The Categorization of *Dou* (都) in Chinese: A Study from a Cross-linguistic Perspective

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Abstract

Compared with prototypical universal quantifiers in other languages of the world, *dou* in Mandarin Chinese presents more complicated semantic behaviors. One of the most disputed issues is what are the relations between *dou* expressing “universal quantification” (UQ) and *dou* expressing “scalar trigger” (SCA). First-hand data that comes from 40 languages demonstrates that Mandarin Chinese is the only language that employs the same form for “universal quantification” and “scalar trigger”. The empirical evidence strongly suggests that UQ *dou* and SCA *dou* are different, and the two functions UQ and SCA lack universal conceptual correlations. The special polysemous behavior of Mandarin *dou*, is proved to come from two language-specific reanalysis processes in *dou*’s diachronic development which also supports the two-*dou* claim. The study thus instantiates how a cross-linguistic perspective provides insights to explain long-standing language-particular issues. Besides, it is also argued that the cross-linguistic approach is promising in predicting if a future research is on a right track as it can steer us through over-generalization and undergeneralization.

Keywords

dou – universal quantification – scalar trigger – cross-linguistic comparison

1 Introduction

The adverb *dou* in Mandarin has long been an area of fascination due to its complex and distinctive syntactic and semantic properties. Until very recently, discussions on Mandarin *dou* still took center stage. One of the most disputed topics is how many *dous* there are in Chinese, and why and how the different meanings are subsumed under one grammatical morpheme in Chinese. *Xiandai Hanyu Babaici* (《現代漢語八百詞》), as in many other descriptive works, lists the following three uses of *dou*.

Universal Quantification

- (1) 他們都是老師。
tāmen dōu shì lǎoshī
3PL DOU COP teacher
‘They are all teachers.’

Scalar Trigger

- (2) 這麼簡單的問題，三歲小孩都知道。

zhème jiǎndān de wèntí sān suì xiǎo hái dōu zhīdào

so simple AUX question three-year small child DOU understand

‘So simple a question that even a three-year-old child can understand (it).’

Already

- (3) 老師都走了，他才來。

lǎoshī dōu zǒu le tā cái lái

teacher DOU go PFV 3SG not until come

‘He did not come until the teacher had already gone.’

A considerable amount of research proposes that there is only one semantic characterization of *dou* (Lee 1986; Cheng 1995; Jiang 1998; Pan 2006). In these studies, it is argued that both the readings of “scalar trigger” and “already” could be regarded as extensions of the first meaning “universal quantification” in particular contexts.¹

However, other studies reveal that the first use is more objective whereas the latter two uses contain subjective evaluations (Wang 1999, 2001; Jiang 2003; Zhang 2005). Therefore, it is argued in these studies that there are two subtypes of *dou*, in which *dou*₁ carries the function of “universal quantification” as illustrated by (1) and *dou*₂ denotes a more subjective meaning of “being abnormal or inappropriate” as shown by (2) and (3). As for the relation of these two uses of *dou*, some studies describe the “scalar trigger” use as a pragmatically reinforced subtype of the “universal quantification” use (Xiao 2005; Jiang 2011) while others hold an opposite view about this and argue that the “universal quantification” use is not embedded in its “scalar trigger” use (Shank 2004; Chen 2008).

Other studies compromise between the above two opinions, putting forward the claim that there is only one *dou* in Chinese, but it can be attributed to two types according to the syntactic/semantic differences (Jiang and Pan 2013; Li 2013; Shen 2015). The two subtypes of *dou* in these studies basically correspond to *dou*₁ and *dou*₂ as categorized by the second approach.²

In fact, if we exclusively rely on internal observations within a single language, it would be rather difficult to evaluate which view among the above-mentioned three fares the best. The first approach emphasizes the consistency among the different uses whereas the second emphasizes their differences. Although the third approach captures more behaviors of *dou*, it is largely a rearrangement of the ideas previously known, with no new evidence provided.

To solve this long-standing dilemma, we need to take recourse to external evidence—regularities gained through cross-linguistic comparison. If the different functions³ delivered by *dou* are demonstrated to reflect some universal conceptual connections (i.e. the functions are repeatedly expressed by

1 Jiang (1998) applies Relevance Theory to prove that the “scalar” meaning and the “already” meaning are produced by the whole structure that contains *dou* rather than *dou* itself. What *dou* performs in these two contexts could both be subsumed into the first meaning “universal quantification.”

2 Jiang and Pan (2013) further differentiate two subcategories of *dou*₁ and *dou*₂ respectively according to whether there is an “exclusive” reading attached.

3 As demonstrated by reviewing the previous studies on the categorizing issue of *dou*, the core of the debate is whether the non-scalar use of *dou* (“universal quantification”) and the scalar uses of *dou* (“scalar trigger” and “already”) should be

one grammatical morpheme across different languages), it will suggest that at the level of human conceptualization, they are intrinsically interconnected and thus subsumable, thereby justifying the oneness of *dou* in Chinese. However, if the functions are proved to lack a universal correlation (the functions tend to be expressed by different grammatical morphemes in different languages), chances are high that different *dous* should be identified.

In this research, we will examine the conceptual correlations of “universal quantification” and “scalar trigger” by comparing the cross-linguistic data collected from 40 languages, and apply the insight obtained from cross-linguistic comparison to solving the long-standing categorization issue of *dou* in Chinese.

2 Three Related Functions

If we compare Chinese *dou* with its counterparts in other languages, one of the most striking differences is that *dou*, as a universal quantifier in Chinese, can also take over the function of “scalar trigger.” By contrast, the universal quantifiers in other languages cannot extend their functions to “scalar trigger.” The “scalar trigger” function in these languages is often delivered by another group of grammatical morphemes—“additive particles.” For instance, in the Zhuang language, the function of “scalar trigger” is expressed by the word *hix*, but *hix* is not the word used to express “universal quantification,” but a word that would be simply rendered in English as *also*—an expression for the function of “additive focus.” Therefore, we feel obliged to take the function of “additive focus” into consideration as well to prepare the ground for further cross-linguistic comparisons. In the following, the three related functions—“additive focus,” “scalar trigger” and “universal quantification”—will be explained in detail.

2.1 Additive Focus (ADD)

“Additive focus” is commonly expressed in English by means of *too*, *also* and *as well* (Gil 2004). It means to add a new circumstance to the antecedent, in order to show consistency. In nature, it is an existential operator.

(Jino: Tibeto-Burman; Sino-Tibetan)

- (4) $n\alpha^{42}$ le^{55} α , $\eta\alpha^{42}$ $l\alpha^{33}$ $le^{33}\alpha$.
 2SG go PRT 1SG ADD go PRT
 ‘If you go, I will go too.’

This could be simply expressed as ‘ $[[\text{you}]_{\text{target1}} \text{ go}] \wedge [[\text{I}]_{\text{target2}} \text{ go}]$ ’ and there is a consistency shown in between the two target members. Basically, the additive focus does not affect the truth value of the original sentence, but it does bring a presupposition that at least one of the alternative values under consideration in a context satisfies the same predicate. This alternative value could be made explicit like “you” in sentence (4), but could also be implicit, that is to say, existing in the context or in the mutual knowledge

differentiated or not. In this paper we will mainly address the relations between “universal quantification” and “scalar trigger.” The function of “already” will be set aside in this paper with no harm.

held by the speaker and the addressee. Discussions on additive focus particles, like König (1991: 62) and Shank (2004: 31), mainly focus on this presupposition, but we would like to point out further that apart from the existential presupposition it invokes, additive focus also suggests similarity between the alternative value and the focus that the additive particle introduces. In fact, for the most typical additive particle in Chinese, *ye*, its function is most widely accepted as “showing similarity (類同)” (Ma 1982).

2.2 *Scalar Trigger (SCA)*

The concept of “scalar trigger” is sometimes called “scalar additive focus” (König 1991: 66), which is seen as a special case of “additive focus.” In fact, “scalar trigger” also refers to an addition of focus, but the difference is that the individual that has been added is located at an extreme of a pragmatic scale. As argued by Fillmore, Kay, and O'Connor (1988) in the “scalar model,” one uses an operator to trigger the highest/lowest polarity so as to realize the pragmatic entailment. The higher on the scale the expression is located, the more informative it is, and thus it is easier to entail relevant expressions. For example:

(Lachi: Kra, Tai-Kadai)

- (5) to⁵⁵co⁴⁴ tei⁵⁵ ljuŋ⁵⁵ vu⁴⁴ li⁴⁴ tju⁵⁵ sei³¹ la³¹ ɕu⁵⁵ ljo³¹.
 past 1PL handicap very one CLF character even know NEG
 ‘It was quite a handicap in the past that we didn’t know even one word.’

By addressing the extreme situation, *la*³¹ triggers the extreme situation of the event of “not knowing a word,” which is much more informative than those located lower in the scalar model, like “not knowing two/three ... words”. It is easy to see that this sentence is equal to “we knew none of the words” in terms of truth value. Also, the example sentence actually contains the negative polarity item (NPI), which is one of the two types of what we called “scalar trigger” here. As suggested by Gast and van der Auwera (2011), different forms may be used to denote “scalar trigger” in affirmative contexts and in negative contexts, especially for languages in Europe. Therefore, another category that contains the positive polarity item (PPI) is also identified in this study. For instance:

(Dong: Kam-Tai; Tai-Kadai)

- (6) lieen yaoc nyac buh haemk.
 even 1SG 2SG even ask
 ‘You ask even me.’

To lay some groundwork for further discussion, we would like to differentiate two subtypes of PPI. As is well known, the implied meaning of a sentence can be divided into the conventional implicatures and the conversational implicatures. As the former have been conventionalized in the grammaticalization process, it is not defeasible by adding an opposite context. The latter have not been conventionalized, and therefore the implicatures could be cancelled. The PPI in our study only refers to the Conventional PPI but not Conversational PPI.

2.3 *Universal Quantification (UQ)*

The term “universal quantification” here is used in the same sense as generally accepted in formal semantics. It shows that a property/action is satisfied by every member of the quantified domain.

(Jing: Mon-Khmer, Austro-Asiatic)

- (7) $k\eta^2\eta au^1$ $k\eta^3$ $la:i^6$ joi^2
 everyone all come PFV
 'All have come.'

In the above example, $k\eta^3$ marks the action $la:i^6$ as one undergone by all participants expressed by $k\eta^2\eta au^1$, reflected in the English translation of "all"; therefore, all the participants in the domain possess the same property of the predicate. As is also the case in the categorizing practice in formal semantics, there are two instantiations of universal quantification: those with the property of totality/maximality and those with the property of non-totality/non-maximality.⁴ The former includes expressions like English *every/each*, which allow no exception to the quantification of all the members. In contrast, the latter has more tolerance of exceptions, like Chinese *dou*, which does not always apply the exhaustivity quantification to the NP (Wu and Tao 2014; Xu 2014).

3 Cross-linguistic Representation Patterns

In this section, we will first introduce the procedure and example sentences that we adopted to investigate the 40 languages and then present the different connecting patterns by analyzing the cross-linguistic data received.

3.1 Investigating Procedure and Language Data

The investigating procedure is basically onomasiological. We will start from the three concepts of "additive focus," "scalar trigger" and "universal quantification," and try to figure out their formal expressions in different languages. After this, the different correlation patterns of the concepts and the forms will be compared in order to see in what fashion these concepts are correlated.

For the three concepts that we have analyzed above, example sentences have been designed to help the interviewees to find the counterparts in their mother tongues. Most of the examples are extracted from instantiations of the concepts in reference grammars, and, as we will see, more than one example sentence is offered under each of the concepts so as to capture all the syntactic environments in which the concepts may occur.

Additive Focus

- i. If you go, I will go **too**.
- ii. My younger brother is **also** sick.

Although in English different words are employed to show the different syntactic levels of the focus, there is no such difference in most other languages in my data sample.

4 There are of course other ways to convey universal quantification, such as reduplicated classifiers in Mandarin like 人人 *renren*, 'everyone.' Such expressions are irrelevant to our theme and will be left unaddressed in this study.

Scalar Trigger

- i. He is so poor that he doesn't **even** have a place to sleep.
- ii. **Even** a small child knows this.
- iii. She gave him lots of things, **even** this/this **too**.

In light of the detailed canvass of scalar triggers provided in the previous section, we find that sentence i is an example of an NPI polarity trigger while sentence ii is an instance of a PPI polarity trigger. As for sentence iii, the alternatives of “even this” and “this too” are meant to confirm whether the PPI polarity trigger is a conventional one or a conversational one. When the investigation proceeds to this item, a more detailed context is offered by the interviewer to further differentiate the two types of implicatures.

Universal Quantification

- i. **Everyone** has come.
- ii. They **all** need to work hard.
- iii. The playground is **full of** young people.

From sentence i to sentence iii, the restriction on the totality property of the quantified scope gets progressively looser. In this way, we are trying to provide all the possible environments for the maximality universal quantifiers and non-maximality universal quantifiers in different languages.

Based on the above-mentioned procedures and examples, we interviewed more than 40 interviewees about their mother tongues at UCLA and BLCU,⁵ and collected data from 40 languages that come from 10 language families. The 40 languages are comprised of 14 Indo-European languages, 8 Sino-Tibetan languages, 6 Niger-Congo languages, 3 Austronesian languages, 3 Turkic languages, 2 Tai-Kadai languages, 1 Austroasiatic language, and 1 Afro-Asiatic language as well as Korean and Japanese. Table 1 offers a breakdown of the sources of the language data.

3.2 *Three Types of Cross-Linguistic Representation Patterns*

Now let us look into how the 40 different languages use different forms to express the three concepts. There are mainly four types of representations found in the 40 languages we investigated.

Representation Pattern 1

The three concepts “additive focus,” “scalar trigger” and “universal quantification” are coded separately by three distinct grams in 17 languages in our data pool.

To facilitate further comparisons with other types, we can diagram this type of representation by using the blocks to show the allocation pattern as shown in Fig. 1:

The 17 Type 1 languages and their respective forms for the three concepts are shown in Table 2:

⁵ UCLA and BLCU stand for “University of California, Los Angeles” and “Beijing Language and Culture University” respectively.

TABLE 1 *Data sources by language families and branches*

Indo-European	Baltic	Latvian
	Balto-Slavic	Russian
	Creole	Antiguan Creole
	Germanic	German
	Hellenic	Greek
	Indo-Iranian	Bengali, Hindi, Persian, Tajik, Urdu
	Italic	French, Italian, Portuguese, Spanish
Sino-Tibetan	Chinese	Cantonese, Jin dialect, Min (Taipei), Min (Yun'ao), Southwestern Mandarin, Wu dialect
	Lolo-Burmese	Nuosu (Yi language)
	Tibeto-Kanauri	Tibetan
Niger-Congo	Atlantic-Congo	Ghomálá, Kinyarwanda, Pular, Setswana, Shona, Swahili
Austronesian	Malayo-Polynesian	Indonesian, Malay, Tagalog
Turkic	Karluk	Uzbek
	Kipchak	Kazakh
	Oghuz	Turkish
Tai-Kadai	Tai	Thai, Zhuang
Austroasiatic	Vietic	Vietnamese
Afro-Asiatic	Semitic	Arabic
Koreanic		Korean
Japonic		Japanese

FIGURE 1 *Distributive Pattern of Type 1*

Apart from the 17 languages listed in Table 2, German also uses different lexical forms to code the different notions individually; however, it goes deeper for the concept of “scalar trigger” and tends to use different words to express the PPI and NPI scalar triggers. For the former, *selbst* is used whereas for the latter, *nicht einmal* is employed. For the current purpose, we will categorize German into Type 1 as all these grams in German are mono-functional, as in the other Type 1 languages. Therefore, for Type 1, we

TABLE 2 *Data of Type 1*

Language	Language Family	Gram for Additive Focus	Gram for Scalar Trigger	Gram for Universal Quantification
Turkish	Turkic	de	bike	hepsi
French	Indo-European	aussi	meme	tous
Greek	Indo-European	episis	akoma ke	oeo
Latvian	Indo-European	ari	pat	visi
Portuguese	Indo-European	também	mesmo	todo
Russian	Indo-European	toje	daje	vsye
Spanish	Indo-European	también	incluso	todos
Antiguan Creole	Indo-European	anarl	eben	arl
Thai	Tai-Kadai	duay	mai	thang
Ghomálá	Niger-Congo	ie	bai	wai
Pular	Niger-Congo	kadhi	haye	foppe
Swahili	Niger-Congo	pia	hata	wote
Arabic	Afro-Asiatic	aidan	hata	jamie
Malay	Austronesian	juga	pun	semua
Japanese	Japonic	mo	demo	mina
Korean	Koreanic	do	la do	ta
Min (Yun'ao) ⁶	Sino-Tibetan	a ³³	sua ⁴³	ham ^{33e33}

have 18 languages altogether, which constitutes 45 percent of the data sample. If we zoom in to see the difference in distribution among the language families, we find that, for the Indo-European family and the Niger-Congo family, the Type 1 languages occupy exactly half of the sample from the family, namely 7 out of 14, and 3 out of 6, respectively. But for the Sino-Tibetan language family, from which 8 languages/dialects are sampled, only one language belongs to Type 1.

Representation Pattern 2

There are 18 languages in our sample that use additive focus particles to express the concept of “scalar trigger” (including both the PPI scalar trigger and NPI scalar trigger).

The representation pattern is presented in Fig. 2:

The 18 languages and relevant data are shown in Table 3:

One language offers a slightly different picture from Pattern 2 – the Italian language. Fig. 3 shows how it differs from the typical Type 2 language.

⁶ The original characters of the three grams in Min (Yun'ao) are not clear.

FIGURE 2 *Distributive Pattern of Type 2*

TABLE 3 *Data of Type 2*

Language	Language Family	Word for Additive Focus and Scalar Trigger	Word for Universal Quantification
Bengali	Indo-European	-o	sob
Hindi	Indo-European	bhi	sab
Persian	Indo-European	ham	hameh
Tajik	Indo-European	ham	hamma
Urdu	Indo-European	bhi	sab
Kazakh	Turkic	da	barligi
Uzbek	Turkic	ham	hamma
Vietnamese	Austroasiatic	cũng	đều
Kinyarwanda	Niger-Congo	na	bose
Setswana	Niger-Congo	le	ba
Shona	Niger-Congo	-wo	vese
Zhuang	Tai-Kadai	hix	cung
Indonesian	Austronesian	juga	semua
Tagalog	Austronesian	ren	lahat
Nuoso(Yi)	Sino-Tibetan	nyi	sa
Tibetan	Sino-Tibetan	yang	ganga
Wu dialect	Sino-Tibetan	a ³³ (也)	ze ³³ (儕)
Jin dialect	Sino-Tibetan	ie ²¹⁴ (也)	te'yn ⁵⁵ (全)

FIGURE 3 *Distributive Pattern of Italian*

Italian is the same as the other languages listed in Table 3 in using a separate lexical item to code the concept of universal quantification. However, two different forms are employed in affirmative sentences and negative sentences respectively in expressing the concept of scalar trigger. As it also shows a strong connection between the notion of “additive focus” and that of “scalar trigger,” it is categorized into Pattern 2 as well.

If Italian is included, we have a total of 19 languages belonging to Type 2. These 19 languages constitute 47.5 percent of our language sample. In terms of different language families, for Indo-European languages and Niger-Congo languages, languages of Pattern 2 count for almost half of the sample from each language family, namely 6 out of 14, and 3 out of 6 respectively. If we compare the ratios of Type 1 and Type 2 in the two language families, the two categories are evenly divided in the sample languages. That is to say, for a language coming from the Indo-European family or the Niger-Congo family, there is approximately a 50 percent chance that it uses three distinct forms to denote the notions of “additive focus,” “scalar trigger” and “universal quantification”; and a 50 percent chance that it employs the additive focus particle to denote the concept of “scalar trigger,” or at least the “scalar trigger” in affirmative sentences, but a different form for “universal quantification.”

However, among the eight members of the Sino-Tibetan family, four members show Pattern 2. All of them are non-Mandarin Chinese varieties; while Mandarin Chinese demonstrates a unique representation pattern—Type 3.

Representation Pattern 3

There is only one example in our data pool that shows Pattern 3, namely the Southwestern Mandarin dialect spoken in Chongqing. In this dialect, the universal quantifier, which is identical in form to that in Standard Mandarin, can also be employed to express the function of “scalar trigger.”

Pattern 3 can be represented in one schema as in Fig. 4:

FIGURE 4 *Distributive Pattern of Type 3⁷*

The most prominent feature of Type 3 is that an identical form is employed for the concepts of “scalar trigger” and “universal quantification,” whereas in the previous two types, the two concepts are expressed by distinct forms.

Apart from the two sub-dialects of Mandarin Chinese mentioned above, the Min dialect spoken in Taipei is another example of Type 3 but with a slight deviation. It is different in that only the NPI scalar trigger can be expressed by the universal quantifier whereas the PPI scalar trigger shares the same form with the additive focus particle. The pattern can be illustrated as in Fig. 5.

As the universal quantifier in this dialect does not exclusively express the function of “universal quantification” like those in the previous two categories, it can be deemed as a special case of Type 3.

⁷ *Ye* in Mandarin Chinese can also express the NPI scalar trigger. The overlapping pattern of *dou/ye* in this function is worth pursuing in a separate study.

FIGURE 5 *Distributive Pattern of Min Dialect in Taipei*

Representation Pattern 4

We now turn to the last possibility, which is to express all the concepts with one and the same multifunctional gram. The only member in our data sample that falls into this type is the Yue variety of Chinese (Cantonese) in the Sino-Tibetan family.⁸ Cantonese *dou* is different from Mandarin Chinese *dou* in that it can also express the meaning of “additive focus.” For example:

- (8) Haih a, ngoh dou yauh heui.
 is PRT 1SG ADD have go
 ‘That’s right, I went too!’ (Matthews and Yip 1994: 281)

Furthermore, the concept of “PPI scalar trigger,” “NPI scalar trigger” and “universal quantification” can also be expressed by Cantonese *dou*, just like its counterpart in Mandarin Chinese.

PPI Scalar Trigger

- (9) Gam yuhksyun dou yauh ge!
 so ugly P.SCA exist PRT
 ‘What could be so ugly?’ (Matthews and Yip 1994: 283)

NPI Scalar Trigger

- (10) Yat lap seng dou mouh.
 one CLF sound N.SCA not-have
 ‘There’s not even a sound.’ (Matthews and Yip 1994: 272)

Universal Quantification

- (11) Leuhng ga dou leng.
 Two CLF UQ nice
 ‘They’re both nice.’ (Matthews and Yip 1994: 263)

Therefore, the representation pattern for Type 4 is much more concise than the previous ones as is shown in Fig. 6.

We can put aside the differences inside the concept of scalar trigger for now and have a general picture of the four types of cross-linguistic representations of the concepts “additive focus,” “scalar trigger” and

8 Second-hand data from the reference grammar of the Lachi Language has also provided data which shows the pattern of Type 3 (Li 2000)

FIGURE 6 *Distributive Pattern of Type 4 (Cantonese)*

“universal quantification.” Table 4 summarizes the contrast. (The three special cases which involve the differentiation of PPI and NPI are excluded for now.)

The above contrast clearly demonstrates that the universal quantifiers in Mandarin Chinese can take over one more function of “scalar trigger” and no other language behaves the same way. A fact that is worthwhile noting is that the situation in Mandarin Chinese is by no means representative of the Chinese language in this respect. Our investigation shows that many other regional varieties of Chinese do not take on the same polysemous behaviors as Mandarin dialects. For example, Wu dialects and Jin dialects

TABLE 4 *Contrast among different cross-linguistic representations of the three concepts*

	Pattern	Languages	Quantity	Ratio
Representation 1	<div>ADD</div> <div>SCA</div> <div>UQ</div>	Antiguan Creole; Arabic; French; Ghomálá; Greek; Japanese; Korean; Latvian; Malay; Min (Yun'ao) Portuguese; Pular; Russian; Spanish; Swahili; Thai; Turkish	17/40	42.5%
Representation 2	<div>ADD</div> <div>SCA</div> <div>UQ</div>	Bengali; Hindi; Indonesian; Jin dialect; Kazakh; Kinyarwanda; Nuoso (Yi); Persian; Setswana; Shona; Tagalog; Tajik; Tibetan; Urdu; Uzbek; Vietnamese; Wu dialect; Zhuang	18/40	45.0%
Representation 3	<div>ADD</div> <div>SCA</div> <div>UQ</div>	Southwestern Mandarin	1/40	2.5%
Representation 4	<div>ADD</div> <div>SCA</div> <div>UQ</div>	Cantonese	1/40	2.5%

(The peripheral members of each pattern, namely German of Representation 1, Italian of Representation 2 and Min [Taipei] of Representation 3 are excluded from Table 4 in order to be concise.)

use the same form for ADD and SCA, but a separate item for UQ. In Xiang dialects, the same finding has been reported. For example, Xiao (2005: 101) states that in Changsha (長沙), Changning (常寧), Loudi (婁底), Xinhua (新化) and Hengshan (衡山), the scalar use is also expressed by an additive focus particle rather than the universal quantifier. All these cross-linguistic data strongly suggest that the concepts of universal quantification and scalar trigger are not universally connected, and chances are high that the presentation pattern of Mandarin Chinese is due to some language-specific development rather than language-universal reasons.

4 Diachronic Evidence

In this section, we will take a cursory look at the diachronic development of the markers for UQ and SCA in Chinese, aiming to examine the existing diachronic research evidence to see whether the development of Mandarin Chinese *dou* is due to language-specific reasons or due to some language-universal reasons, i.e. whether the process is mere happenstance in a particular language, or follows certain regularities that can be replicated across various languages.

Although Mandarin Chinese *dou* is widely studied in the synchronic perspective, discussions on historical relations between UQ *dou* and SCA *dou* have barely been touched upon. Only Zhang (2005), to the best of our knowledge, has examined the historical data and provided detailed analysis on the relations between UQ *dou* and SCA *dou* from a diachronic perspective.⁹

In what follows, we briefly introduce how the SCA *dou* derived from UQ *dou* as discussed in Zhang (2005).

When *dou* performs the function of “universal quantification”, it demonstrates that a certain property/action is satisfied by every member of the quantified plural arguments. In certain historical periods of Chinese, the plural arguments that appear in the subject position could be linked by a conjunction derived from a verb, like the word *lian* (連) ‘plus, to connect.’ In this case, the whole structure takes the form of “NP₁ *lian* NP₂ *dou* VP”. Historical records show that it is from this structure that the scalar trigger *dou* was derived (Zhang 2005).

As suggested by Zhang (2005), after *dou* had developed the function of universal quantifier, the quantified components might take diversified forms. The “NP₁ *lian* NP₂ *dou* VP” is one of them, where “NP₁ *lian* NP₂” literally means “the first thing, plus the second.” (12), (13) and (14) are examples from classical novels written in Early Mandarin:

- (12) 面頰連項都有疤痕。(《水滸傳》第69回)
 miànjiá lián xiàng dōu yǒu bāhén
 face connect with neck DOU have scar
 ‘There are scars all across the face and the neck.’

The verbal status of *lian* may still be retained in the above sentence, and *dou* acts to quantify the two arguments: “the face” and “the neck.” However, the two arguments do not carry the same weight semantically; that is to say, “the scars” exist primarily in “the face,” and reach “the neck” as a supplement location.

9 There are of course a lot more diachronic studies on Chinese *dou*, as discussed in Yang (1998), Ge (2005), Peyraube (2006) and Gu (2015). However, these pieces of research show how the UQ *dou* came into being, and what is the relation between *dou* as a universal quantifier and *dou* as modal adverb expressing the meaning of “completely,” which we can harmlessly ignore here.

Hu and Shi (2007: 76) also point out that “compared with NP₁, the connected NP₂ is mostly secondary to the speaker... NP₂ is often the unexpected or unconventional object to the speaker.” Therefore, NP₂ is more informative than NP₁. When NP₁ and NP₂ differ in the degree of informativeness, they are located at different points in the “scalar model,” which may easily trigger the pragmatic inference that we have discussed in the introductory part of the “scalar trigger” section. Therefore, due to the higher degree of informativeness provided by NP₂, “*lian* NP₂ *dou* VP” could entail “NP₁ *lian* NP₂ *dou* VP” from the perspective of pragmatic inference. Driven by the motivation of economy, the more concise form “*lian* NP₂ *dou* VP” wins out over the complete form “NP₁ *lian* NP₂ *dou* VP”, giving rise to a new structure, i.e., “*lian* NP₂ *dou* VP.” For instance:

- (13) 連我腳上穿的鞋都不見了。(《金瓶梅》第28回)
 lián wǒ jiǎo shàng chuān de xié dōu bú jiàn le
 including 1SG foot on wear AUX shoe DOU NEG see SFP
 ‘Even the shoes on my feet are not seen any more.’

With the frequent use of the structure “*lian* NP₂ *dou* VP,” the pragmatic mechanism of labeling the most unexpected object to trigger the scalar inference is absorbed by *dou*. Therefore, the structure “NP₂ *dou* VP” could independently express this inference with or without *lian*. As a result, the surface structure is further condensed by omitting *lian*, and at this point the scalar trigger *dou* comes into being.¹⁰

- (14) 纔知道鞋子都跌掉了。(《醒世姻緣》第3回)
 cái zhī dào xiézi dōu diē diào le
 only then know shoe DOU fall off SFP
 ‘Only then did (I) know that even (my) shoes had fallen off.’

From the above diachronic process, we find that there were two reanalysis operations in the development from UQ *dou* to SCA *dou*. During the reanalysis processes, the surface structure has been changed twice. In the first change, NP₁ was omitted and *lian* has undergone a grammaticalization from a conjunction to a preposition; in the second change, *lian* is omitted and the scalar meaning was shifted from the whole structure *lian* ... *dou* to the individual word *dou*.

The above-mentioned fine-grained diachronic analysis has widely been accepted in Chinese linguistics. Besides, as it is an independent study from our research, it serves as neutral evidence for us to conclude that the development from UQ *dou* to SCA *dou* can only be a language-specific phenomenon, because we cannot expect other languages to perform the same two omitting operations exactly as that of Chinese.

In fact, it is a prevalent fact in the field of typology that in most languages of the world, the scalar additive particles are mostly derived from the additive particles (König 1991, Gil 2004). So far, we have not found any reports in other languages which claim a universal quantifier has developed into an additive scalar function.

To further demonstrate why this language-specific change from UQ *dou* to SCA *dou* proves the two-*dou* claim, a reverse example explaining how language-universal change proves conceptual correlation is employed in the following discussion. Consider the example of English *have to* as shown in example (15).

¹⁰ For a more detailed discussion, the reader is referred to Zhang (2005).

- (15) A: Ingrid *has to* arrive before we do (because she promised to help with the preparations).
 B: Ingrid *has to* arrive before we do (because she set out an hour earlier). (Bybee and Pagliuca 1985: 74)

As is shown, *have to* can sometimes be ambiguous. In sentence (15A), it produces an obligation reading which is known as “deontic” modality; while in sentence (15B), it is compatible with an epistemic reading and known as “epistemic” modality. Bybee and Pagliuca (1985: 73) examined the historical data and argued that “the epistemic sense is a metaphorical extension of obligation to apply to the truth of a proposition: X (a proposition) is obliged to be true.”

“Metaphorical extension,” as stated above in the semantic change from deontic *have to* to epistemic *have to*, is usually deemed as a conceptual phenomenon, and thus often termed as “conceptual metaphORIZATION” (Traugott and Dasher 2001: 29). If we compare the conceptual metaphORIZATION process of English *have to* with the reanalysis process of Chinese *dou*, two major differences can be detected. (1) The metaphORIZATION process of *have to* is at the conceptual level whereas the reanalysis process of *dou* entails operations on the surface structure. (2) The reanalysis of *dou* involves processes of loss, while the grammaticalization of *have to* is mainly an extension from one conceptual domain to another conceptual domain without formal loss. If we put these two semantic change processes into a cross-linguistic canvass, it is easy to infer that the metaphORIZATION process, like that of *have to*, is more likely to be a cross-linguistic phenomenon; while the reanalysis process, like that of *dou*, is less likely to be observed across different languages. The reason is that different languages are comparable at the conceptual level but not at the structural level. Besides, as “loss is unpredictable and irregular” (Traugott and Dasher 2001: 39), the reanalysis process, such as that of *dou* which involves two operations of structural loss, is hard to be replicated across languages.

In fact, that metaphORIZATION works as a language-universal grammaticalization mechanism has long been verified. By reviewing the theoretical issues, Traugott and Dasher (2001: 75) stated that research on metaphor, or the metaphORIZATION process, actually starts from cross-linguistic studies, like Greenberg, Ferguson and Moravcsik (1978). So far, we have analyzed that metaphORIZATION can be cross-linguistic. In the following, we will employ historical syntax and grammaticalization studies across different languages on the field of modality to verify that a metaphorical process, such as that of *have to*, is indeed a cross-linguistic phenomenon. Throughout the recorded history of Chinese, we find lots of language forms similar to English *have to* which can express both the meaning of obligation and epistemic possibility. Sun (1996) and Yin (2014) examined the history of *de* (得) and *dang* (當), and concluded that both of these two forms developed their epistemic meaning from the deontic meaning. Yin (2014: 204) also analyzed how metaphor plays a part in the grammaticalization process. Apart from English and Chinese, many language forms in other languages can also perform both obligation and epistemic possibility. By examining 25 languages in the world, Bybee and Pagliuca (1985) generalized a cross-linguistic tendency that the obligation sense precedes the epistemic sense, and it is also clearly demonstrated that metaphorical extension is one of the important mechanisms in generalization.

The semantic change from “deontic” to “epistemic” recurs so often and across totally unrelated languages that such regularity is by no means an accident; it proves that deontic and epistemic are intrinsically bound, i.e. deontic and epistemic have universal conceptual correlations. Typological studies at the synchronic level have also proved this (Van der Auwera and Plungian 1998). This kind of typological finding can provide insights on many issues, including those that cannot be easily solved by a language-specific perspective. In this sense, if we are required to evaluate the relation between deontic *dang* and epistemic *dang* in Chinese, the answer is evident that they should be subsumed under one category.

By the above contrast between Chinese *dou* and English *have to*, we have illustrated how the diachronic semantic change of *dou* confirms the language-specific property of the connections between UQ *dou* and SCA *dou*, which again verifies the synchronic conclusion of the two-*dou* claim.

So far, the synchronic analysis, the cross-linguistic comparison and the diachronic development of *dou* all point to the same conclusion: the notions UQ and SCA are not universally connected. The behavior of Mandarin Chinese *dou* in employing the same form to denote these two notions is proved to be language-specific, which arises from an unusual reanalysis in the development. Therefore, UQ *dou* and SCA *dou* should be deemed as two different representations.

5 The Categorization of *Dou*

The reason why the categorization of *dou* has caused much controversy in Chinese linguistics is that the UQ function and the SCA function are a pair of conceptually different but pragmatically related functions. In the above we have proved from various perspectives that these two functions lack a universal connection; therefore, UQ *dou* should be recognized as distinct from SCA *dou*. In the following, we will present why the opposite one-*dou*-claim is problematic.

In the literature on *dou*, pragmatic theories are often evoked to provide a solution for inferring a UQ reading from the SCA use. Jiang (1998, 2009, 2011) and Xiang (2008) have illustrated from the perspectives of “scalar model” and “pragmatic scale” that scalar *dou* induces an ordered sequence of a set. By pointing to the member that is located at the end point of this scale, the *dou* sentence entails that the members that are located higher (or lower depending on the specific context) on the scale will all have the property as the scalar member that *dou* marks. That is how it connects to the UQ reading. To illustrate this point, Xiang (2008: 227) provides the following example:

- (16) 連傻瓜都知道這個。
 Lián shǎguā dōu zhīdào zhègè.
 even idiot DOU know this
 ‘Even idiots know this.’

Xiang indicates that “speakers can accent on the word *idiot* to emphasize on the intended message that everybody knows how to do it.” (ibid) However, in our opinion the scalar *dou* sentence does not intend to emphasize the universal quantification reading that “everybody” knows something. Instead, it is used to emphasize a specific member that is higher on this scale (most likely the reference is the listener in the conversation), in comparison to the scalar member—the “idiot,” is more likely to know this. A more explicit example that supports our account is from Xiao (2005: 99), which is also cited in Jiang (2011: 452).

- (17) A: 你知道活字印刷的發明者是誰嗎?
 nǐ zhīdào huó zì yìnshuā de fāmíngzhě shì shéi ma
 2SG know movable type printing AUX inventor COP who SFP
 ‘Do you know who is the inventor of the movable type printing?’

- B: 小學生都知道。
 xiǎoxuéshēng dōu zhīdào
 pupil even know
 ‘Even a pupil knows this.’

- (18) 小學生都知道（活字印刷的發明者是誰），
 xiǎoxuéshēng dōu zhīdào (huó zì yìnshuā de fāmíngzhě shì shéi)
 pupil even know movable type printing AUX inventor COP who
 ‘Even a pupil knows who is the inventor of the movable type printing.’
 （我知道的比小學生知道的多），
 (wǒ zhīdào de bǐ xiǎoxuéshēng zhīdào de duō)
 1SG know AUX CM pupil know AUX more
 ‘What I know is more than what a pupil knows,’
 （所以，我當然知道活字印刷的發明者是誰）。
 (suǒyǐ, wǒ dāngrán zhīdào huó zì yìnshuā de fāmíngzhě shì shéi)
 therefore 1SG sure know movable type printing AUX inventor COP who
 ‘Therefore, of course I know who is the inventor of the movable type printing.’

The above instance clearly demonstrates that there is a syllogistic chain which lets us attain the pragmatic inference of *dou*. In this syllogistic chain, “pupil” is set as an extreme member of the scale, from which the property of another particular member on the scale (the reference is “I” in the above utterance) is deduced. Therefore, it is not the whole complementary set of {pupil} that is focused; instead, it is a particular intended member in the complementary set that is in focus. In this sense, we can find that the SCA *dou* is still an existential operator in nature, and it is different from the UQ *dou*. Therefore, we do not think it suitable to regard SCA as a pragmatically reinforced subtype of UQ.

Based on the evidence from synchronic data and a diachronic survey, we have demonstrated that UQ and SCA lack a universal conceptual correlation and the semantic derivation of *dou* from UQ to SCA is due to a particular reanalysis process. Therefore, no direct conceptual correlation exists between *dou* that expresses the UQ function and *dou* that expresses the SCA function. Besides, we have also demonstrated from the opposite angle that it is inappropriate to see SCA as a special case of UQ as the focus of the SCA expression is a particular member on the scale rather than the whole set. In these two approaches, we prove that the UQ *dou* and the SCA *dou* should be regarded as two distinct *dous* in Chinese.

6 Discussion

In this research, we have provided an account for the long-standing puzzle about how many *dous* there are in Mandarin Chinese and how the different functions of *dou* are conceptualized in the same language. Based on the first-hand data from 40 languages, we show that employing the same form for UQ and SCA is an exclusive phenomenon in Mandarin Chinese. No other language or dialect exhibits the same behavior. The empirical data strongly suggests that UQ *dou* and SCA *dou* are different. This claim is further supported by the diachronic development of *dou*, from which we argue that *dou* absorbs the scalar semantics through two reanalysis processes and this change is highly language-specific rather than language-universal.

The process of identifying the uniqueness of Mandarin *dou* has also demonstrated the advantage of a cross-linguistic comparison. In fact, only by fully understanding universality shared by different languages can one best recognize the particularity in specific language. The cross-linguistic comparison is just one of the best candidates to cater for this goal. Besides, this perspective can also help us evaluate existing proposals and even make predictions for future work. From the cross-linguistic perspective, we can tell whether or not a generalization is at the right level of generality. As pointed out by Haspelmath (1997: 7), “cross-linguistic studies can help steer us through the Scylla of overgeneralization and the

Charybdis of undergeneralization.” Sometimes one is prone to explain a language-particular phenomenon by a high-level generalization. Alternatively, one may erroneously invoke a low-level generalization to account for a language-universal phenomenon. With a cross-linguistic perspective, however, we can avoid this kind of wrong prediction. If the cross-linguistic data converge to show a common regularity, we may seek to account for it based on universal factors; on the other hand, if a phenomenon is only found in an individual language, then a particular explanation is called for (*ibid.*). In this sense, the cross-linguistic exploration on *dou* as shown above can also predict if on-going research is on the right track. For instance, an account at the language-specific level is believed to be the more fruitful direction than its counterpart for research inquiries that involve the relation of UQ *dou* and SCA *dou*.

Apart from the uniqueness of Mandarin Chinese *dou*, Cantonese *dou* is also identified to present very rare semantic behaviors. Cantonese *dou* can not only deliver the functions of UQ and SCA by one form, but also it can express the function of ADD as well. Naturally, we may raise a question about the origin of this ADD function. Does it reflect a natural semantic extension, or is it merely a stand-in for the vanished *ye* in Cantonese? Szabolcsi, Whang and Zu (2014: 148) pose a similar query: “We do not know whether the gap in Mandarin is due to the blocking effect of *ye* ‘also, even’ or, conversely, *dou* spills over to fill a vacant spot in the absence of *ye* in Cantonese.” However, no further discussion is offered in their research. Peng and Chen (2010: 109) argue that Cantonese *dou* expressing additive focus is a rather recent phenomenon, and it is derived from the universal quantification use of *dou*. However, this derivation is admitted by the authors to be uncommon, as it deviates from the widely accepted mechanisms of grammaticalization. Apart from Cantonese *dou*, we have also found a parallel circumstance in a reference grammar of the Lachi language (Li 2000), where it is shown that *la*³¹ can also express the three concepts all by itself. However, evidence is insufficient for us to tell whether this circumstance is due to conceptual correlation or simply a historical incident induced by non-conceptual factors. We believe this line of inquiry deserves further pursuit.

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Abbreviations

1	first person
2	second person
3	third person
ADD	additive focus
AUX	auxiliary
CLF	classifier
CM	comparative marker
COP	copula
N.SCA	NPI scalar trigger
NEG	negative
NPI	negative polarity item

P.SCA	PPI scalar trigger
PFV	perfective
PL	plural
PPI	positive polarity item
PRT	particle
SCA	scalar trigger
SFP	sentence final particle
SG	singular
UQ	universal quantification

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跨語言視域下現代漢語「都」的分類

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摘要

與其他世界語言中典型的全稱量詞相比，漢語普通話里的「都」有更為複雜的語義表現。長期以來，普通話中表全量的「都」與表極端的「都」之間的關係始終是學界爭論的焦點之一。來自世界語言中不同語系的40種語言的一手調查資料顯示，普通話是這40種語言中唯一一個用同一語法形式來表達（且僅表達）「全量」和「極端」這兩個概念的語言。這一發現說明「全量」與「極端」這兩個概念之間在很大程度上並不存在跨語言普遍存在的概念關聯。除了共時類型學的材料之外，歷時語法化的研究成果也驗證了表全量的「都」發展出表極端的「都」只是特定語言在形式層面重新分析的特定的語法化現象。由於跨語言層面上「全量」與「極端」缺乏普遍概念關聯，以及全量「都」到極端「都」語言演化過程的特定性，普通話中全量「都」與極端「都」應當視為不同的兩個「都」。通過對普通話「都」這一個例的探討，文章進一步指出了跨語言視角在解決單一語言內部問題上的功用，即在面對一些長期未能解決的問題上，跨語言視角可以輔助避免過度概況和不充分概括，為做出契合的分析提供重要的參考。

關鍵詞

都、全量、極端、跨語言比較