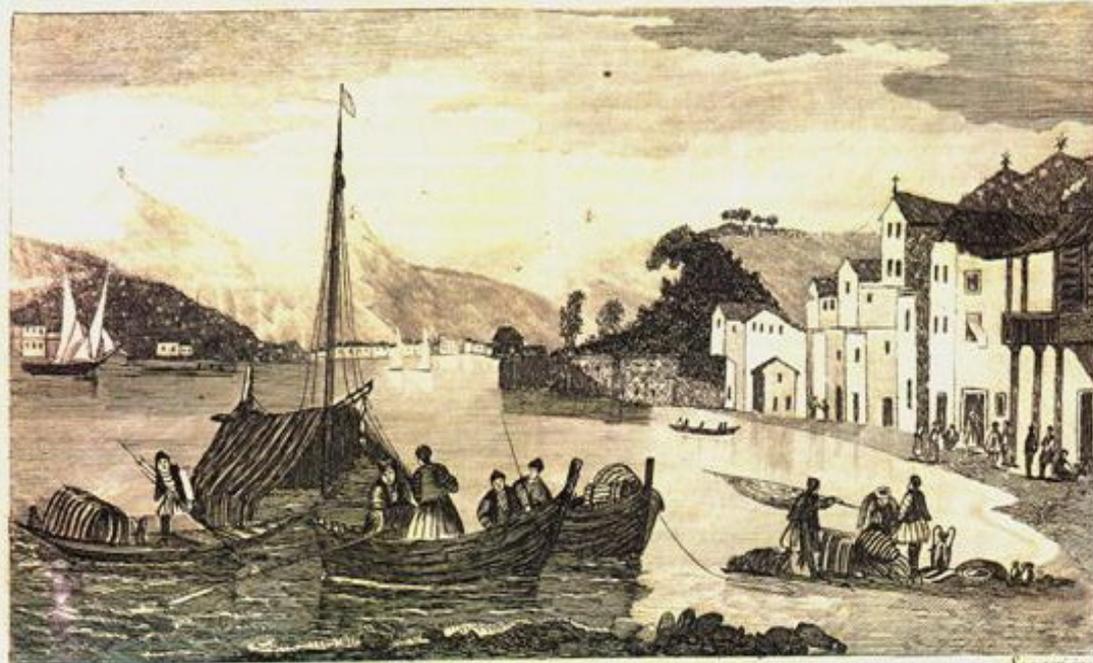


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Classification of Chinese compounds

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1. Introduction

This article, developed within the Morbo/comp project on compounds², aims at contributing to a widening of the debate on the classification of Chinese compounds and their internal structure initiated by Ceccagno and Scalise (2006). To this end, we will briefly introduce the existing classifications put forth by different scholars for compounds and in particular we will focus on the approaches proposed for Chinese compounding.

We will then discuss how to apply to Chinese the classification for compounds argued for by Bisetto and Scalise (2005). After highlighting some shortcomings of this classification with respect to Chinese compounds, we will propose a refinement of it through a new definition of the three macro-types proposed by the two authors.

We will present a new table of Chinese compounds based on an analysis of a corpus of neologisms³.

2. Classification Schemes for Compounds

Compounds have received much attention in recent years; several proposals for classification have been put forth in the current literature. One of the most prominent problems in compound taxonomy has been the heterogeneousness of the adopted criteria. Most of the classification schemes (Spencer, 1991, Bauer, 2001, Haspelmath, 2002, Booij, 2004 among many others) exhibit a flat structure, since different criteria have been put on the same level: for example, grammatical relations between the constituents are at the same classification level with presence or absence of lexical head (i.e. coordination and subordination are put on the same level with endocentricity and exocentricity). This has been discussed in detail by Bisetto and Scalise (2005; forthcoming).

In order to avoid the described shortcomings, Bisetto and Scalise (2005) propose a new classificatory scheme based on hierarchical arrangement of homogeneous criteria, following the

¹ The general outline of the work was discussed jointly by the authors, however Bianca Basciano is responsible for sections 1, 2, 3, 4.1.1, 4.1.2 and Antonella Ceccagno for sections 4.1.2, 4.2, 4.3, 5.

² The Morbo/Comp project based in Bologna is led by Sergio Scalise. It concerns the analysis of compounds in some thirty languages, distributed in such a way as to cover the six macro-areas that have been identified by recent typology (cf. Dryer 1992). To present, fifteen languages have been studied, for a total in excess of 70.000 compounds. Cf. <http://morbocomp.sslmit.unibo.it/index.php?section=home>

³ The database consists of 1077 neologisms, presented as a separate section in *The Contemporary Chinese Dictionary* (2002). In our analysis for reasons of simplicity we have chosen to focus on dysyllabic words, excluding words with more than two syllabs (368). The analysis of the compounds is presented in Ceccagno and Basciano (forthcoming a).

path of earlier classifications introduced by Bloomfield (1933), Bally (1965) and Marchand (1969). Bisetto and Scalise (2005) identify three macro-types in compounding, i.e. subordinate, attributive and coordinate. Each type may be endocentric (with a lexical head) or exocentric (without a lexical head). Besides, Scalise and Guevara (2006) distinguish between categorial and semantic head. The categorial head is “the constituent which shares with – and percolates to – the whole compound all of its formal features: lexical category and subcategorization frame”. The whole compound, thus, is expected to have the same distributional properties of its categorial head. The semantic head “is the constituent which shares with – and percolates to – the whole compound all of its lexical/ conceptual information. The whole compound, thus, is expected to be a hyponym of its semantic head”. According to the authors, an endocentric compound has at least one categorial head and at least one semantic head (the two must coincide).

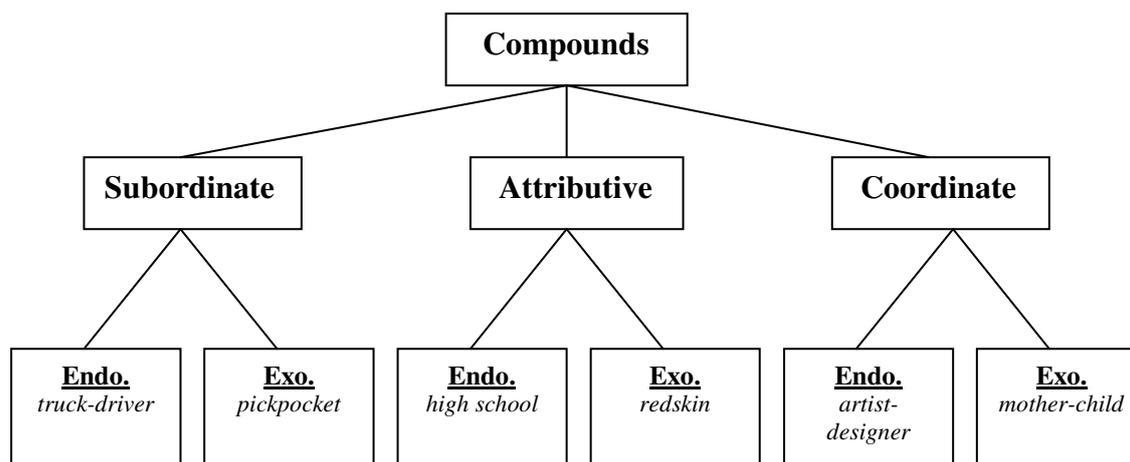
According to Bisetto and Scalise (2005), each macro-type is characterized by a different grammatical relation between the constituents of the compounds. Subordinate compounds (SUB) entail a relation of complementation between the head and the non-head. This is clear in compounds with a deverbal head constituent, such as *truck-driver*. A similar relation can be found in compounds that do not have a deverbal head, for example [N+N] compounds where the constituents are typically linked by what they call an ‘of-relation’, as in *doorknob* (‘knob of a door’), or by other clearly subordinating relations, as in *catfood* (‘food for cats’).

Attributive compounds (ATT) are those in which the constituents are linked by a relation of attribution. The prototypical case involves compounds in which the first constituent is an adjective, as in *high school*. Other structural types are found as well, for instance [N+N] attributive compounds, in which the non-head is used as a metaphoric attribute of the head, as in *swordfish* (‘fish with a *sword-like* snout’) and not as a mere complement of it (*fish of a sword, fish for a sword).

In coordinate compounds (CRD) the constituents are linked by a coordinating relation. This relation can be a conjunctive natural coordination, as in *artist-designer*. However, in other languages we can find other types of coordination as well, as we will see for Chinese coordinate compounds.

Figure 1 summarizes the classification scheme presented in Scalise and Guevara (2006):

Figure 1 – Classification of Compounds



3. Theoretical Approaches in Analysing Chinese Compounds

Different approaches have been adopted also in the analysis of Chinese compounds (for a detailed description of the approaches and a criticism of them, see Packard, 2000; Ceccagno and Scalise, 2006). One approach describes compounds in terms of the relationship running between the two constituents of a compound. Xia (1946, in Pan, Yip and Han, 1993) identifies four kinds of relationship: ‘meaning limiting’, ‘oppositional’, ‘modification’ and ‘cause-effect’.

Another approach is represented by the modification structure description: compounds can be analysed on the basis of the modification relationship between the constituents. The modification structure can take a juxtapositional form, where neither constituent has a modifying or subordinate relation to the other, or a hierarchical form, with one constituent modified by and therefore structurally dominating the other (this approach has been discussed in Packard, 2000. For a detailed discussion of the many types of semantic relations between the modifying and modified constituent of nominal compound words, see Li and Thompson, 1981).

Compounds can also be analysed through a semantic approach, i.e. by describing how the meaning of the whole word is built up from the meanings of its parts.

One widespread approach is the syntactic description: compounds constituents are regarded as having the same identities as the syntactic constituents that make up a sentence (e.g. subject and object). The first who fully developed syntactic description in analysing Chinese compounds are Chao (1948) and Lu (1964), but over time this approach has expanded and has been adopted by others with slight modifications (Chao, 1968; Tang, 1989, among others)⁴. Following Tang classification (1989, cit. in Yu, 2003), compounds are divided into: subject-predicate; modifier-head; verb-object; verb-complement; coordinate construction (where, it should be noted, the highlighted relation between the components is semantic, not syntactic).

⁴ The types of compound are those described by Tang (1989) cited by Yu (2003).

Packard (2000) adopts a form class description. His approach is essentially based on the priority of the lexical category of the compound word with respect to the categories of the constituents. Ceccagno and Scalise (2007) point out that this approach is hard to integrate in a theory of morphology because according to the lexicalist theory it is the head that confers the category to the whole of the compound and not viceversa. Besides, in actual practice, when analysing compounds Packard very often cannot avoid referring to other types of information.

Ceccagno and Scalise (2007) propose that the whole set of category, functional and semantic levels has to be taken into account for an exhaustive analysis of compounds: “an analysis capable of identifying: the lexical category of the constituents, their grammatical relationship and therefore the classification of the whole compound, the semantics of the constituents, the semantics of the compound and the position of the head (if any)”. They posit that in the absence of one of these aspects the analysis is incomplete if not misleading.

4. A New Classification of Chinese Compounds

In analysing Chinese compounds we first adopted the classification scheme argued for by Bisetto and Scalise (2005). However, in our view, the proposed distinction between subordinate and attributive compounds does not seem to be clear enough. In fact, following this classification scheme a number of Chinese compounds do not easily fit in one or the other macro-type. For example, [V+N] compounds, as 賣場 *màichǎng* ‘sell + large place where people gather for a specific purpose = big marketplace *for* selling commodities’, and [N+V] compounds, as 函售 *hánshòu* ‘letter + sell = order by mail’, show a relation between the constituents that is hardly attributable to one or the other macro-type if we follow the macro-types’ description argued for by Bisetto and Scalise (2005).

Therefore a more detailed description of the macro-types’ classification is needed. After discussing some problematic examples in our database we shall propose a stricter definition of the macro-types within the proposed classification scheme.

4.1 Classification Issues

4.1.1 [V+V]_V Compounds Across Macro-types

Compounds with the same structure can show different relations between the constituents. This is evident, for instance, in [V+V]_V compounds which can be classified in all three macro-types on the basis of the relation between the two constituent verbs. However, sometimes it is not simple to establish the macro-types in which to include some of these compounds.

The prediction of the syntactic and semantic relation between the two constituents of [V+V] compounds in Chinese represents a very challenging topic of research, also because compound

verbs lack morphological markings (cf. Chan, Chen and Huang, 2000; Chang and Chen, 1999, among others)⁵. For this reason, we have to focus on the interpretation of the whole compound. For example, the compound 競買 *jìngmǎi* ‘compete + buy’ could be classified as coordinate, ‘compete and buy’, but the meaning of the compound, ‘compete to buy’, makes it clear that the relation between constituents is of the subordinate type (‘serial verbs’), in which case the constituent on the left acts as the head of the compound. The relation between the two constituents is of the verb-complement subordinate type.

The same is true for 拒載 *jùzài* ‘refuse + carry = (of a tax driver) refuse to take a passenger’, where the meaning of the whole compound makes clear that the event expressed by the verb on the right depends on that expressed by the verb on the left, so that the compound is a subordinate verb of the serial verbs type.

An attributive interpretation is possible for [V+V]_V compounds as well. For compounds such as 躍升 *yuèshēng* (‘leap + rise’) native speakers provide the interpretation of 躍進式升長 *yuè jìn shì shēng zhǎng* ‘rise in form of leaps’. This leads us to consider this type of compound as right-headed attributive compounds in which the left constituent acts as a modifier.

In conclusion, on the basis of the corpus of neologisms analysed in Ceccagno and Basciano (forthcoming a), it can be stated that Chinese [V+V]_V compounds can cover the entire spectrum of macro-types: they can be coordinate compounds, in which the two constituents are linked by a coordinating relation, be it of conjunction, as in 推展 *tuīzhǎn* ‘recommend + exhibit = recommend and exhibit for sale’, or synonymy, as in 操控 *cāokòng* ‘control + control = operate and control’; furthermore, Chinese exhibit right-headed attributive compounds, in which the non-head verb constituent acts as a modifier of the head, as in 躍增 *yuèzēng* ‘leap+ increase/add = grow by leaps’; finally Chinese shows left-headed subordinate compounds, both of the resultative type⁶, as in 入住 *rùzhù* ‘come into/enter + live/stop = move into’, and of the ‘serial verbs’ type⁷, as in 競賣 *jìngmài* ‘compete + sell = compete to sell’.

⁵ The same difficult of interpretation is found in syntax too, where a sequence of two verbs without any overt subordinative or coordinative markers is often ambiguous and can generate different interpretations (Li & Thompson, 1981, Paul, 2006 among others).

⁶ Resultative constructions have been widely studied in literature. Lin (1990), Li (1990), Cheng (1997), Packard (2000), Li (2005) and Sun (2006) all seem to assume that these constructions exhibit a verb-complement relation, where the resultative verb (on the right) acts as a complement of the verb on the left. As highlighted by Li (2005), Levin and Rappaport (1995) provide evidence that English resultatives consist of a verb taking a complement XP: in a resultative construction the result phrase is in the complement position. This supports the analysis of resultative compounds as left-headed. A different analysis of Chinese resultative constructions has been put forth by Starosta et alii (1998), who consider resultative verbs as derivate words headed by the resultative suffix on the right.

⁷ Serial verbs compounds are modelled on the syntactic structure of serial verbs constructions in Chinese, where the event expressed by the verb on the right depends on that expressed by the verb on the left, so that they are considered left-headed compounds. As far as we know, this kind of compound has never been discussed in literature, which has focused instead on resultative compounds (often referred to as resultative serial verbs constructions). What we call serial verb compounds show the same relation

4.1.2 Subordinate and Attributive [N+V]_V Compounds

Chinese [N+V]_V compounds do not easily fit in the macro-types' description provided by Bisetto and Scalise (2005). For this reason, in their analysis of Chinese compounds, Ceccagno and Scalise (2006), sometimes classify these structures as subordinates, e.g. 筆伐 *bífá* 'writing brush + attack = condemn or denounce in writing', sometimes as attributives, e.g. 口算 *kǒusuàn* 'mouth + calculate = do a sum orally'. Actually both compounds, apart from sharing the same structure, also share the same relation between constituents - the noun is an adjunct of the verb. Therefore they need one and the same classification.

While the attributive interpretation is unequivocal for compounds with a [N+V]_V structure, such as 升 *biāoshēng* 'whirlwind + rise = (of price, quantities) soar', for other types of compounds, 函售 *hánshòu* 'letter + sell = order by mail', the classification appears to be more problematic. The noun constituent acts as an adjunct⁸ which modifies the verb.

We therefore propose to classify [N+V]_V compounds as attributives where the noun constituent acts as a modifier of the head. According to Ceccagno and Basciano (forthcoming a), subordinate verbs are all left-headed (or exocentric), whereas right-headed verbs can only be found in attributive compounds. This could be a further -structural- justification in favour of classifying these compounds as attributives⁹.

4.1.3 Subordinate and Attributive [V+N]_N Compounds

In Chinese, [V+N]_N compounds, despite having the same structure and the same output category, can entail different relations between the constituents. For instance, 文胸 *wénxiōng* 'cover up + breast = bra' is an exocentric compound in which the constituents have a verb-argument relation, while 飄塵 *piāochén* 'float + dust = floating dust' is a right-headed compound where the verb constituent modifies the head. We therefore classify the first type as subordinate (exocentric) compounds, while list the second as attributive (endocentric) compounds. In fact, unlike subordinate compounds with [V+N]_N structure, in the case of attributive nouns with [V+N]_N structure the interpretation of the compounds coincides with that of the noun constituent (that acts as the head); in this case the non-head constituent (i.e. the verb) specifies a feature of the head. For instance, 賣場 *màichǎng* is a 'square' where people

between the constituents as that shown by syntactic serial verb purpose clause and complement clause constructions (Li & Thompson, 1981).

⁸ As for verbal phrases, Chinese exhibits a (left-headed) VO order with direct internal argument, but constructs adjuncts to the left (head on the right). Therefore the [N+V]_V structure, with the noun being an adjunct, is perfectly in line with the syntactic order of Chinese.

⁹ As discussed in Ceccagno and Basciano (forthcoming a, forthcoming b), Chinese is a language with three head position in compounding, since it consistently forms right-headed compounds (noun, verbs and adjectives), left-headed compounds (subordinate verbs) and two-headed compounds (coordinate compounds).

sell. Therefore, while in $[V+N]_N$ subordinate compounds the verb constituent confers a thematic role and the compound receives an agentive, locative, instrumental or eventive interpretation, in $[V+N]_N$ attributive compounds the verb acts as a modifier of the head.

This type of attributive compound too, just like those with an adjective modifier, exhibit the same order of the Chinese syntax, where the nominal phrase is left-branching. In particular, in $[V+N]_N$ attributive compounds the constituents follow the syntactic order of the noun phrase where a relative clause precedes the noun head.

The case of $[V+N]_N$ compounds also highlights the importance of analysing all of the aspects of a compound, discussed in 3. When some aspects are neglected, one can reach the same wrong conclusion as Huang (1998) who concluded that: “[...] Chinese is a headless language in its morphology since neither the rightmost nor the leftmost member of a compound uniquely determines the category type of a compound”¹⁰. Huang reached this conclusion after analysing the output categories of a substantial corpus of Chinese disyllabic compounds. He observed that compounds with the same structures can have different output categories. For example, $[V+N]$ compounds can be nouns as well as verbs, and sometimes adjectives. What Huang failed to consider is the relation between the constituents. In fact, the position of the head also depends on the relation running between the two constituents. As we have seen, in a compound such as 賣場 *màichǎng* ‘to sell + place = big marketplace for selling commodities’, with a $[V+N]_N$ structure, the head is the noun constituent and the verb acts as a modifier, i.e. ‘the place in which one sells’. On the other hand, in a $[V+N]_V$ compound, such as 投資 *tóuzī* ‘to put + money = to invest’, the head is the left constituent, the verb, while the noun acts as its internal argument. Finally, a $[V+N]_N$ compound such as 監事 *jiānshì* ‘supervise + matter/responsibility = supervisor’ has the same structure and the same output category as the compound in the first example, but the relation between the constituents is completely different: it is an exocentric compound where the constituents have a verb-argument relation. The examples highlight that not only input and output categories are important, but also the relation between the constituents contributes to determine the position of the head in a compound.

4.2 Classification of Chinese Compounds

The issues discussed above highlight the need for a better definition of the macro-types. While adopting the classification scheme argued for by Bisetto and Scalise (2005), we propose a new description of macro-types.

Subordinate compounds (SUB) are those in which constituents have an argument-head (or head-argument) relation. A first type shows either a verbal or deverbal head which projects an argument satisfied by the non-head constituent. Moreover, we consider subordinate compounds

¹⁰ For a critical analysis of Huang’s positions see Ceccagno and Scalise (2007).

also those compounds that show a verbal head that takes a verb as its complement. Examples are presented below:

- (1) 毒販 *dúfàn* [N+N]_N ‘drug + vendor = drug trafficker’
 (2) 禁毒 *jìndú* [V+N]_V ‘prohibit + poison = ban the production, sale and abuse of drugs’
 (3) 攀高 *pāngāo* [V+A]_V ‘climb + high = climb up; rise
 入住 *rùzhù* [V+V]_V ‘come into/enter + live/stop = move into’
 (4) 拒載 *jùzài* [V+V]_V ‘refuse + carry = (of a tax driver) refuse to take a passenger’

毒販 *dúfàn* (1) is a compound with a deverbal head, where the leftmost constituent acts as its argument.

禁毒 *jìndú* (2) is a verbal compound of the verb-object type, where the leftmost constituent is the head of the compound and the noun acts as the internal argument of the verb.

攀高 *pāngāo* and 入住 *rùzhù* (3) are verbal compounds of the resultative type, in which the non-head constituent is in a complement relation with the head constituent, specifying the result produced by the event of the head (the left constituent).

拒載 *jùzài* (4) is a compound of the serial verbs type, in which the event expressed by the verb on the right depends on that expressed by the verb on the left.

As highlighted by Ceccagno and Basciano (forthcoming a), subordinate nominal compounds are right-headed while subordinate verbal compounds are left-headed.

A second type of subordinate compound shows a relational noun as head, where the non-head acts as a semantic argument saturating the noun head, as in:

- (5) 警嫂 *jǐngsǎo* [N+N]_N ‘police + sister = respectful term for a policeman's wife’
 (6) 價差 *jiàchā* [N+N]_N ‘price + difference = price difference’.

Attributive compounds (ATT) are those in which the constituents have a modifier-head¹¹ relation. These can be compounds where:

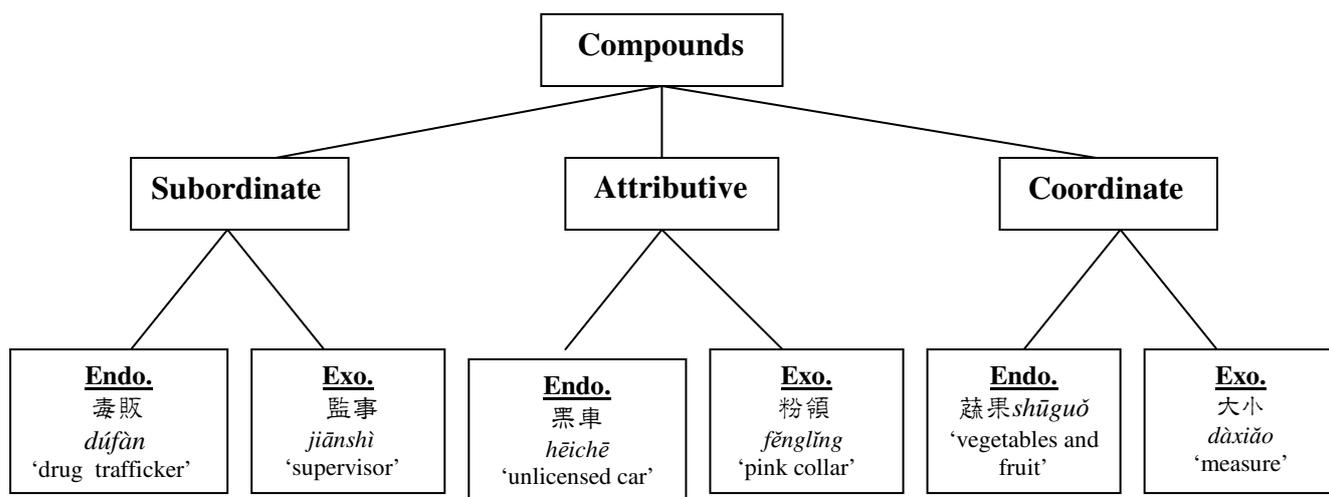
- 1) the non-head is an adjective or a noun which expresses a property of the head, as in 黑金 *hēijīn* [A+N]_N ‘black/illegal + money = money used for bribery and other illegal activities within official circles’ or 天價 *tiānjià* [N+N]_N ‘sky + price = prohibitive price’;
 2) the non-head constituent acts as an adjunct modifying the head, as in 口算 *kǒusuàn* [N+V]_V ‘mouth + (to) do a sum = (to) do a sum orally’;
 3) a verbal non-head acts as a modifier of the head, as in 賣場 *màichǎng* [V+N]_N ‘sell + large place where people gather for a specific purpose = big marketplace for selling commodities’.

¹¹ A similar distinction between ‘argument-head’ (or ‘argument-predicate’) and modifier-head has been proposed for English by Giegerich (2004) and Plag et alii. (2007) among others.

Coordinate compounds (CRD) are those which show a logical coordination between the constituents ('and'), as in 新銳 *xīnrùi* [A+A]_A 'new + sharp = new and sharp', or a semantic relation of synonymy, as in 勝績 *shèngjì* [N+N]_N 'victory + achievement = win/victory'; antonymy, as in 呼吸 *hūxī* [V+V]_V 'exhale + inhale = breath'; redundancy, as in 松樹 *sōngshù* [N+N]_N 'pine + tree = pine tree'; reduplication, as in 天天 *tiāntiān* [N+N]_{Adv} 'day + day = every day'.

Figure 2 shows the classification scheme illustrated with Chinese examples.

Figure 2- Classification of Chinese Compounds



4.3 Structures of Chinese Compounds

The new classification scheme, enables us to present a table of Chinese compounds, which includes all the different types of compound emerged from the analysis in Ceccagno and Basciano (forthcoming a). Table 1 illustrates an example for each available type of compound. The table shows the compound, its transcription in *pinyin*, output category, internal structure, classification, position of the head, glosses and translation¹².

Table 1 – Types of compound

LEGEND: A= adjective, V= verb, N= noun, Adv= adverb

COMPOUND	PINYIN	CLASS	STRUCT	CAT	HEAD	GLOSS
房型	fángxíng	SUB	[N+N]	N	right	house + model = layout of a house
市道	shìdào	SUB	[N+N]	N	exocentric	market + way = market prices

¹² While most of the compounds are the neologisms from the corpus analysed in Ceccagno and Basciano (forthcoming a), compounds in gray are those presented by Ceccagno and Scalise (2006) from a more traditional corpus, not found among the neologisms analysed by Ceccagno and Basciano.

Classification of Chinese compounds

樓花	lóuhuā	SUB	[N+V]	N	exocentric	floor + spend/use = building that is put up for sale before it is completed
監事	jiānshì	SUB	[V+N]	N	exocentric	supervise+ matter/responsibility = supervisor
待崗	dàigǎng	SUB	[V+N]	V	left	wait for + post = wait for a job
割肉	gēròu	SUB	[V+N]	V	exocentric	cut with a knife + meat = sell sth at a price lower than its original price
攀高	pāngāo	SUB	[V+A]	V	left	climb + high = climb up; rise
入住	rùzhù	SUB	[V+V]	V	left	come into/enter + live/stop = move into
拒載	jùzài	SUB	[V+V]	V	left	refuse + carry = (of a tax driver) refuse to take a passenger
膽小	dǎnxiǎo	SUB	[N+A]	A	exocentric	guts/ courage + small = coward
失范	shīfàn	SUB	[V+N]	A	exocentric	lose/deviate from the norm + model = irregular
天價	tiānjià	ATT	[N+N]	N	right	sky + price = prohibitive price
色狼	sèláng	ATT	[N+N]	N	exocentric	lust + wolf = sex maniac
婚介	hūnjiè	ATT	[N+V]	N	exocentric	wedding + introduce = matchmaking
飄塵	piāochén	ATT	[V+N]	N	right	float + dust = floating dust
蹦床	bèngchuáng	ATT	[V+N]	N	exocentric	jump + bed = trampoline
速遞	sùdì	ATT	[A+V]	N	exocentric	fast + hand over/pass = express delivery
黑車	hēichē	ATT	[A+N]	N	right	black/illegal + vehicle = unlicensed car
黃毒	huángdú	ATT	[A+N]	N	exocentric	yellow/pornographic + poison = pornographic books
互動	hùdòng	ATT	[Adv+V]	N	exocentric	mutually + move = interaction
升	biāoshēng	ATT	[N+V]	V	right	whirlwind + rise = (of price, quantities) soar
品讀	pǐndú	ATT	[V+V]	V	right	decide with discrimination + read = read carefully; ponder on
航拍	hángpái	ATT	[V+V]	N	exocentric	navigate (by water or air) + take a photograph = aerial photograph

完勝	wánshèng	ATT	[A+V]	V	right	whole + win victory = win a complete victory
突審	tūshěn	ATT	[Adv+V]	V	right	unexpectedly + interrogate = interrogate sb. by surprise
利淡	lìdàn	ATT	[A+A]	N	exocentric	favourable + weak= unfavourable information for the market which may lead to a fall in prices
雪白	xuěbái	ATT	[N+A]	A	right	snow + white = white like the snow
高發	gāofā	ATT	[A+V]	A	exocentric	high/above the average + deliver = frequent
花心	huāxīn	ATT	[A+N]	A	exocentric	attractive but unreal or insincere + heart = unfaithful
統合	tǒnghé	ATT	[Adv+A]	A	right	all/totally + whole = uniform/overall
頻密	pínmì	ATT	[Adv+A]	A	exocentric	frequently + close/dense = frequent
梯次	tīcì	ATT	[N+N]	Adv	exocentric	steps + order = by echelon or by group/ in order of age, size, etc.
蔬果	shūguǒ	CRD	[N+N]	N	two-headed	vegetables + fruit = vegetables and fruits
東西	dōngxī	CRD	[N+N]	N	exocentric	east + west = thing
峯位	fēngwèi	CRD	[N+N]	N	right	peak + place = peak
警示	jǐngshì	CRD	[V+V]	N	exocentric	warn + show = warning
高矮	gāoǎi	CRD	[A+A]	N	exocentric	high + low = height
	yánfā	CRD	[V+V]	V	two-headed	research/study + develop = research and develop
疏離	shūlí	CRD	[V+V]	V	exocentric	scatter/not familiar + be away from= be estranged and keep apart
亮麗	liànglì	CRD	[A+A]	A	two-headed	bright + beautiful = brilliant/bright and beautiful

5. Conclusions

In this article we have adopted the classification scheme put forth by Bisetto and Scalise (2005) - based on hierarchical arrangement of homogeneous criteria- where three macro-types in compounding (subordinate, attributive and coordinate) are identified.

While highlighting some issues of Chinese compounds, shortcomings of the adopted classification scheme have emerged. Therefore we have proposed a new scheme with stricter definition of the macro-types.

Finally, we have presented a new table, which presents all the different types of Chinese compounds emerged from the corpus of neologisms analysed by Ceccagno and Basciano (forthcoming a); in this table Chinese compounds have been classified according to the NEW classification scheme proposed in this article.

REFERENCES

- Bally, C. (1944). *Linguistique générale et linguistique française*, 2. ed. Berne: Francke.
- Bauer, L. (2001). *Compounding*. in M. Haspelmath *et al.* (eds.), *Language Typology and Language Universals*. Vol. I, Berlin: Walter de Gruyter, 695-707.
- Bisetto, A., and Scalise, S. (2005). Classification of Compounds. *Lingue e Linguaggio*, 2, 319-332.
- (forthcoming). Classification of Compounds. In R. Lieber and P. Stekauer (eds.), *The Handbook of Compounding*. Oxford University Press.
- Bloomfield, L. (1933). *Language*. New York, Holt.
- Booij, G. (2004). 'Compounding and derivation: evidence for Construction Morphology', in W. U. Dressler *et al.* (eds.) *Morphology and Its Demarcation*. Selected papers from the 11th Morphology Meeting, Vienna, February 2004, Amsterdam/Philadelphia: John Benjamins, 109-132.
- Ceccagno, A., and Basciano, B. (forthcoming a). Compound Headedness in Chinese: An analysis of Neologisms. *Morphology*.
- (forthcoming b). Chinese compounding. In R. Lieber, P. Stekauer (eds.). *The Handbook of Compounding*. Oxford University Press.
- Ceccagno, A., and Scalise, S. (2006). Classification, Structure and Headedness of Chinese Compounds. *Lingue e Linguaggio*, 2, 233-260.
- (2007), 'Composti del cinese: analisi delle strutture e identificazione della testa', in A. Palermo (ed.), *La Cina e l'altro*. Napoli: Università degli studi di Napoli 'L'orientale': 503-543.
- Chang, L.-L., and Chen, K.-J. (1999). 動詞詞構與語法功能互動初探 *Dòngcí cí gòu yǔ yǔfǎ gōngnéng hùdòng chū tàn*. *Proceedings of the 12th Research on Computational Linguistics*. Tsinchu, Taiwan: 67-85.
- Chang, L.-L., Chen, K.-J., and Huang, C.-R. (2000). A Lexical-Semantic Analysis of Mandarin Chinese Verbs: Representation and Methodology. *Computational Linguistics and Chinese Language Processing*. Vol. 5, No. 1, February 2000: pp. 1-18.
- Chao, Y. R. (1948). *Mandarin Primer: an Intensive Course in Spoken Chinese*. Cambridge, Mass: Harvard University Press.
- (1968). *A Grammar of Spoken Chinese*. Berkeley and Los Angeles: University of California Press.
- Cheng, L. L. (1997). Resultative Compounds and Lexical Relational Structures. *Chinese Languages and Linguistics III: Morphology and Lexicon*, 167-197.
- Giegerich, H. (2004). Compound or phrase? English noun-plus-noun constructions and the stress. criterion. *English Language and Linguistics* 8, 1-24.
- Haspelmath, M. (2002). *Understanding Morphology*, London, Arnold.

- Huang, S. (1998). Chinese as a Headless Language. In J. Packard (Ed.), *Compounding Morphology: New Approaches to Chinese Word Formation* (pp. 261-283), Berlin and New York: Mouton de Gruyter.
- Levin, B., and Rappaport Hovav, M. (1995). Unaccusativity: At the Syntax-Lexical Semantics Interface. *Linguistic Inquiry Monograph*, Vol. 26. Cambridge, Massachusetts: MIT Press.
- Li, C. N., and Thompson, S. A. (1981). *A Grammar of Spoken Chinese: A Functional Reference Grammar*. Berkeley: University of California Press.
- Li, Y. (1993). Structural Head and Aspectuality. *Language* 69: 480-504.
- (2005). *A Theory of the Morphology-Syntax Interface*. Cambridge (MA): MIT Press.
- Lin, F. (1990). *The Verb-Complement (V-R) Compounds in Mandarin*. M.A. Thesis, National Tsing Hua University.
- Lu, Z. (1964). *汉语的构词法 Hanyu de goucifa (Chinese Morphology)*. Beijing: Kexue Chubanshe
- Marchand, H. (1969). *The Categories and Types of Present Day English Word Formation*. München: Beck'sche Verlagsbuchhandlung.
- Morbo/Comp, <http://morbocomp.sslmit.unibo.it/index.php?section=home>
- Packard, J. (2000). *The Morphology of Chinese*. Cambridge: Cambridge University Press.
- Pan, W., Ye, B., and Han, Y. (2004). *□□□□□□□□ (Hanyu de goucifa yanjiu- Research on Word Formation in Chinese)*. Shanghai: Huadong Shifan Daxue Chubanshe.
- Paul, W. (2005) The “serial verb construction” in Chinese: A Gordian knot. In Oyharçabal B. and Paul W (Eds.), *Proceedings of the workshop La notion de « construction verbale en série » est-elle opératoire ?* December 9, 2004, Ehess, Paris.
- Plag, I., Kunter, G., and Lappe, S. (2007). Testing Hypotheses About Compound Stress Assignment in English: A Corpus-based Investigation. *Corpus Linguistics and Linguistic Theory* 3.2, 199-233.
- Scalise, S., and Guevara, E. (2006). Exocentric Compounding in a Typological Framework. *Lingue e Linguaggio*, 2, 185-206.
- Spencer, A. (1991). *Morphological Theory*. Oxford: Blackwell.
- Starosta, S., Kuiper, K., Ng, S., and Wu, Z. (1998). On Defining the Chinese Compound Word: Headedness in Chinese Compounding and Chinese VR Compounds. In J. Packard (Ed.), *New Approaches to Chinese Word Formation* (346-369). Berlin and New York: Mouton de Gruyter.
- Sun, C. (2006), *Chinese: A Linguistic Introduction*, Cambridge University Press.
- The Contemporary Chinese Dictionary [Chinese-English Edition]*, 现代汉语词典[汉英双语] (2000). Beijing: Foreign Language Teaching and Research Press.
- Xia, M. (1946). *Methods of composing two-character words* [Cited in Pan, Yip and Han (1993: 37), no further citation given].
- Yu, M. (2003). ‘Chinese Morphology: An Exploratory Study of Second Language Learners’ Acquisition of Compounds, *Concentric: Studies in English Literature and Linguistics* 29.2: 1-35
- Tang, T. (1989). *Studies on Chinese Morphology and Syntax: 2*. Taipei: Student Book Co.