Before we lay out our analysis of adverbial *hǎo, lǎo*, and *guài* in the next section, we briefly introduce the composition system developed by McCready (2010), which extends Potts' (2005; 2007) seminal logic of conventional implicature and at the same time furnishes an additional mechanism for deriving mixed content.

A mixed-content item has both an at-issue dimension and a CI dimension. The at-issue content can be derived via "regular" functional application and predicate modification rules. We refer our reader to Heim & Kratzer (1998) for a very informative introduction to such rules. As for obtaining CIs in a systematic way, the most influential proposal is Potts' (2005) multidimensional compositional system $\mathcal{L}_{CI}$. A most essential component in Potts' logic system is the two independent types, an at-issue type and a CI type. The former type is used for the at-issue meaning, and the latter for the CI meaning. The semantic types in $\mathcal{L}_{CI}$ are defined as follows:

(29) The logic $\mathcal{L}_{CI}$ (Potts 2005: 55)
 a. e^a, t^a and s^a are basic at-issue types.
 b. e^c, t^c and s^c are basic CI types.
 c. If τ and σ are at-issue types, then $\langle\tau, \sigma\rangle$ is an at-issue type.
 d. If τ is an at-issue type and σ is a CI type, then $\langle\tau, \sigma\rangle$ is a CI type.
 e. If τ and σ are at-issue types, then $\langle\tau \times \sigma\rangle$ is a product type.
 f. The full set of types is the union of the at-issue and CI types.

The superscript *a* stands for at-issue content, and the superscript *c* for CI content. For composition in the CI dimension, Potts proposes the CI application rule in (30), which plays a central role in the logic of $\mathcal{L}_{CI}$.

(30) CI application rule in $\mathcal{L}_{CI}$ (Potts 2005: 65)

$$\beta: \sigma^a \bullet \alpha(\beta): \tau^c$$

$$\alpha: \langle\sigma^a, \tau^c\rangle \qquad \beta: \sigma^a$$

At its core, the CI application rule is a variant of the standard functional application rule: if α is a term of type $\langle\sigma, \tau\rangle$, and β a term of type σ, then $\alpha(\beta)$ is a term of type τ. The meta-logical bullet symbol "•" dimensionally separates the at-issue

content from the CI content. The rule applies the CI functor of type $<\sigma, \tau>$ to the descriptive, at-issue meaning of type σ and yields a CI meaning of type τ. In addition, the application passes along the at-issue content unmodified to the mother node. That is, the at-issue content is used twice in the derivation, making the rule resource-insensitive.

It is obvious that Potts' (2005) logic system does not permit a mechanism for producing types that take CI-typed objects as input. In addition, CI content is dimensionally isolated from at-issue content with a bullet. These two features of $\mathcal{L}_{CI}$ translates into the claim that no lexical item can contribute both an at-issue meaning and a CI meaning at the same time. Therefore, in the current form, Potts' $\mathcal{L}_{CI}$ cannot be used for the analysis of mixed-content items, under the reasonable assumption that at-issue and CI content are simultaneously, rather than asynchronously, introduced by the lexical item. In order to analyze the adverbial use of *hǎo, lǎo*, and *guài*, which we have shown to fuse together a degree intensification meaning and an expressive meaning, we need to revise, or extend, Potts' $\mathcal{L}_{CI}$ to allow for (limited) interaction between the two dimensions of meaning.

Recent literature has reported many instances of mixed-content lexical items carrying both at-issue and CI meanings within the same lexical entry (Bach 2006; Williamson 2009; McCready 2010; Gutzmann 2015), which drives advancement on Potts' (2005) system. Consider the following examples from McCready (2010):

(31)   Juan is a Kraut.
    i.   At-issue: Juan is a German.
    ii.   CI: The speaker has a negative attitude toward Germans.

(32)   (Japanese honorific irassharu 'come.HON')
    Sensei-ga   irasshaimasi-ta.
    teacher-NOM come.HON-PST
    i.   At-issue: The teacher came.
    ii.   CI: The teacher is being honored.

By using *Kraut* in (31), the speaker simultaneously asserts that Juan is a German (at issue content) and expresses a negative attitude toward Germans in general (CI content) and toward Juan in particular (with Juan being a German). Similarly, the Japanese honorific verb *irassharu* in (32) says of the teacher that she came, and at the same time indicates that the teacher deserves being honored. To analyze such mixed-content items (and other related phenomena), McCready (2010) developed a logical system via an apt extension of Potts' (2005) $\mathcal{L}_{CI}$.[11] We follow McCready

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11.   The interested reader is also referred to Gutzmann 2015 for a different implementation.

and subsequent authors (e.g. Sawada 2018) to call this system $\mathcal{L}_{CI}^{+}$, which has the following type definitions.[12]

(33)   The logic $\mathcal{L}_{CI}^{+}$

    a. e^a, t^a and s^a are basic at-issue types.

    b. e^c, t^c, and s^c are basic CI types.

    c.   If σ and τ are at-issue types, then $<\sigma, \tau>$ is an at-issue type.

    d.   If σ is an at-issue type and τ is a CI type, then $<\sigma, \tau>$ is a CI type.

    e.   If σ and τ are CI types, then $<\sigma, \tau>$ is a CI type.

    f.   If σ and τ are at-issue types, and ζ and ν are CI types, then $\sigma \times \zeta$, $<\sigma, \tau> \times \zeta$, $\sigma \times <\zeta, \nu>$ are mixed types.

    g.   If σ, τ and ζ are at-issue types and ν is a CI type, then $<\sigma, \tau> \times <\zeta, \nu>$ is a mixed type.

As shown in (33), a mixed-content expressive item involves two types, one for each dimension of meaning. This type is a result of a mixed application rule in $\mathcal{L}_{CI}^{+}$ in (34). This rule states that the conjoined elements (indicated by the ◆ symbol) in the mixed content take as input an object of the at-issue type, and undergo functional application to output "simplified" objects that are conjoined with ◆ as before.

(34)   The Mixed Application Rule

$$\alpha(\gamma) \blacklozenge \beta(\gamma): \tau^a \times \nu^c$$

$$\alpha \blacklozenge \beta: <\sigma^a, \tau^a> \times <\sigma^a, \nu^c> \qquad\qquad \gamma: \sigma^a$$

McCready (2010: 20) further assumes that the rule in (35) applies to the final interpretation of the CI part of mixed content. The primary function of this rule is to replace mixed-type terms conjoined by ◆ with terms conjoined by the regular • symbol used in Potts' (2005) original logic system, This is a change in bookkeeping device corresponding to a change in typing: the two terms conjoined by ◆ remain 'active' for further derivation, while • signifies that the CI part has undergone all derivations and is ready for interpretation according to the interpretation rule in (36) (McCready 2010; Sawada 2018).[13]

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12. McCready's (2010) actual $\mathcal{L}_{CI}^{+}$ type system includes a basic shunting type s and recursive type definition based on s. These types are introduced for semantic objects that shunt (so to speak) information from one dimension of meaning to another, without leaving any information behind for further modification. For the sake of descriptive convenience, however, in this paper we stick with the original type labels in $\mathcal{L}_{CI}$, because shunting-typed terms will eventually be moved out of active use. This simplification does not affect our analysis. Those readers who prefer to use shunting types are invited to make adjustments on their own.

13. McCready (2010) provided a second interpretation rule, for those cases lacking asserted content. It is irrelevant for our paper.

(35)   Final interpretation rule: Interpret α♦β: σ^a × t^c as follows: α: σ^a • β:t^c

(36)   Let *T* be a semantic parsetree with the at-issue term *α*: σ^a on its root node, and distinct terms β_1: t^c,..., β_n : t^c on nodes in it. Then the interpretation of *T* is <[[α : σ^a]], {[[β1 : t^c]],..., [[βn : t^c]]}>.

Now, recall that our discussion in § 3 has shown that *hǎo, lǎo, and guài* are mixed-content items that carry both at-issue and CI meanings. With the above formal apparatus at hand, we are ready to provide an analysis of the three items.

5.   A multidimensional semantics of *hǎo, lǎo,* and *guài*

In this section, we adopt the essence of McCready (2010)'s logical system to formally represent the mixed properties of *hǎo, lǎo*, and *guài*. For ease of exposition, we shall primarily focus on *hǎo* as being representative of the three adverbs, and discuss *lǎo* and *guài* only with respect to where they are semantically different from *hǎo*. Recall the two main facts about *hǎo* that suggest it is a mixed-content lexical item. First, *hǎo* manifests similar behaviors in terms of degree intensification to canonical degree adverbs such as *hěn* 'very' and *fēicháng* 'extremely', pointing to the plausible claim that there is a function of degree intensification in *hǎo*. Second, *hǎo*'s association with heightened emotion state, descriptive ineffability, and resistance to non-veridical contexts make it distinguished from canonical degree adverbs, and suggest that there is an additional, expressive component in *hǎo*.

   To illustrate the bi-dimensional meaning of *hǎo*, consider the simple sentence in (37a). The speaker expresses that Xiaoli is smart to a contextually high degree that is comparable to the one associated with *hěn* (37b–i). At the same time, by using *hǎo* the speaker makes an ancillary commitment that he/she is impressed with Xiaoli's high degree of being intelligent (37b–ii). By contrast, the sentence in (38), with *hěn* being intended as a degree intensifier (cf., Fn. 4), expresses only the proposition in (37b–i), and does not (necessarily) convey an expressive meaning comparable to (37b–ii) (Luo & Wang 2016). With that being said, we are not denying that one might find certain contexts in which (38) is used to express that the speaker is impressed with Xiaoli's intelligence, but crucially, this extra information is contextually dependent, but not derived from the conventional meaning of *hěn*.

(37)   a.   *Xiǎolì hǎo   cōngmíng.*
             Xiaoli HAO smart
         b.   i.   Xiaoli is *d*-intelligent, and $d \geq d_c$, where d_c is a contextually relevant standard;
               ii.   The speaker finds Xiaoli's being *d*-intelligent to be **impressive**.

(38) *Xiǎolì hěn cōngmíng.*
      Xiaoli very smart

There is one more point regarding (37b–ii) to which we would like to draw our readers' attention. Due to descriptive ineffability, it is practically impossible – at least as far as our ability is concerned – to articulate the expressive content of *hǎo* in a precise manner, especially given the wide range of grade predicates that *hǎo* can combine with. "Impressive/impressed" is the closest approximation that we can come up with, and will be used in the lexical definition of *hǎo* shortly. It seems to work rather neatly for predicates that have positive, negative, or neutral connotations: *hǎo shànliáng* 'HAO kind', *hǎo jiānzhà* 'HAO wicked', and *hǎo cōngmáng* 'HAO in a hurry' all carry the implication that the speaker finds herself "subjectively affected" – for lack of a better expression – by the degree to which the relevant property holds. Those readers who do not agree with our paraphrase, however, are invited to replace it with their own, and this should not affect the rest of analysis.

As a lexical item mixing at-issue degree intensification and expressive CI, *hǎo* has a degree function shared in both dimensions of its meaning. The lexical entry is formally defined in (39), by following McCready's (2010) $\mathcal{L}_{CI}^+$. Obviously, *hǎo* has a portmanteau semantic structure, viz., it has an at-issue, degree component comparable to the degree adverb *hěn*, along with an expressive component that says that the speaker is in a strong emotional state toward (i.e. impressed with) an individual x holding to a contextually very high degree d with respect to some gradable property. The two components are separated by the symbol '♦'. As usual, the superscript "a" stands for at-issue content, "c" for CI content, the subscript "s" for the speaker, STND for the contextual standard of a gradable predicate, and >! for the "far greater than" relation (cf. Kennedy and McNally's (2005) discussion about the semantics of English *very*, which involves a higher standard than the standard associated with the *pos* morpheme):

(39) $[[hǎo]] = \lambda G\lambda x.\exists d[G(x)(d)\wedge d>!\text{STND}(G)]: <<d, <e, t>>,<e,t>>^a$ ♦
       $\lambda G\lambda x.\textbf{Impressed}_s(\exists d[G(x)(d)\wedge d>!\text{STND}(G)]): <<d, <e, t>>,<e, t>>^c$

In the definition we introduce a context-sensitive function $\textbf{Impressed}_s$, which states that the speaker is impressed with the propositional content. It can be roughly defined as follows:
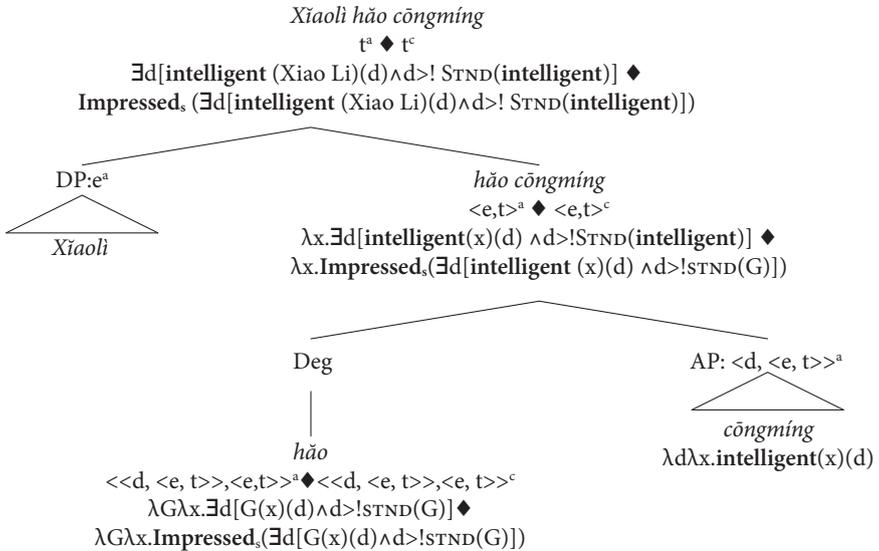
(40) $\textbf{Impressed}_s(p): <t, t>^c$
       The speaker s is subjectively impressed (to varied contextual degrees) by p.

Given the above definitions, the semantic derivation of "*hǎo* + gradable predicate" becomes fairly straightforward. Following Kennedy & McNally (2005) and many

others, we assume gradable adjectives to be functions from degrees to a set of individuals (41). The derivation for the sentence (37a) is given in (42):

(41) $[[\textit{cōngmíng}]] = \lambda d\lambda x.\ \textbf{intelligent}(x)(d)$

(42)   Semantic derivation for (37a):

Xiǎolì hǎo cōngmíng
$t^a \blacklozenge t^c$
$\exists d[\textbf{intelligent}\ (\text{Xiao Li})(d)\wedge d>!\ \textsc{Stnd}(\textbf{intelligent})] \blacklozenge$
$\textbf{Impressed}_s\ (\exists d[\textbf{intelligent}\ (\text{Xiao Li})(d)\wedge d>!\ \textsc{Stnd}(\textbf{intelligent})])$

DP:e^a

Xiǎolì

hǎo cōngmíng
$<e,t>^a \blacklozenge <e,t>^c$
$\lambda x.\exists d[\textbf{intelligent}(x)(d)\wedge d>!\textsc{Stnd}(\textbf{intelligent})] \blacklozenge$
$\lambda x.\textbf{Impressed}_s(\exists d[\textbf{intelligent}\ (x)(d)\wedge d>!\textsc{stnd}(G)])$

Deg

hǎo
$<<d,<e,t>>,<e,t>>^a \blacklozenge <<d,<e,t>>,<e,t>>^c$
$\lambda G\lambda x.\exists d[G(x)(d)\wedge d>!\textsc{stnd}(G)] \blacklozenge$
$\lambda G\lambda x.\textbf{Impressed}_s(\exists d[G(x)(d)\wedge d>!\textsc{stnd}(G)])$

AP: $<d,<e,t>>^a$

cōngmíng
$\lambda d\lambda x.\textbf{intelligent}(x)(d)$

By applying the bookkeeping rule in (35), we obtain the bi-dimensional meaning of (37a) as in (43). In prose, it states that Xiaoli's degree of intelligence *d* far exceeds a contextually salient standard, and the speaker is *impressed* with her being intelligent to degree *d*. We think the results desirably deliver the two-dimensional meaning of (37a).

(43) $[[\text{Xiǎolì hǎo cōngmíng}]] = \exists d[\textbf{intelligent}\ (\text{Xiao Li})(d)\wedge d>!\ \textsc{stnd}(\textbf{intelligent})] \bullet$
$\textbf{Impressed}_s\ (\exists d[\textbf{intelligent}\ (\text{Xiao Li})(d)\wedge d>!$
$\textsc{stnd}(\textbf{intelligent})])$

  i.   At-issue: $\exists d[\textbf{intelligent}\ (\text{Xiao Li})(d)\wedge d>!\ \textsc{stnd}(\textbf{intelligent})]$
  ii. CI: $\textbf{Impressed}_s\ (\exists d[\textbf{intelligent}\ (\text{Xiao Li})(d)\wedge d>!\ \textsc{stnd}(\textbf{intelligent})])$

For the sake of comparison, canonical degree modifiers only have an at-issue component in their semantics. For example, the degree intensifier *hěn* 'very' can be defined as in (44), which precisely corresponds to the at-issue part of *hǎo.* The semantics of *hěn cōngmíng* is given in (45), which states that an individual x's degree of intelligence is far greater than a contextually standard of being intelligent.

(44) $[[\text{hěn}]] = \lambda G\lambda x.\exists d[G(x)(d)\wedge d>!\textsc{stnd}(G)]$

(45) $[[\text{hěn cōngmíng}]] = \lambda x.\exists d[\textbf{intelligent}\ (x)(d)\wedge d>!\ \textsc{stnd}(\textbf{intelligent})]$

Now let us briefly turn our attention to *lǎo* and *guài*. They are different from *hǎo* in two major respects. First, due to individual morpho-phonological constraints that fall outside of the scope of this paper, they can combine with a much smaller set of gradable predicates than can *hǎo*. Among the three items, *lǎo* is the most restrictive, in only being able to modify a small number of monosyllabic gradable predicates (Ma 1991), with a handful of exceptions. Second, semantically, the most essential difference among *hǎo, lǎo*, and *guài* lies in the type and range of speaker emotions they are associated with. Again, due to descriptive ineffability, providing a satisfactory paraphrase of such emotions is normally vain efforts. As an approximation, we take the expressive meaning of *lǎo* to involve disapproval of some sort, as evidenced in the contrast between (17a–b) (repeated in (46a–b) below). The semantics of *lǎo* is defined in (47). The **Disapprove** function, defined in (48), should be understood in a broad and approximate sense of the word, rather than the literal sense.

(46) a. #*Zhè gūniáng yǎnjiémáo lǎo cháng de, shífēn hǎokàn.*
this girl eyebrow LAO long MOD very good-looking
Intended: 'The girl's eyebrows are LAO long, and they are very good-looking.'

b. *Zhè gūniáng yǎnjiémáo lǎo cháng de, yīnggāi xiū yīxià.*
this girl eyebrow LAO long MOD should trim ASP
'The girl's eyebrows are LAO long, and they should be trimmed.'

(47) $[[l\check{a}o]] = \lambda G\lambda x.\exists d[G(x)(d)\wedge d>!\text{STND}(G)]$: $<<d, <e, t>>,<e,t>>^a$ ♦
$\lambda G\lambda x.$ **Disapprove**$_s$ $(\exists d[G(x)(d)\wedge d>!\text{STND}(G)])$: $<<d, <e, t>>,<e, t>>^c$

(48) **Disapprove**$_s$$(p)$: $<t, t>^c$
The speaker shows disapproval of some sort toward p.

As for the expressive content of *guài*, we observe: (i) the speaker can use *guài* to sweeten her tone or add an extra touch of appreciation, satisfaction, intimacy, etc., when she uses *guài* in conjunction with a positive-connotation gradable predicate; and (ii) the speaker can use the same lexical item to soften her tone or add an extra layer of sympathy, understanding, sadness, etc., when she uses *guài* in conjunction with a negative-connotation or neutral gradable predicate. Again, this is a rather coarse working generalization, and should not be taken literally. We hold that through the use of adverbial *guài*, the speaker conveys a **benevolent** attitude (49–50). Needless to say, our disclaimer regarding the use of **Impressed** for *hǎo* applies to **disapprove** and **benevolent**, as well.

(49) $[[gu\grave{a}i]] = \lambda G\lambda x.\exists d[G(x)(d)\wedge d>!\text{STND}(G)]$: $<<d, <e, t>>,<e,t>>^a$ ♦
$\lambda G\lambda x.$ **Benevolent**$_s$ $(\exists d[G(x)(d)\wedge d>!\text{STND}(G)])$: $<<d, <e, t>>,<e, t>>^c$

(50) **Benevolent**$_s$ (p): $<t, t>^c)$
The speaker shows some degree of benevolent attitude toward p.

The above semantics offers a motivated account of the mixed behaviors of *hǎo, lǎo*, and *guài*. From our discussion, *hǎo, lǎo*, and *guài* are all mixed-content lexical items fusing together degree intensification and expressive meanings. Their semantics is represented by making recourse to "standard" degree semantics (e.g. Kennedy & McNally 2005) and McCready's (2010) revision of Potts' (2005) logic of conventional implicature. Obviously, the meanings of *hǎo, lǎo*, and *guài* all involve a degree intensification component comparable to that of such canonical degree modifiers as *hěn* 'very' and *fēicháng* 'extremely'. This immediately captures the intuitive, long-observed similar behaviors between *hǎo, lǎo*, and *guài* on the one hand and *hěn* and *fēicháng* on the other: (i) predicates modified by *hǎo, lǎo, and guài* need to be gradable; (ii) *hǎo, lǎo, and guài* resist being modified by other degree adverbs or being stacked together; and (iii) gradable elements modified by *hǎo, lǎo, guài* can appear in both predicative and attributive positions. Due to space limitations, the interested reader is referred to previous research on *hěn* (e.g. C. Liu 2010; Grano 2012) for details regarding how such properties are formally analyzed for *hěn*, and to apply their favorite analysis to the degree intensification component of *hǎo, lǎo*, and *guài.*

In § 3, we discussed several properties of *hǎo, lǎo*, and *guài* that make them distinct from *hěn* and *fēicháng* but parallel to expressive items: (i) they are all associated with a heightened emotional state, (ii) the heightened emotional state is a separate dimension of meaning from degree intensification, (iii) the associated emotions are descriptively ineffable, and (iv) they are resistant to non-veridical contexts. By adopting a simplified version of McCready's (2010) CI logic, which is an extension of Potts' (2005) seminal framework for CI and which is an ideal tool for analyzing mixed content, our analysis encodes an expressive dimension in the semantics of *hǎo, lǎo, and guài* that involves the speaker's emotive attitudes. Such a bi-dimensional treatment immediately explains (i–iii). Under the reasonable assumption that expressing attitude is performative, it is no surprise that the expressive content of *hǎo, lǎo*, and *guài* cannot be denied or downplayed. The resistance of the three adverbs to non-veridical contexts also receives a natural explanation. The expressive component of *hǎo, lǎo*, and *guài* has it that the speaker commits herself to the descriptive content. A non-veridical context, by contrast, is one in which the truth of a propositional content cannot be asserted, and this contradicts with the expressive meaning of *hǎo, lǎo*, and *guài.*

6. Conclusions

To conclude, in this paper we discussed the semantic behaviors of the adverbial use of *hǎo, lǎo*, and *guài* in Mandarin Chinese. These adverbs have been traditionally taken to be pure degree intensifiers and are often paraphrased by using canonical degree modifiers (Ma 1991; Lü 1999; Shan 2004; Zhang 2006, among others). We provided ample empirical evidence to suggest that the three adverbs manifest mixed content, with both degree intensification and expressive components. They can be readily analyzed by using McCready's (2010) logical system designed largely for mixed content.

Although our analysis in this paper focuses on *hǎo, lǎo*, and *guài*, we would like to stress that there are more adverbs in Mandarin Chinese that bear mixed content. Two such examples are *tǐng* 'considerably' and *tè* 'extremely' (see Luo & Wang 2015 for a contrastive study of *hěn* and *tǐng*). Only through careful exploration can we determine whether they are subject to the same line of analysis, a task we must leave to another occasion.

Mixed content items taking the form of degree intensifiers are pervasive in natural languages and have received a considerable amount of attention in recent formal semantic and pragmatic literature. For example, McCready & Schwager (2009); Gutzmann & Turgay (2012); Castroviejo & Gehrke (2015), and Sawada (2018) all reported similar mixed-content items in English, German, Catalan, and Japanese. But *hǎo, lǎo*, and *guài* distinguish themselves from those mixed-content items in terms of both distribution and meaning. Take the Japanese intensifier *totemo* as analyzed by Sawada (2018) for instance. It may seem to be a close kin to *hǎo, lǎo*, and *guài*, but close scrutiny suggests otherwise: *totemo* can only combine with negative gradable modals, and its conventional implicature is about how unlikely the at-issue proposition (without negation and modal) is. This study has thus added to the growing body of research on degree intensifiers a small class of items in Mandarin Chinese which may constitute an interesting case of interlanguage variation in expressivity (McCready 2014).

Acknowledgements

Abbreviations

1	first person	NEG	negation marker
3	third person	NOM	nominative
ASP	aspect marker	PST	past tense
CL	classifier	SG	singular
FUT	future tense	PRES	present tense
HON	honorific	SUBJ	subjunctive
MOD	modifier marker			

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