Wh-indefinites Are Dependent Indefinites: A Study on *shenme*

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1. Introduction

Chinese *wh*-indefinites are found ungrammatical in simple affirmative episodic sentences, as shown in (1), but are licensed by negation, polar questions, antecedent of conditionals, modals, or future markers (Huang, 1982; Li, 1992; Cheng, 1994; Lin, 1998, 2004, 2014; Xie, 2007; Lin et al., 2014; Lin & Giannakidou, 2015). Sentences (2) to (8) demonstrate the distribution of *wh*-indefinites.

(1)   *Wo mai-le   shenme
         I   buy-ASP what
        Intended reading: *I bought something.

(2)   Zhangsan **mei**   chi shenme dongxi
        Zhangsan NEG eat what   thing
        Zhangsan didn't eat anything.

(3)   Zhangsan chi-le   shenme **ma**?
        Zhangsan eat-ASP what   Q?
        Did Zhangsan eat anything?

(4)   **Ruguo** ni   you shenme wenti,   jiu lai   wen wo
        If   you have what   question, then come ask me
        If you have any question, come and ask me.

(5)   **Suoyou** you shenme shiqing gen wo shuo de, keyi zhao   wo.
        All   have what   thing   to me talk DE, can come find me
        All those who have something to tell me can come see me.

(6)   Zhangsan **keneng** kan-le   shenme shu
        Zhangsan possibly read-ASP what   book
        Zhangsan may have read some book.

(7)   Ni **bixu** chi dian shenme
        you must eat CL what
        You must eat something.

(8)   Zhangsan mingtian **hui** qu mai dian shenme   song gei Lisi
        Zhangsan tomorrow will go buy CL   something give to Lisi
        Zhangsan will go to buy something as a present for Lisi.

Based on these findings, Lin (1998) gives *wh*-indefinites the name *existential polarity items* and proposes the Non-Entailment of Existence Condition (henceforth NEEC) on the distribution of *wh*-indefinites. Except (1), none of the other sentences entails there exists a referent of the *wh*-indefinite. In the same spirit, Xie (2007), Lin et al. (2014) and Lin & Giannakidou (2015) suggest that *wh*-indefinites are licensed by non-veridicality.

(9)   Non-Entailment-of-Existence-Condition on EPWs (NEEC)
        The use of an EPW is felicitous iff the proposition in which the EPW appears does not entail existence of a referent satisfying the description of the EPW.

Recent research on *wh*-indefinites, however, poses a challenge to the non-veridicality generalization. Sudo (2010) and Kaneko (2011) found that Japanese *wh*-indefinites can be used in a simple affirmative episodic sentence to convey the speaker's ignorance. Chen (2017) found similar facts in Chinese.

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(10) a. John-wa kinoo **dare**-ka-ni atteta   yo
          John-TOP yesterday who-KA-DAT was.meeting PRT
          John was meeting with someone yesterday.

      b. #honto? aitsu dare-ni   atteta?
          really   he   who-DAT was.meeting
          Really? Who was he meeting with?

(11) Zhangsan mai-le   san   ben **shenme** shu
      Zhangsan buy-ASP three CL what   book
      Zhangsan bought three books of a certain kind, (the speaker does not know what kind it is).

In (10a), the use of *dare* indicates that the speaker does not know exactly who John was meeting with yesterday. This is why the follow-up question in (10b) which asks the speaker to identify the referent of *dare* is infelicitous. In (11), *shenme* also signals the speaker's ignorance, as can be seen in the gloss of the sentence. What is important here is that both (10a) and (11) are simple affirmative episodic sentences which constitute veridical environments. (10a) does entail that there is a person who John met yesterday and (11) does entail that there is a certain kind of books that Zhangsan bought. Therefore, the grammaticality of these two sentences poses a challenge to Lin (1998) and his successors' analysis.

In this paper, we will show that the challenge to the old analysis is actually on a larger scale using a set of new data. We will focus our discussion on the *wh*-indefinite *shenme* as a representative and attempt to show that the nature of *wh*-indefinites is not a sensitivity to polarity but a requirement of covariation with a licensing quantifier. This property of covariation puts *wh*-indefinites in a natural class with dependent indefinites that have been discussed in many other languages (Farkas, 1997; Balusu, 2006; Pereltsvaig, 2008; Yanovich, 2005; Brasoveanu & Farkas, 2011; Henderson, 2014). Therefore, we argue that *wh*-indefinites are dependent indefinites by nature.

2. *Shenme* and dependent indefinites

2.1. New data on shenme

Sentences (12) to (15) are all veridical sentences containing a *wh*-indefinite *shenme*, which, contrary to the prediction of the old analysis, turn out to be grammatical.

(12) **Mei ge ren   dou** mai le   dian shenme (dongxi)
      Every CL person DOU buy Asp CL   what   thing
      Everyone bought something. (False if everyone bought the same thing)

(13) **Tamen dou**   mai le   dian shenme (dongxi)
      They   DOU buy Asp CL   what   thing
      They each bought something. (False if they all bought the same thing)

(14) Yiqian,   Zhangsan **jingchang** zai xiaban   lushang mai dian shenme huijia
      In the past, Zhangsan often   on off work way   buy CL what   back home
      In the past, Zhangsan often bought something on his way back home. (False if Zhangsan bought the same thing every time)

(15) Zhangsan mai le   dian shenme song gei Lisi
      Zhangsan buy Asp CL   what   give to Lisi
      Zhangsan bought something for Lisi, (the speaker does not know specifically what he bought).

In (12), *shenme* is licensed by a distributive quantifier *every*. In (13), *shenme* is licensed by a distributively interpreted subject *they each*. In (14), it is licensed by a pluractional adverb *often*. When there is no overt licensor in the sentence, as in (15), *shenme* is licensed by the covert epistemic modal (Kratzer & Shimoyama, 2002). In each sentence, *shenme* covaries with the licensing quantifier and at least two different referents need to be assigned to it. Otherwise the sentence is false.[1] The behavior of

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[1] Sentences (12) to (14) also have an ignorance reading. However, due to the presence of an overt licensing quantifier, the ignorance is not obligatory. This obviation effect is also observed in Alonso-Ovalle & Shimoyama (2014), but they limit their discussion on a *wh*-indefinite embedded under *every* only.

covariation with a licensing quantifier exhibited by *wh*-indefinites echoes that of dependent indefinites, to which we now turn.

2.2. Dependent indefinites

Dependent indefinites are found in a variety of languages: Hungarian (Farkas, 1997), Telugu (Balusu, 2006), Russian (Pereltsvaig, 2008; Yanovich, 2005), Romanian (Brasoveanu & Farkas, 2011) and Kaqchikel (Henderson, 2014). Dependent indefinites are different from plain indefinites in two ways. Morphologically, they are usually marked. Distributionally, they impose a semantic constraint of covariation. Following are some examples of dependent indefinites from different languages. The dependent indefinite in each sentence is bolded.

(16) **Hungarian**
A   gyerekek hoztak   **egy-egy** könyvet
the children   brought a-a   book.ACC
The children brought a book each. (False if all the children brought the same book)

(17) **Telugu**
Prati pillavaaDu **renDu renDu** kootu-lu-ni   cuus-ee-Du
every kid   two   two   monkey-PL-ACC see-Past-3PSg
Every kid saw two monkeys. (False if there are two monkeys and every kid saw them at the same time and location)

(18) **Russian**
Každyj mal'čik vstretil kogo-**nibud'** iz svoix odnoklassnic
Every boy   met   who-NIBUD' of his   girl-classmate
Every boy met one of his girl classmates. (False if they all met the same classmate)

(19) **Romanian**
Fiecare băiat a   recitat **cîte** un poem
every   boy   has recited cîte a   poem
Every boy recited a poem. (False if there is exactly one poem and every boy recited it)

(20) **Kaqchikel**
K-onojel x-ø-ki-kano-j   **ju-jun**   wuj
E3p-all   CP-A3s-E3p-search-SS one-one book
All of them looked for a book. (False if there is a book and all of them looked for it)

While a plain indefinite like *a girl* is known to be able to take either narrow scope or wide scope, dependent indefinites choose the narrow scope very stubbornly. When the wide scope reading of the dependent indefinite is attempted, i.e., when the referent of the indefinite does not vary, (16) to (20) are all false. Moreover, when embedded under a licensing quantifier, dependent indefinites covary with the quantifier semantically.[2] Based on these data, we can conclude that dependent indefinites are subject to a particular semantic constraint: they have to covary with a licensing quantifier. Exactly the same constraint is exhibited by *shenme* in (12) to (15). Given this similarity, we argue that *shenme* is a dependent indefinite. In next section, we will present an analysis on *shenme* using the core elements of Dynamic Plural Logic (henceforth DPlL) (Brasoveanu, 2008; Henderson, 2014).

3. An analysis of *shenme* in DPlL

In the traditional *static* semantics, the meaning of a sentence is understood as its truth conditions. In *dynamic* semantics, however, a sentence is seen as an active construct that can update the context with

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[2]Given the cross-linguistic differences in what constitutes a felicitous licenser of dependent indefinites, Henderson (2014) classifies dependent indefinites into three types: strong, middle and weak. Interested readers are referred to Henderson (2014) for a more detailed discussion.

the values assigned to the variables it contains. In DPlL, a sentence is interpreted relative to a set of input assignment functions G and a set of output assignment functions H. A set of assignment functions is called an information state and is represented as a matrix. Table 1 is an example. We give some definitions in our meta-language in (21) to (24). We define *every* as in (25) and *shenme* as in (26).

Table 1: An example matrix

H	...	i	j	...
h_1	...	Mary	John $\oplus$ Bill	...
h_2	...	Sue	John $\oplus$ Bill	...
h_3	...	Beatrice	John $\oplus$ Bill	...
...	...	...	...	...

(21) $G(i) = \{g(i) | g \in G\}$
A set of assignment functions G taking a variable indexed with i will return a set of values, each assigned to i by an assignment function g in G.

(22) $g \approx_i h \Leftrightarrow$ for any index j, if $j \neq i$, then $g(j) = h(j)$
$g \approx_i h$ iff g differs at most from h on the value it assigns to i.

(23) $G \approx_i H \Leftrightarrow$ for all $g \in G$, there is a $h \in H$ such that $g \approx_i h$, and
for all $h \in H$, there is a $g \in G$ such that $g \approx_i h$

(24) G is i-*variant* $\Leftrightarrow G(i)$ is not a singleton set
G is i-*invariant* $\Leftrightarrow G(i)$ is a singleton set
If all the assignment functions g in G assign the same value to i, G is called i-*invariant*. If there are at least two assignment functions g_1 and g_2 in G that assign different values to i, i.e. $g_1(i) \neq g_2(i)$, then G is called i-*variant*.

(25) $[\![\text{Every}_i\ X]\ Y]\!]^{G,H}$
$=1$ iff $\exists K \exists K'(G \approx_i K\ \&\ K(i) = [\![X]\!]^{K,K'}\ \&\ \forall x \in K'(i)([\![Y]\!]^{K',H}(x) = 1))$

(26) $[\![V\ [\text{shenme}_j\ X]]\!]^{G,H} = \{x : \exists K \exists K'(G \approx_j K\ \&\ K(j) \subseteq [\![X]\!]^{K,K'}\ \&\ \underline{K\ \text{is}\ j\text{-variant}}\ \&$
$\exists y \in K'(j)([\![V]\!]^{K',H}(y)(x) = 1))\}$

Based on the entry for *every* and *shenme*, the truth condition for sentence (12) is as follows.[3]

(27) $[\![\text{Every}_i\ \text{student}]\ \text{bought}\ \text{shenme}_j\ \text{thing}]\!]^{G,H}$
$=1$ iff $G \approx_{i,j} H\ \&\ H(i) = [\![student]\!]\ \&\ H(j) \subseteq [\![thing]\!]\ \&\ \underline{H\ \text{is}\ j\text{-variant}}$
$\&\ \forall x \in H(i)(\exists y \in H(j)([\![bought]\!](y)(x) = 1))$

What's crucial in the truth condition is the underlined conjunct, which, as we can see from (26), is a lexical requirement imposed by *shenme*. This requirement ensures that *shenme* is assigned at least two different values in the output context. Therefore, the sentence is true if and only if there are at least two different things that were bought across all the people under discussion.

When *shenme* is licensed by a pluractional adverb like *often*, it covaries with the plurality of events introduced by the adverb. We treat *often* as a sentential operator and define it as in (28). *Often* introduces a set of events $\mathcal{E}$ whose cardinality exceeds a contextually determined threshold c. The prejacent of the pluractional adverb is assumed to be a set of events, as in (29). We can now compose sentence (14) whose truth condition is given in (30).

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[3]Note that we are ignoring the classifiers in our composition. What classifiers contribute to the semantics of these sentences is definitely an important question and we leave this question for future research.

(28) $[\![\text{often}_i\ p]\!]^{G,H} = 1$ iff $\exists K(G \approx_i K\ \&\ K(i) = \mathcal{E}\ \&\ |\mathcal{E}| > c\ \&\ \forall e \in \mathcal{E}([\![p]\!]^{K,H}(e) = 1))$

(29) $[\![\text{Zhangsan bought shenme}_j\ \text{thing}]\!]^{G,H} = \lambda e.G \approx_j H\ \&\ H(j) \subseteq [\![thing]\!]\ \&\ \underline{H\ \text{is}\ j\text{-variant}}$
       $\&\ \exists y \in H(j)([\![bought]\!](e)\ \&\ Agent(e, Zhangsan)\ \&\ patient(e, y))$

(30) $[\![\text{Zhangsan often}_i\ \text{bought shenme}_j\ \text{thing}]\!]^{G,H}$
       $= 1$ iff $G \approx_{i,j} H\ \&\ H(i) = \mathcal{E}\ \&\ |\mathcal{E}| > c\ \&\ H(j) \subseteq [\![thing]\!]\ \&\ \underline{H\ \text{is}\ j\text{-variant}}$
       $\&\ \forall e \in \mathcal{E}(\exists y \in H(j)([\![bought]\!](e)\ \&\ Agent(e, Zhangsan)\ \&\ patient(e, y)))$

Again, the underlined conjunct 'H is j-variant' in the truth condition ensures that for the sentence to be true, *shenme* has to be assigned at least two different values in the output context. In other words, this sentence is true if and only if there is a set of purchasing events with Zhangsan as the agent and with things as the patient and the cardinality of the set exceeds a contextually determined threshold so that it can be called *often*, and across all the purchasing events, at least two different things were bought.

Finally, for the ignorance reading, we assume that there is a covert epistemic modal on top of the sentence (Kratzer & Shimoyama, 2002). The epistemic modal is analyzed as a sentential operator whose prejacent is of type t. Thanks to intensional functional application, we can compose the modal with the intension of the sentence. We define the epistemic modal as in (31). The truth condition of sentence (15) is given in (32).

(31) $[\![\Box^i_{epistemic}\ p]\!]^{G,H}_w = 1$ iff $\exists K(G \approx_i K\ \&\ K(i) = \mathcal{W}_{epistemic}\ \&\ \forall w \in \mathcal{W}(\lambda v.[\![p]\!]^{K,H}_v(w) = 1))$

(32) $[\![\Box^i_{epistemic}\ \text{Zhangsan bought shenme}_j\ \text{thing for Lisi}]\!]^{G,H}_w$
       $= 1$ iff $G \approx_{i,j} H\ \&\ H(i) = \mathcal{W}\ \&\ H(j) \subseteq [\![thing]\!]\ \&\ \underline{H\ \text{is}\ j\text{-variant}}$
       $\&\ \forall w \in \mathcal{W}(\exists y \in H(j)(\text{Z bought}\ y\ \text{for Lisi in}\ w))$

The underlined 'H is j-variant' requires that *shenme* be assigned at least two different values in the output context for the sentence to be true. Therefore, across all the epistemically accessible worlds to the speaker, at least two different things were bought by Zhangsan as a gift for Lisi. In other words, the speaker cannot be certain what Zhangsan bought Lisi. Otherwise, it should be the same thing that was bought by Zhangsan across all the worlds. The ignorance reading is generated precisely by the plurality requirement *shenme* imposed on the output context in this case.

4. Advantage over the implicature account

Based on the observation that the *wh*-indefinite *shenme* and dependent indefinites behave in a similar way, we give a compositional semantics for it in §3. In this section, we aim to show that our analysis has an advantage over the implicature account proposed by Alonso-Ovalle & Shimoyama (2014) in that their account makes an unattested prediction. By contrast, our analysis is not plagued by this problem.

4.1. Alonso-Ovalle & Shimoyama (2014)

Alonso-Ovalle & Shimoyama (2014) found that when a *wh*-indefinite is embedded under a universal quantifier, the ignorance reading is obviated. This obviation effect can be seen in the contrast between the following two conversations.

(33) a. John-wa kinoo   **dare**-ka-ni   atteta   yo
          John-TOP yesterday who-KA-DAT was.meeting PRT
          John was meeting with someone yesterday.

       b. #honto? aitsu dare-ni   atteta?
           really   he   who-DAT was.meeting
           Really? Who was he meeting with?

(34) a. Dono kyooju-mo   **dare**-ka gakusee-to odotteru
          which professor-MO who-KA student-with is.dancing
          Every professor is dancing with some student.

    b. Dare-ga   dare-to   odotteru no?
        who-NOM who-with is.dancing Q
        Who is dancing with who?

Without the embedded universal quantifier, the use of *dare* indicates that the speaker is ignorant of the identity of the person John met yesterday. Thus a follow-up question like (33b) is infelicitous. However, with the embedding universal quantifier, the ignorance reading is obviated. Therefore, it is felicitous to ask the speaker to identify the people that the *wh*-indefinite refers to, as shown in (34b).

In order to explain the ignorance reading in (33) and the obviation effect in (34), Alonso-Ovalle & Shimoyama (2014) proposed an implicature account. *Wh*-indefinites are treated as a disjunction which activates subdomain alternatives. Sentence (33a) is represented as (35) with the epistemic modal on top. Suppose we have three students in the context, s_1, s_2 and s_3. The negation of the stronger subdomain alternatives gives us the primary implicature (Sauerland, 2004), as in (36). If we try to promote the negation from above the modal to under the modal to derive the secondary implicature, we will end up with (37), which contradicts the original sentence. Therefore, we can only strengthen the meaning of sentence (35) with the primary implicature. What we get, ultimately, is an ignorance reading.

(35) $\Box$[John met s_1 or s_2 or s_3]

(36) $\neg\Box$[John met s_1], $\neg\Box$[John met s_2], $\neg\Box$[John met s_3]

(37) $\Box\neg$[John met s_1], $\Box\neg$[John met s_2], $\Box\neg$[John met s_3]

Things are different when an embedding universal quantifier is present in the sentence. As before, let's assume there are three students in the context, s_1, s_2 and s_3. Sentence (34a) can thus be represented by (38). The primary implicature we get by negating the stronger subdomain alternatives is in (39). Thanks to the universal quantifier *every*, we can promote the negation to obtain the secondary implicature in (40) without contradicting the original sentence. What we get ultimately is a distributivity reading where at least two students are paired with different professors in the dancing event. The strengthened meaning of (38) with the secondary implicature is compatible with a scenario where the speaker knows which professor is dancing with which student. The ignorance effect, therefore, is obviated.

(38) $\Box$[Every professor is dancing with s_1 or s_2 or s_3]

(39) $\neg\Box$[Every professor is dancing with s_1], $\neg\Box$[Every professor is dancing with s_2], $\neg\Box$[Every professor is dancing with s_3]

(40) $\Box\neg$[Every professor is dancing with s_1], $\Box\neg$[Every professor is dancing with s_2], $\Box\neg$[Every professor is dancing with s_3]

4.2. The advantage of our analysis

Based on Alonso-Ovalle & Shimoyama's (2014) proposal, we need to negate the stronger alternatives in order to derive the distributivity reading, as what we did for sentence (34a). A prediction following this account is that when a *wh*-indefinite is embedded under a downward-entailing quantifier, the distributivity reading should disappear. Let's see why. Again, let's assume the context as before where we have three students. If we replace the universal quantifier in (34a) by a DE quantifier *fewer than five*, we can represent the new sentence by (41). The subdomain alternatives are given in (42).

(41) $\Box$[Fewer than five professors are dancing with s_1 or s_2 or s_3]

(42) $\Box$[Fewer than five professors are dancing with s_1], $\Box$[Fewer than five professors dancing with s_2], $\Box$[Fewer than five professors are dancing with s_3]

With the DE quantifier *fewer than five*, the subdomain alternatives turn out to be weaker than the original sentence, the negation of which contradicts (41). However, since the implicature account can only derive the distributivity reading by negating the subdomain alternatives, it predicts that the

distributivity reading is unavailable when a *wh*-indefinite is embedded under a DE quantifier. This prediction is not borne out in Chinese or Russian.

(43) Budao   wu ge ren   mai le   dian shenme (dongxi) song gei Lisi
      Fewer than five CL person buy Asp CL   what   (thing) give to Lisi
      Fewer than five people bought something for Lisi.

(44) Dumaju, očen' nemnogie nositeli "deržavnogo" jazyka   vzjali na sebja trud vyučit'
      I-think very few   speakers imperial   language took on self   work to-learn
      kakoj-nibud' iz   nacional'nyx jazykov
      which-nibud' from national   languages
      I think that very few speakers of the 'imperial' language (i.e. Russian) undertook the task of
      learning some national language.

In (43), the distributivity reading is available where the referent of *shenme* covaries with the subject. The same fact is found in Russian by Pereltsvaig (2008). He observed that in sentence (44) where the dependent indefinite *which-nibud'* is embedded under *few*, *which-nibud'* covaries with *few*.

Sentences like (43) and (44) pose a challenge to Alonso-Ovalle & Shimoyama (2014) because they have a reading that is predicted to be unavailable by the implicature account. Our analysis, however, does not suffer from this problem. To satisfy the covariation requirement imposed by the *wh*-indefinite, we only need a quantifier that introduces a plurality of people, objects, events or worlds. *Few/fewer than five*, despite a DE quantifier, can create a plurality with which the *wh*-indefinite covaries, as can be seen in (45).

(45) $[\![$Fewer than five$_i$ students bought shenme$_j$ thing$]\!]^{G,H}$
      =1 iff $G \approx_{i,j} H$ & $H(i) \subseteq [\![student]\!]$ & $|H(i)| < 5$ & $H(j) \subseteq [\![thing]\!]$
      & <u>H is j-variant</u> & $\forall x \in H(i)(\exists y \in H(j)([\![bought]\!](y)(x) = 1))$

5. Back to the old example

Now let's return to sentence (1) in which there is no overt licensing quantifier for *shenme*. A natural question to ask is: why is this sentence ungrammatical instead of giving rise to an ignorance reading? We will give a tentative answer, for many details still need to be worked out, but with the tentative answer, we hope to convince the readers that sentence (1) is ungrammatical not because of the polarity of this sentence, as traditionally argued by many scholars, but because of two independent reasons. First, countable nouns in Mandarin Chinese should be preceded by a classifier unless it is used as a bare noun. Here in the example, the intended reading for the object noun phrase is an indefinite reading. A bare noun is read as an indefinite in Mandarin only when the predicate does not apply to kinds.[4] *Xihuan* 'like' as a stative predicate does apply to kinds and therefore the indefinite reading cannot be generated. A classifier can come to rescue but this sentence does not have one. The second problem is more relevant to our discussion on dependent indefinites. As our analysis on *shenme* shows, *shenme* needs to covary with a licensing quantifier. When there is no such overt quantifier in the sentence, the covert epistemic modal serves as the last resort. In sentence (1), no overt quantifier creates a covariation environment. In this case, *shenme* has to covary with the epistemic modal and an ignorance reading is predicted. However, the subject of this sentence is the first person *wo* 'I'. An ignorance reading, if generated, will read as 'I like somebody but I don't know who it is'. This is a very bizarre reading since it is against our common knowledge to expect someone to have no idea who s/he likes.

Given the two problems with this example, I conclude that this example fails to demonstrate what it is intended to. Its ungrammaticality has nothing to do with *shenme* being unhappy in a simple affirmative sentence. After we add a classifier and change the subject to a third person, the ignorance reading emerges, as is predicted by our analysis.

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[4]See Chierchia (1998) for more details on the rule of DKP.

(46) Zhangsan xihuan ge shenme ren
     Zhangsan like   CL what   person
     Zhangsan likes somebody, (but I don't know who it is).

The second reason in our tentative answer is a pragmatic point. This means that once we give an appropriate context, a first person subject should be compatible with an ignorance reading.[5] This is exactly what we found, as is shown in (47). In a context where John woke up finding a small lump on his arm, it is felicitous for him to utter (47).

(47) Wo bei   yi ge shenme chong yao-le
     I   PASS one CL what   insect bite-ASP
     I was bitten by an insect, (I don't know which/what kind of insect it is).

Notice that with an atelic predicate, an ignorance reading with a first person subject is very hard to access, as (1) shows. However, with a telic predicate, an ignorance reading is accessible even with a first person subject, as we see in (47). Why this is so is beyond this paper.

6. Conclusion

In this paper, we use some new data on a representative *wh*-indefinite *shenme* in Mandarin to argue against the traditional analysis that the non-interrogative *wh*-phrases in Mandarin are *existential polarity items*. Contrary to the previous claim, we find that *shenme* is felicitous in veridical sentences as long as its referent can covary with a licensor. Universal quantifiers, distributively interpreted subjects and pluractional adverbs can all license *shenme*. When there is no overt licensor in the sentence, *shenme* covaries with the unpronounced epistemic modal and gives rise to an ignorance reading. This behavior echoes the so-called dependent indefinites that are found in many languages. We adopt the core ingredients from DPlL to analyze *shenme* and show that our analysis is advantageous over Alonso-Ovalle & Shimoyama's (2014) implicature approach.

One last problem is how *shenme* interacts with negation. If *shenme* imposes a discourse-plural requirement, we predict that sentence (2) is true in a scenario where Zhangsan didn't eat at least two different things. This reading, however, is too weak compared to the intuitive reading we obtain for this sentence — Zhangsan didn't eat anything. We leave this problem for future research.

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