On Applicative *Why*-questions in Chinese[*]

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1 Introduction

It is generally observed across languages that *why*-questions are formed by merging the relevant *wh*-expression high up in the left periphery (cf. Rizzi 1990, 2001, Starke 2001, Ko 2005, 2006, Stepanov & Tsai 2008, Tsai 2008, Shlonsky & Soare 2011, Jedrzejowski 2014, Endo 2015, Miyagawa 2017, among others). This paper investigates a class of postverbal *wh*'s in Chinese which give unexpected *why*-construals with a touch of "whining" force (also cf. Tsai 2011; Pan 2015; Yang 2015, among others), as shown by the Mandarin example (1a):

(1) a. ni   ku   shenme!   [Mandarin whining *what*]
         you   cry   what
         你   哭   什麼！
         'What the heck are you crying for?! (You shouldn't be crying.)'

      b. lí   sī   teh   khàu   ántsuánn!   [TSM whining *how*]
         you   be   Prg   cry   how
         汝   是   咧   哭   按怎?!
         'How the heck are you crying?! (You shouldn't be crying.)'

      c. ni   zenme   zai   ku?!   [Mandarin *how come*]
         you   how   Prg   cry
         你   怎麼   在   哭?!
         'How come you are crying?!'

      d. lí   ántsuánn   teh   khàu?!   [TSM *how come*]
         you   how   Prg   cry
         汝   按怎   咧   哭?!
         'How come you are crying?!'

Interestingly enough, instead of a *what*, Taiwan Southern Min (TSM, a Chinese dialect spoken in Taiwan, often called Taiwanese), elects to employ a *how* in a similar construal, as illustrated by the example (1b) taken from Lau & Tsai (2020). It is also worthwhile to note that they are not *how come*-questions, where Mandarin *zenme* 'how' and Taiwanese *ántsuánn*

'how' both appear in a preverbal position, as shown in (1c) and (1d) respectively.[1]

Furthermore, Cheng (this volume) presents an interesting comparison between *mat¹* 'what' and *dim²* 'how' in Cantonese with their Mandarin counterparts in both postverbal and sentence-initial positions. In particular, while both postverbal *mat¹* and sentence-initial *mat¹* share the "whining" construal, the latter is shown to have an additional "unexpectedness" reading. This is very similar to the mirative usage of sentence-initial *zenme* 'how' in Mandarin (cf. Tsai & Yang 2019). Cheng also notes that postverbal *mat¹* expresses dissatisfaction of some sort. It is therefore very much in line with Mandarin whining *what* mentioned above.

Our task is thus to explain the unusual syntactic position of these *wh*-expressions, as well as their association with the peculiar pragmatics and negative deontic modal force (in addition to the usual *why*-semantics). I would like to propose that (1a) and (1b) are actually applicative constructions in disguise (cf. Marantz 1984, 1993; McGinnis 2001, 2003; Harley 2002; Pylkkänen 2002; Tsai 2018; among others), where the whining *wh*'s in question are introduced by a silent applicative head (or an inner light verb to the same effect, cf. Tsai 2015a).

2 The Syntax of Silent Applicatives

The gist of our analysis is that (1a) actually involves an implicit light verb FOR (or a silent applicative head to the same effect), to which the main verb *ku* 'cry' raises in overt syntax, as shown in the following derivation (LV: light verb):[2]

(2) a. ni   FOR   shenme   ku?!
      you   LV   what   cry

⇒ b. ni   ku-FOR   shenme   <~~ku~~>?!
      you   cry-LV   what   cry

Given that *weishenme*, a typical Mandarin *why*, actually evolves from a PP *wei(-le) shenme* 'for what' (similar to the relation between *pourquoi* and *pour quoi* in French). It is therefore not unreasonable to treat (1a) on a par with inner light verb construals as discussed in Lin (2001), Feng (2005) and Tsai (2015a, 2017), which typically involve either

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[1] As a matter of fact, (1a) and (1b) are not *the hell*-question, either. This is because they are not aggressively de-D-linked (cf. Pesetsky 1987), and cannot be answered (i.e., completely lacking the option of exerting interrogative force). A genuine *the hell*-question would be like (i), which can be answered if the address chooses to do so (cf. Huang & Ochi 2004).

     (i)   ni   daodi   weishenme zai   ku?!
         you   on.earth   why   Prg   cry
         'Why the hell are you crying?!'

Moreover, when we add *daodi* 'on earth' to (1), the whining force actually dissipates, and the question can be answered again, as illustrated below. Special thanks to Michal Starke for raising the issue.

     (ii)   ni   daodi   ku   shenme?!
         you   on.earth   cry   what
         'What the hell are you crying for?!'

[2] Here we may consider the English expression *cry wolf* when interpreted as 'crying about wolves' or 'crying because of wolves'. See Tsai (2011) and Yang (2015) for a raising-to-FOR analysis in the same spirit.

instrumental, locative, or benefactive arguments.[3] Take the instrumental usage such as (3a) for example: it can be paraphrased as a sentence with a lexical light verb *yong* 'use', as in (3b):

(3) a. ni   qie   na-ba   dao,   wo   qie   zhe-ba dao.
      you   cut   that-Cl   knife   I   cut   this-Cl knife
      你切那把刀，我切這把刀。
      'You (will) cut with that knife, and I (will) cut with this knife.'

    b. ni   **yong** na-ba   dao   qie,   wo   **yong** zhe-ba   dao   qie.
      you   use   that-Cl   knife   cut,   I   use   this-Cl   knife   cut
      你用那把刀切，我用這把刀切。
      'You (will) cut with that knife, and I (will) cut with this knife.'

More specifically, we assume that there is a silent inner light verb USE in (3a), which corresponds to its lexical counterpart *yong* 'use' in (3b), and that the apparent direct object *zheba dao* 'this knife' is actually an instrumental argument in disguise. The surface word order of (3a) can be derived by raising the main verb *qie* 'cut' to USE, as sketched in the following derivation:

(4) a. ni   **USE**   na-ba   dao   qie,   wo   **USE** zhe-ba dao   qie. [inner light verb]
      you   that-Cl   knife   cut   I   this-Cl knife   cut.

$\Rightarrow$ b. ni qie_j+**USE** na-ba   dao t_j, wo qie_k+**USE** zhe-ba dao t_k.   [raising-to-inner *v*]
      you   cut   that-Cl knife   I   cut   this-Cl knife

It is also worthwhile to note that this insight is in line with Endo's (2015) observation that reason WHAT across languages are essentially *what...for*-questions (see also Ochi 2004), as exemplified below:

(5) Kimi-wa   nani-o   sonnani   naiteiru   no?   [Japanese whining *what*]
    you-Top   what-Acc   so.much   crying   Q
    'Why are you crying so much?'

This account can be further contrasted with Huang's (1994, 1997) raising-to-CAUSE analysis of (6a). First note that (6a) can be paraphrased as (6b) with a lexical outer light verb *rang*:

(6) a. na-dun   fan   **chi-de**   Akiu   huomaosanzhang.

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that-Cl meal eat-Res   Akiu   furious

那頓飯吃得阿Q火冒三丈。

'That meal made Akiu eat such that he became furious.'

    b. na-dun fan **rang**   Akiu **chi-de**   huomaosanzhang.

       that-Cl meal cause   Akiu eat-Res   furious

       那頓飯讓阿Q吃得火冒三丈。

       'That meal made Akiu eat such that he became furious.'

In light of the light verb syntax presented above, we may well put forward the claim that there is an implicit eventuality predicate CAUSE in (6a), which corresponds to its lexical counterpart *rang* 'cause' in (6b). The silent outer light verb in turn attracts the main verb, resulting in the word order change, as illustrated in the following derivation:

(7)   a. na-dun fan **CAUSE**   Akiu **chi-de** huomaosanzhang. [outer light verb]

       that-Cl meal cause   Akiu eat-Res furious

$\Rightarrow$ b. na-dun fan **[chi-de]$_k$+CAUSE** Akiu t$_k$ huomaosanzhang. [raising-to-outer v]

       that-Cl meal eat-Res   Akiu   furious

3 Evidence from PF Operations

There are two pieces of evidence for our line of thinking: Our first argument has to do with the fact that the whining *wh*-construal in question allow the lower copy of the raised verb either to delete, as in (8a) or to remain in PF, as in (8b). Interestingly enough, a "split" deletion such as (8c) is also allowed (cf. Tsai 2011):

(8)   a. ni **mai-yuan**   shenme ~~mai-yuan~~?!   [copy deleted]

      you hold-grudge what   hold-grudge

      你埋怨什麼?!

      'What are you holding grudge about?'

    b. ni **mai-yuan**   shenme <**mai-yuan**>?!   [copy pronounced]

      you hold-grudge what   hold-grudge

      你埋怨什麼埋怨?!

    c. ni **mai**-~~yuan~~   shenme <~~mai~~-**yuan**>?!   [split deletion]

      you hold-grudge what   hold-grudge

      你埋什麼怨?!

The pronunciation of the lower copy in (8b) is reminiscent of the following Chinese verb-copying constructions:

(9) wo **kan** dianshi <**kan**-de> huomaosanzhang.

     I watch TV watch-Res furious

     我看電視看得火冒三丈。

     'I have watched TV till I became furious.'

By contrast, the same verb copying mechanism is not available for typical preverbal *how come*-questions in Mandarin, as evidenced by the following example:

(10) * ni ku zenme ku le?!

     you cry how cry Inc

     * 你哭怎麼哭了?

     'What the heck are you crying for?!'

According to Cheng (2007), verb copying applies at failure to reduce a verb chain, as its lower copy has been fused with an aspect marker. In our case, raising to FOR is more in line with the raising to Foc along the line of Hornstein & Nunes (2002) and Nunes (2004): That is, it triggers a morphological fusion between the main verb and the light verb, even if the latter category is silent in Chinese (also cf. Tsai 2014).

Another revealing fact is that verb-copying is only available for inner light verb construals, as shown by contrast between (11a) and (11b). This indicates that the PF operation in (9) is confined to the *v*P phase, hence a result of cyclic spell-out:

(11) a. wo **qie**$_k$+**USE** na-ba dao **qie**$_k$-de huomaosanzhang.

     I cut that-Cl knife cut-Res furious

     我切那把刀切得火冒三丈。

     'I used that knife to cut till I became furious.'

     b. * na-dun fan **chi**$_k$+**CAUSE** wo **chi**$_k$-de huomaosanzhang.

     that-Cl meal eat I eat-Res furious

     * 那頓飯吃我吃得火冒三丈。

     'That meal made me furious while eating.'

Our second argument is built on the distinct prosodic pattern of the whining construal. As reported by the recent experimental study of Yang & Tsai (2019), the verb in (12) carries the most prominent stress, as illustrated by Figure 1:

(12) ni kan shenme?! [whining *what*]

     you look.at what

     你 看 什麼
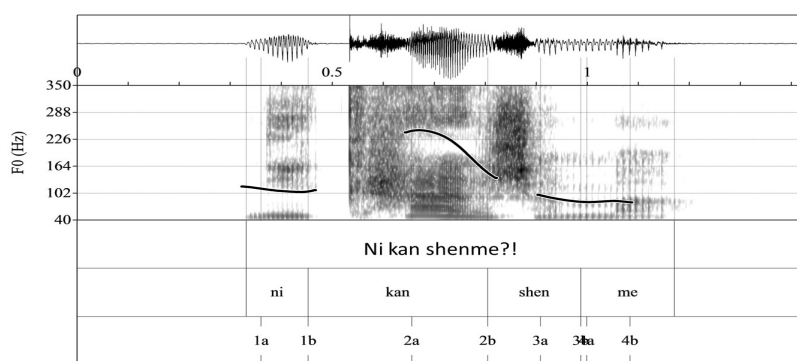
     'What are you looking at?!'

Figure 1. Waveform and sonogram of Mandarin whining *what*

The intonation in question contrasts sharply with that of a typical interrogative question such as (13), which differs significantly from (12) with respect to pitch, duration and intensity, as shown by Figure 2, 3 and 4 respectively:

(13)　ni　　kan　　　shenme?　　　[interrogative *what*]
　　　you　　look.at　what
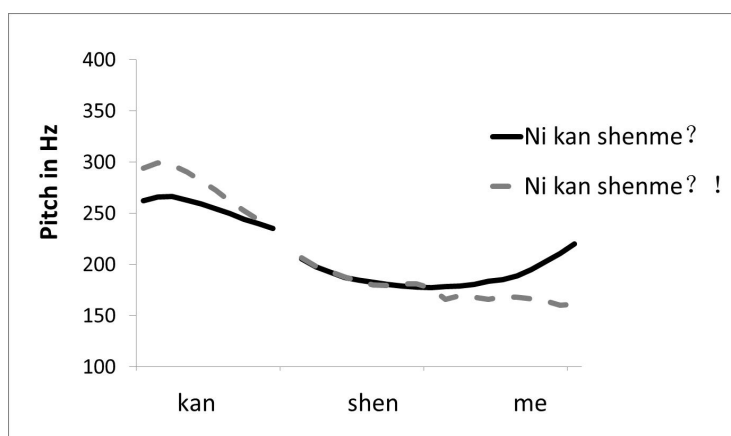　　　你　　看　　　什麼
　　　'What are you looking at?'

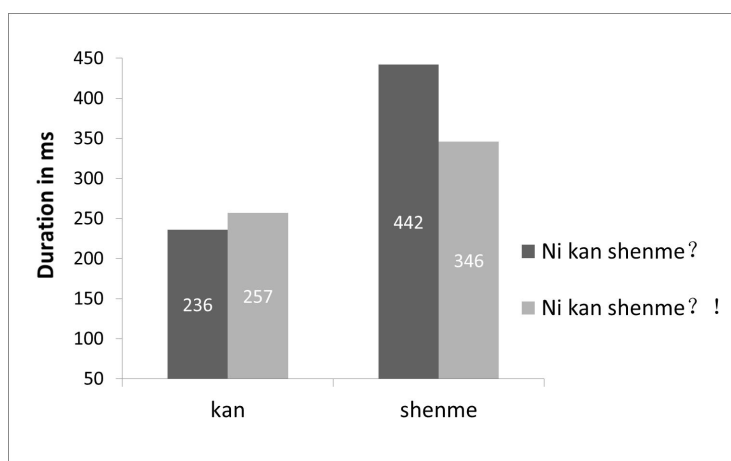Figure 2. Mean F0 curves of *kan shenme* in (12) and (13)

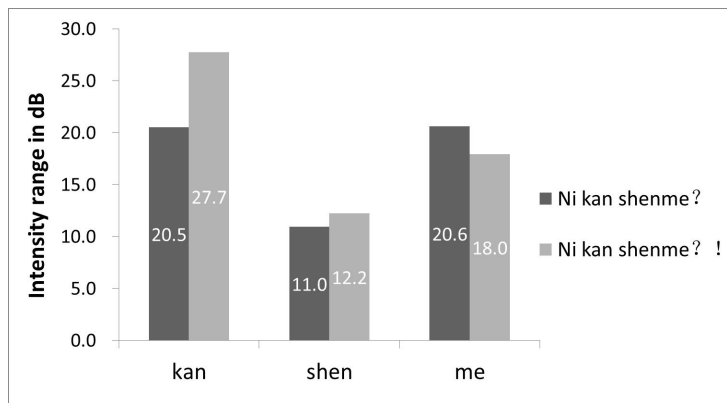Figure 3. Mean duration of *kan shenme* in (12) and (13)

Figure 4. Mean intensity range of *kan shenme* in (12) and (13)

The experimental study shows that the "force shift" from interrogative to whining has a lot to do with the change of the overall prosodic pattern (i.e., the distinctive intonation associated with clause-typing), as well as the stress shift from the object *wh* (i.e., the locus of nuclear stress) to the inner light verb (i.e., the locus of focus). Most importantly, when the inner light verb is silent, it needs something to carry the prosodic weight assigned to it. This in turn triggers raising-to-FOR as seen in (2b). Verb doubling associated with similar focus effects are also observed in Gungbe (Aboh 2004) and the Kwa languages (Landau 2007).[4]

    Yang & Tsai (2019) further points out that the same observation applies to those cases where the lower verb copy is actually pronounced at PF, as in (14):

(14) ni   [$_v$ kan]   shenme [$_V$ kan]?!   [verb copying of whining *what*]

      you look.at what   look.at
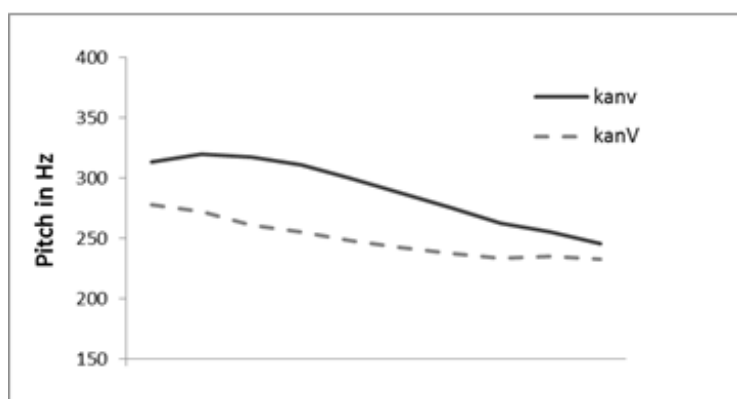
      'What are you looking at?!'

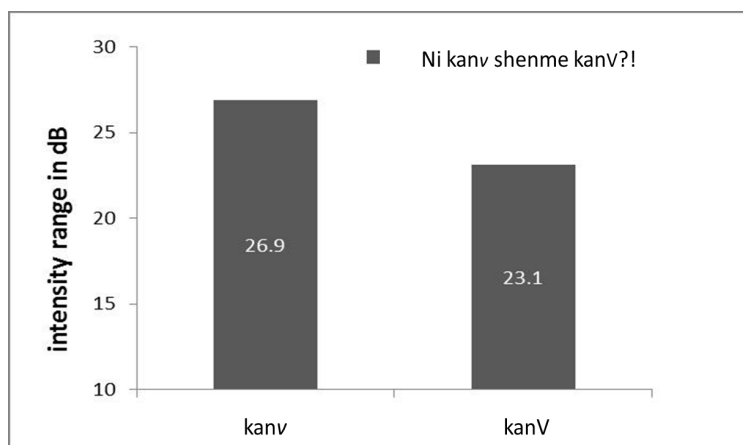Figure 5. Mean F0 curves of the two verb copies in (14)

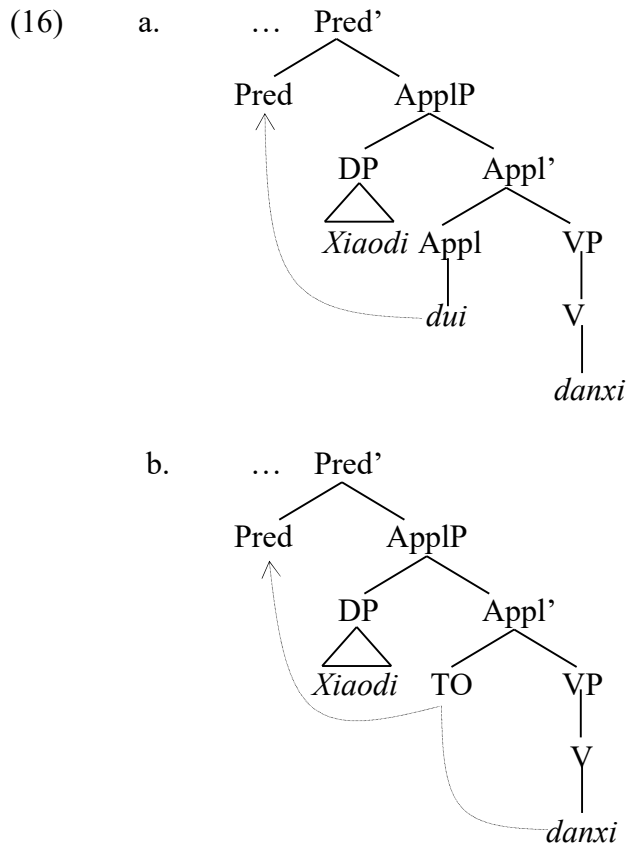Figure 6. Mean intensity range of the two verb copies in (14)

Figure 5 shows that the pitch of the higher verb copy (kan_v) is consistently higher than that of the lower one (kan_V). Figure 6, on the other hand, shows that the intensity range of kan_v is also stronger than that of kan_V. This prosodic evidence substantiates our claim above that the verb copying of (14) is made possible by the focus property associated with the light verb FOR (hence the first verb copy on the surface, cf. Hornstein & Nunes (2002) and Nunes (2004)).

4 Robust Analyticity and the Typology of Applicatives

On the typological front, it is worthwhile to note that Cheng & Sybesma (2015) offers an applicative analysis of subject-experiencer psych-predicates such as *danxin* 'worry' in (15a): They argue that the apparent transitive usage of *danxin* actually derives from a silent version of *dui* in (15b), a *de facto* applicative construction in Mandarin:

(15) a. Akiu   hen   danxin   Xiaodi.
          Akiu   very   worry   Xiaodi
          阿 Q   很   擔心   小 D
          'Akiu worries about Xiaodi.'

      b. Akiu   dui   Xiaodi   hen   danxin.
          Akiu   to   Xiaodi   very   worry
          阿 Q   對   小 D   很   擔心
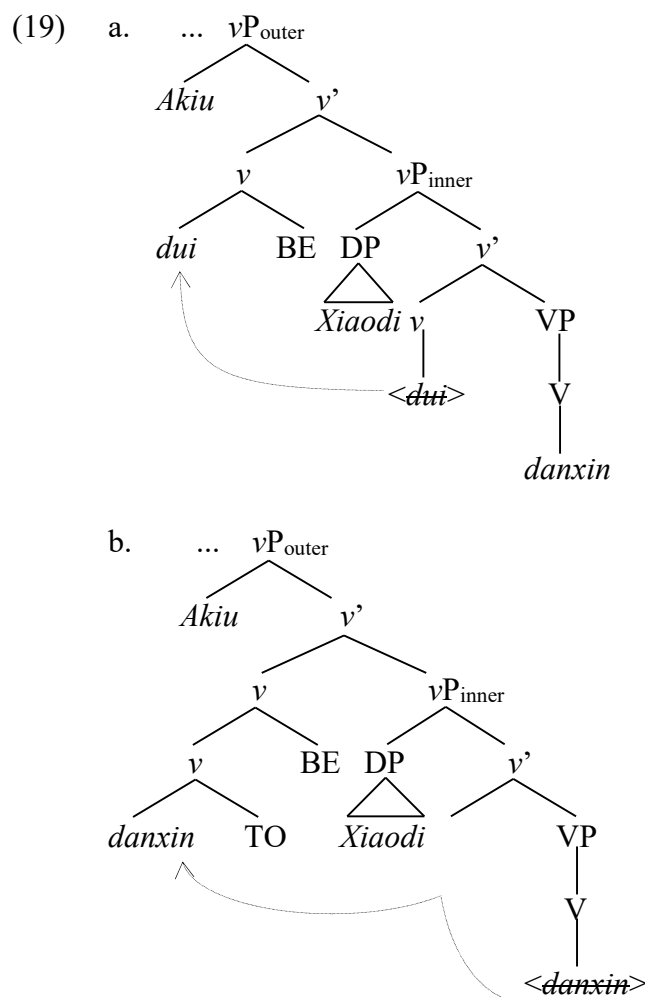   'Akiu worries about Xiaodi.'

As illustrated in (16a), when the applicative head is spelled out as *dui*, no verb movement is triggered in PF. Instead, *dui* raises over the applicative argument *Xiaodi* to the head of PredP. If the applicative head is not realized phonetically, as represented by TO, then the main verb *danxin* pick it up and raises all the way to Pred, as shown in (16b):

(16) a.   … Pred'

```
           Pred'
          /    \
       Pred    ApplP
         ↖    /    \
            DP      Appl'
           /\      /    \
       Xiaodi Appl    VP
               |       |
              dui      V
                       |
                     danxi
```

  b.   … Pred'

```
           Pred'
          /    \
       Pred    ApplP
         ↖    /    \
            DP      Appl'
           /\      /    \
       Xiaodi  TO      VP
                        |
                        V
                        |
                      danxi
```
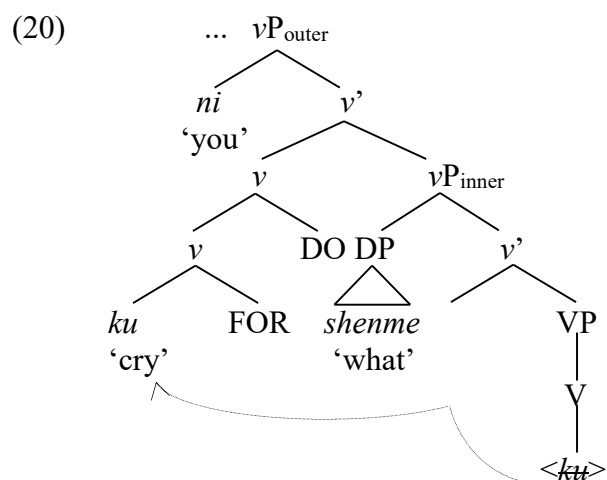
Interestingly enough, there is a strong conceptual connection between their proposal and the inner-outer dichotomy of light verbs advocated here: We entertain the idea that Chinese applicative expressions have a more pronounced topography along functional projections due to its robust analyticity (cf. Huang 2015; Tsai 2015a, 2018). Namely, while typical applicative morphemes are bound to the verb root in Bantu languages, as exemplified by the Kinyarwanda example (17) (cf. McGinnis 2001, 2003), their Mandarin counterparts are free, and have a much wider distribution accompanied by their respective applicative arguments, as shown in (18):

(17) úmwáalímu y-a-andik-iish-ijé-ho   ikíbáho   imibáre íngwa.
      teacher   he-Pst-write-Inst-Asp-Loc   blackboard   math   chalk
      'The teacher wrote math on the blackboard with chalk.'

(18) laoshi yong   fenbi zai heiban-shang   xie   shuxue.
      teacher use   chalk at   blackboard-up   write   mathematics
      'The teacher wrote math on the blackboard with chalk.'

Along this line, we may well put forth the claim that Chinese inner light verbs are "analytic" versions of Bantu applicatives (see also Tsai 2017). As illustrated below, *dui* and TO are taken to be inner light verbs, achieving very much the same result as Cheng & Sybesma's treatment:

(19) a.   ... $v\text{P}_{outer}$

Akiu v'

   v $v\text{P}_{inner}$

dui   BE   DP v'

      Xiaodi v VP

      <dui>

            V

         danxin

b.   ... $v\text{P}_{outer}$

Akiu v'

   v $v\text{P}_{inner}$

 v BE   DP v'

danxin TO   Xiaodi   VP

                 V

              <danxin>

As a result, we are able to explain away the peculiar distribution of whining *what* in (1) by treating it as an "extra" argument in applicative-theoretic terms: That is, it is left in the apparent direct object position after the main verb *ku* 'cry' raises all the way to a silent outer light verb DO (or a voice head to the same effect) through the head position of a silent inner light verb FOR, as sketched in the following diagram:

(20)   ... $v\text{P}_{outer}$

 ni v'
'you'

    v $v\text{P}_{inner}$

 v DO DP v'

ku   FOR shenme   VP
'cry'   'what'

                V

             <ku>

10

One of the advantages of this proposal is that, if the lower copy remains (or partially deleted) at PF, then the verb copying effects of (9) and (14) will be derived without further stipulations. Interestingly enough, similar verb copying phenomena is also attested in Vietnamese whining *what*, as illustrated by the following pair of examples (Tran Phan p.c.):

(21) a. Em   **khóc**   (cái)   gì?!
          you   cry   Cl   what
          'What the hell are you crying for?!'

      b. Em   **khóc**   (cái)   gì   mà   **khóc**?!
          you   cry   Cl   what   MA   cry
          'What the hell are you crying for?!'

This construal presents a sharp contrast with the typical causal *how*-question below, where *sao* 'how' occupies the sentence-initial position, and the whining force is distinctively absent:

(22) Sao   mà   em   không   đi?
      how.come   MA   you   NEG   go
      'How come you didn't go?'

5 Encoding Force in Syntactic Terms

One of the main goals of the cartographic approach is to build an explicit clausal spine for pragmatic construals such as illocutionary forces, subjectivity, evidentiality, topicalization, focalization, etc. Along this line, we would like to suggest that the whining force in question is contributed by the force head in the left periphery (also cf. Pan 2015), which triggers a distinct intonation pattern very different from interrogative and indefinite *wh*-construals. As Yang (2015) have demonstrated quite convincingly, this kind of "force-shift" applies mostly in the root context, as evidenced by the absence of a whining construal for the indirect question below:

(23) wo   xiangzhidao   [ni   ku   shenme].
      I   wonder   you   cry   what
      我想知道你哭什麼。
      a.   I wonder what you are crying for.   [interrogative]
      b. # I wonder what the heck you are crying for.   [#whining]

Here the interpretation is purely interrogative, which lends further support to our claim that the whining construal is built upon a *for what* question, where *shenme* 'what' is actually an applicative argument.

    As noted by Krifka (2014), illocutionary acts can sometimes be embedded as arguments of force operators, e.g., verbs of saying or speech act adverbials. It is quite clear here that the interrogative construal in (23a) can be embedded as the complement of the matrix verb

xiangzhidao 'wonder', whereas its wining counterpart in (23b) cannot. It is therefore no wonder people sometimes just give an answer to the embedded applicative *why*-question in (23) directly.

Curiously enough, it seems possible to embed the whining question under exclamative predicates such as *jingya* 'surprised' (cf. Abels 2007; Badan & Cheng 2015). As illustrated below, here the situation is somewhat reversed: the interrogative reading is blocked, while the whining construal survives.

(24) wo   hen jingya   [ni   ku   shenme].

     I   very surprised   you cry   what

     a. #   I am surprised what you are crying for.   [#interrogative]

     b.   I am surprised what the heck you are crying for.   [whining]

This shows that the force operator involved (call it a whining operator) does share some characteristics with the classic exclamative operator in expressing surprise/unexpectedness (cf. Zanuttini & Portner 2000, 2003).

Furthermore, the whining construal is also subject to a variety of locality effects, as evidenced by the negative island effect of (25):

(25) * ni   bu   ku   shenme?!   [*whining *what* under negation]

     you   not cry   what

    * 你不哭什麼?!

    'What the heck are you not crying for?!'

One way to think of the locality effect is to analyze whining *what* (L-WHAT in Yang's term) as an adverb subject to covert movement at LF. The other alternative is to suggest that the applicative *shenme* in question is bound by the whining operator (W-Op), which is merged directly to the Spec position of ForceP, as sketched in (26a):

(26) a. [$_{ForceP}$ W-Op$_x$ ... [$_{TP}$ *ni*   [$_{vP}$ *ku*-FOR   *shenme*(x)   <*ku*>]]]?!

                    you   cry-LV   what   cry

     b. [$_{ForceP}$ W-Op$_x$ ... [$_{TP}$ *ni*   [$_{NegP}$ *bu*   [$_{vP}$ *ku*-FOR   *shenme*(x)   <*ku*>]]]]?!

                    you   NEG   cry-LV   what   cry
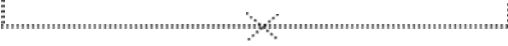
Since the resulting dependency is non-referential due to the applicative nature of whining *wh*, the deviance of (25) may be attributed either to inner island violation (cf. Rizzi 1990), or to negative operator intervention in the sense of Beck (1996, 2006) and Beck & Kim (1997), as illustrated in (26b). Under this treatment, W-Op can be conceived as a force operator taking the whining speech act as its argument along the line of Krifka (2014).

Along this line, we adopt a feature-based version of Relativized Minimality, as

formulated by Rizzi (2004). It distinguishes the following four types of dependencies, and factors them in with regard to locality effects:

(27) a. Argumental: person, number, gender, case

  b. Quantificational: Wh, Neg, measure, focus...

  c. Modifier: evaluative, epistemic, Neg, frequentative, measure, manner, ...

  d. Topic

As a result, (25) can be ruled out straightforwardly by proposing that the quantificational dependency established by the operator binding has crossed over another quantifier, namely, the negation *bu* 'not', as illustrated below:.

(28) a. [+Quan] ...   [+Quan] ...   [+Quan]

On the other hand, the negative deontic modal force can be treated as an implicature triggered by the whining operator, which is reminiscent of the negative modal force displayed by the following non-canonical usage of *shenme* 'what' and *nali* 'where' (also cf. Cheung 2009, among others):

(29) **shenme** Akiu   qu-le   xiancheng!
  WHAT   Akiu   go-Prf   downtown
  什麼阿Q去了縣城！
  'No way Akiu went downtown!'

As observed in Tsai (2011), the difference lies in the sentential scope taken by non-canonical *shenme* and *nali*. This height of interpretation triggers negation over epistemic modality, as indicated by the impossibility readings of (29). By contrast, the verbal scope of applicative *shenme* in (1a) only allows negation over deontic modality, which goes hand-in-hand with the whining force.[5]

  From a comparative perspective, our position is further strengthened by similar construals attested in Taiwan Southern Min (henceforth TSM): The copula *sī* normally associated with reason *how* in (30a) must also appear to license the postverbal whining *ántsuánn* 'how' in (28b), where the presence of the assertive auxiliary *sī* is obligatory:

(30) a. Tsuísūn **sī-ántsuánn**   teh   khàu?   [TSM reason *how*]
   Tsuisun be-how   Prg   cry
   水順是按怎咧哭？
   'Why is Tsuisun crying?'

  b. Tsuísūn ***(sī)**   teh   khàu **ántsuánn**?!   [TSM whining *how*]
   Tsuisun be   Prt   cry   how

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5 See Tsai (2015b) for evidence for placing Chinese epistemic modals in the complementizer layer (i.e., the left periphery, hence taking an IP scope), and their deontic counterparts in the inflectional layer (hence taking a VP scope).

水順是咧哭按怎?!

'Why the hell is Tsuisun crying?!'

Here *sī* serves as a scope marker for postverbal *ántsuánn* 'how' with the now familiar force shift from interrogative to whining. The following derivation of (30b) is adapted from Lau & Tsai (2020) in the spirit of our applicative analysis (W-Op: whining operator):

(31)
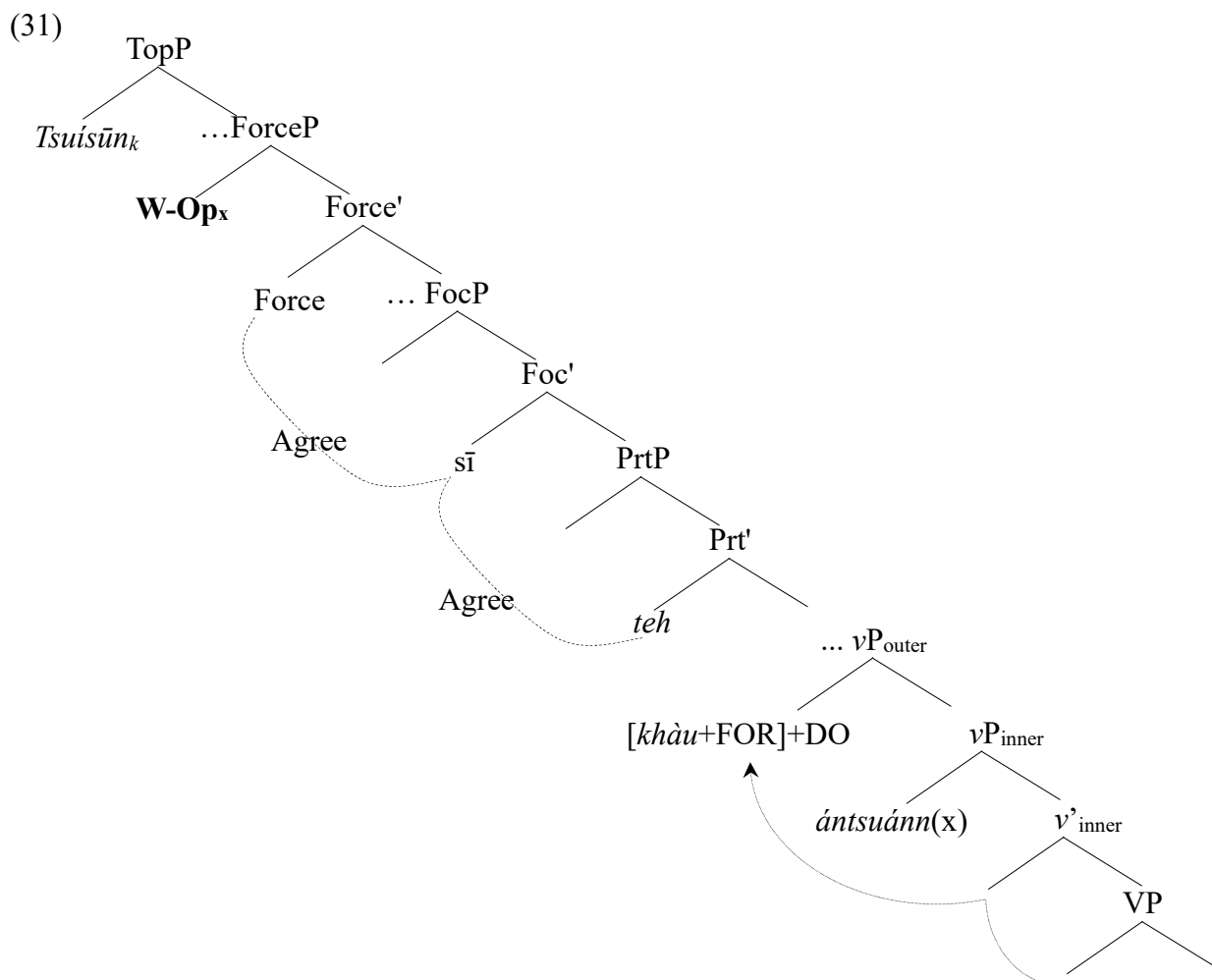
6 The Hows of *What* and the Whats of *How*

The question remains as to how to capture the similarity between whining *what* in Mandarin and whining *how* in TSM. Here we draw inspiration from a fine-grained study of Japanese *wh*-adverbials reveals that *nande* can be interpreted as either instrumental or reason, as in (32a,b):

(32) Mari-wa   nande   kaetta-no?
     Mari-Top NANDE   left-Q
     a. 'How did Mari leave?'
     b. 'Why did Mari leave?'

Furthermore, the above construals can be disambiguated through morpho-syntactic means (cf.

Fujii et al. 2014): In (33a), when employing the non-contracted PP form *nani-de* 'what-with', only the instrumental reading is available (i.e., a *how*-question). By contrast, when accompanied by *mata* 'on.earth', as in (33b), the contracted adverbial form *nande* triggers the reason interpretation (i.e., a *why*-question):

(33) a. Mari-wa   nani-de   kaetta-no?
          Mari-Top   what-with   left-Q
          'With what (means) did Mari leave?'   [PP: instrumental]

     b. Mari-wa   nande   mata   kaetta-no?
          Mari-Top   NANDE   on.earth   left-Q
          'Why on earth did Mari leave?'   [Adv: reason]

Interestingly enough, only instrumental *nande* (call it *nande^I*) and its PP counterpart can appear below certain sentential adverbials such as *tokidoki* 'sometimes', as evidenced by the contrast between (34a,b):

(34) Hiroshi-wa **tokidoki**   nande^I/nani-de   okayu-o   taberu-no?
      Hiroshi-Top sometimes how/what-with   rice.congee-Acc   eat-Q
      a.   'How does Hiroshi sometimes eat rice congee?'   [instrumental]
      b.#   'Why does Hiroshi sometimes eat rice congee?'   [#reason]

Reason *nande* (call it *nande^R*), on the other hand, typically appears in conjunction with *mata* 'on earth' above *tokidoki*:

(35) Hiroshi-wa nande^R mata   **tokidoki** okayu-o   taberu-no?
    Hiroshi-Top why   on.earth sometimes rice.congee-Acc   eat-Q
    a. #   'How on earth does Hiroshi sometimes eat rice congee?'   [#instrumental]
    b.   'Why on earth does Hiroshi sometimes eat rice congee?'   [reason]

As mentioned above, Chinese *why* has its root in the applicative construal of its PP cognate, which pattern is observed cross-linguistically, as illustrated below:

(36) Chinese   *weishenme*   vs.   *wei(-le)shenme*
      French   *pourquoi*   vs.   *pour quoi*
      Japanese   *nande*   vs.   *nani-de*
      English   *why*   vs.   *for what*

Interestingly enough, *why* also derives from the Old English *hwi*, an instrumental case form of *hwæt* 'what'. It can be interpreted either as 'for what purpose' (as in Mandarin) or 'by what means' (as in Japanese). Along this line, it is quite plausible to decompose TSM *how* further into a prepositional part *án* and a nominal part *tsuánn*. In certain constructions, it can even

alternate with *siánn*, the real TSM *what* (cf. Lau & Tsai, to appear), as exemplified below:

(37) Tsuísūn sī   teh   khàu **siánn**?!   [TSM whining *what*]
Tsuisun   be   Prg   cry   WHAT
'What the hell is Tsuisun crying for?! (He shouldn't be crying.)'

This *what-how* alternation in TSM is again attested in Vietnamese: Recall that we found a whining *what* in Vietnamese with the whining construals of (21a,b). As noted by Tran Phan (p.c.), it turns out that the same verb copying pattern also shows up with *sao* 'how' in a postverbal position, where the presence of a modal *được* 'can' appears to be obligatory, as evidenced by (38a,b):

(38) a. Em   **khóc** sao   được?!
you   cry   how   can
'How can you cry?!'

b. Em   **khóc** sao   được   mà   **khóc**?!
you   cry   how   can   MA   cry
'How can you cry?!'

Our account thus not only explains away the exceptions to the cross-linguistic generalization about the placement of *why*, but also reconstruct the correct cartography of those "ill-behaved" *why*-questions in both Mandarin and TSM. Hopefully this study will represent the first step to figure out the how of *what* and the what of *how*.

7 Concluding Remarks

To sum up, we have presented evidence showing Mandarin postverbal *why*-question is actually an applicative construction in disguise, where the apparent object *shenme* 'what' is bound by a whining operator merged to the left periphery, resulting in the "force-shifting" construal in question. Our argument is based on the verb copying effects of the whining *wh*-construal of (39a): When the main verb *ku* 'cry' raises to the applicative head FOR, the lower copy left by the V-to-*v* movement can be either pronounced, as in (39b), or deleted at PF, as in (39c):

(39) a. ni   ku-FOR   shenme   <ku>?!
you   cry-LV   what   cry

b. ni   **ku**   shenme   **ku**?!   [the lower copy pronounced]
you   cry   what   cry

c. ni   **ku**   shenme?!   [the lower copy deleted]
you   cry   what

Furthermore, the experimental study of Yang & Tsai (2019) shows a prosodic pattern clearly distinct from a typical interrogative question, where the focus has shifted from the usual nuclear stress position to the applicative head FOR. This not only suggests that the postverbal *why*-question involves *v*P-internal syntax, but also supports our claim that the whining force is associated with the overall rearrangement of the stress/intonation pattern. Cross-linguistic evidence is also drawn from a very similar construction in Vietnamese (cf. (21a,b)), where the sentence-final placement of *gì* 'what' also triggers the whining force, as well as the signature verb copying mechanism.

Finally, a morpho-syntactic study of *how* and *why* across languages reveals that the similarity shared by the whining construals of Mandarin *shenme* 'what' and TSM *ántsuánn* 'how' is not an accident, but has its root in the development of *how*- and *why*-questions through applicative usages akin to *with/by/for what* in English.

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