13 *Comparative notes on verb compounding in English and East Asian languages*[1]

BENJI WALD

1 Foreword

While the East Asian (EA) speech area is well known for a variety of verb compounding and associated grammatical processes, English verb compounding is of such recent emergence that its evolution and current status have only begun to be explored (as in Wald and Besserman 2002). For English, verb compounding refers to the word formation process by which a syntactic verb is formed by the fusion of two constituent verb roots into a single verb stem, allowing it to be the nucleus of a single clause, as in *drop-kick, freeze-dry, sleep-walk, spell-check, stir-fry, strip-search,* among many other examples. Essentially, the differing constraints on verb compounding in the individual EA languages is a reflection of how the process interacts with other grammatical processes in the individual languages. Nevertheless, it is possible to extract a number of recurrent

[1] It is my pleasure to acknowledge the debt I owe to Jim Matisoff for giving me my initial appreciation of the Sino-Tibetan languages and the larger speech area in which they function, enabling me to explore them further with my present concerns. Beyond that, I want to take this opportunity to express my appreciation of his vast linguistic knowledge, enthusiasm and interest in all languages, and above all, his unwavering friendship. With regard to this paper, I also want to express my gratitude to other contributors to this celebratory volume, and especially to Randy LaPolla for discussing with me many points which had puzzled me with respect to specific Mandarin verb compounds. There are clearly still some shortcomings in my discussion, but there would have been many more if not for his generous and patient help. Lastly, I am thankful to Masatomo Ukaji for replying on a few points concerning Japanese verb compounding, as indicated at the appropriate point in the text.

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dimensions along which verb compounding varies across these languages, and these dimensions also have a relevance to English verb compounding. The following discussion explores some of these dimensions for points of comparison among various EA languages and English verb compounding.

2 Productivity

How freely do two verbs combine to form a verb compound in English and various EA languages? In approaching an answer to this question I have chosen to generalise from attested examples of English verb compounds rather than try to intuit a distinction between unattested possible and impossible verb compounds. At the current stage of development of English verb compounding, I do not think that constraints on its productivity are intuitively obvious. Therefore, my approach imposes a control on a possible (unconscious) tendency to over or underestimate the variety of contexts in which verbs may be compounded in English. A similar approach to EA verb compounding seems to distinguish between syntactically productive and lexicalised verb compounds. In general, the most commonly discussed syntactically productive type is labeled resultative, of which there are several sub-types, and the directly lexicalised type can be labeled coordinate, of which there are also several subtypes.

Only Korean, areally transitional between the core EA verb-medial area, dominated by Chinese, and the eastern peripheral EA verb-final area, represented by Japanese, seems to distinguish these two major types of compounding by surface construction (cf. Sohn 1999:254). The Korean "resultative" type is more generally a serialising construction represented by V1-*e/a*V2, in which V1 and V2 are ordered by temporal iconicity, for example, *tul-e ollita* (take-*e/a* lift < ascend.CAUS) 'hold up', and the coordinate type is represented by V1-V2, e.g., *olu-naylita* (ascend-descend) 'go up and down', generally expressing iterativity or simultaneity of events. In Japanese, both types are expressed by a single surface construction, V-i-V, formally most similar to the Korean serialiser, e.g., Japanese *kam-i-kiru* (bite-*i*-cut) 'bite and thus cut/cut by biting' and coordinate *nak-i-wameku* (cry-*i*-shout) 'cry and shout' (Shibatani 1990:246). In the core area, represented by Mandarin, both types are expressed by a single surface construction most similar to the Korean coordinate, i.e., V1-V2, e.g., resultative *tuī-dào* (push-fall.over) 'push down/over' and coordinate *tān-chàng* (play-sing) 'sing and play (an instrument) at the same time' (examples from deFrancis 1996). For well understood reasons involving avoidance of rampant homonymy, Chinese, and Mandarin in particular, has productively developed the coordinate subtype of two quasi-synonymous verbs, e.g., *wán-bì* (finish/use.up-finish/accomplish) 'finish/complete' vs. *wán-nòng* (play/trifle.[with]-play.with) 'play/juggle with'. Elsewhere in the core area, quasi-synonymous compounding is generally described as a literary artifice, influenced by written Mandarin, and the

productivity of the more general coordinate type is problematic. English verb compounding formally resembles the core East Asian type of V1-V2, but we will see that by its nature it does not engage in coordinate compounding (see discussion connected with examples 11 and 12 in §7 below). Its productivity resembles the resultative type, but occurs largely in distinct semantic contexts in which V1 most commonly resembles in function an adverbial qualifier of a head V2.

With regard to the relative productivity of EA compounds, Matisoff's comments on Lahu verb compounding are instructive:

> Neither of the elements in a true compound are juxta-productive; each occurs in at most a few compound-combinations with verbs of compatible semantic nature. Compounds once established acquire the status of unitary lexical items. It is as difficult to invent a comprehensible and acceptable Lahu compound as it is to create any neologism. Binary versatile concatenations, on the other hand, are freely 'inventable'. (Matisoff 1973:209)

In context he is contrasting as true compounds, the apparent coordinate type of Lahu *nù-quâ* (stink-be.bitter) 'be acrid-smelling' with various syntactically produced types where either V1 or V2 may be freely chosen as the head of the construction, and the other constituent is chosen from a relatively limited number of verbs, labeled versatiles, that can modify the head in such a construction, for example, *qɔ̂ ša* (hoe easy) 'easy to hoe', where V2 represents the limited set, *tā qɔ̂* (begin hoe) 'begin to hoe', where V1 represents another limited set; thus, *tā ša* (begin easy) 'easy to begin' or 'begin to be easy', depending on which constituent verb is taken as the head (op. cit. 201).

When English VVs were highly limited in number they conformed to Matisoff's concept of (true) lexical compounds. However, many now consist of impressively juxta-productive verbs. To give one example, *kick,* as V1, is attested with the V2s *-block, -box, -break, -chop, -flip, -jump, -punch, -push, -save, -serve, -start, -stop, -stretch, -stroke, -turn.* As V2, it is attested with the V1s *block-, bounce-, chip-, chop-, crash-, dive-, flick-, flip-, flutter-, fly-, hitch-, hook-, jump-, punch-, return-, skip-, slap-, slice-, slide-, snap-, spin-, splash-, stab-, sweep-, tap-, touch-, trip-.* In such cases, neither of the constituent verbs appears to be a 'versatile', since their meanings are not specialised in context and they do not seem to form a closed set. However, in some cases, there are semantic parallels between productive English V1s and Lahu (and more general core EA) pre-head versatiles, for example, English *sneak-* attachable to *-drink, -eat, -smoke*, etc., and Lahu *qhɔ̂* (lit. 'steal'), e.g., *qhɔ̂-na* (steal-listen) 'eavesdrop' (Mandarin *qiè-ting*^{1} or *tou*^{1}*-ting*^{1}). While Lahu verb compounds may be either head-initial or -final, and various Mandarin verb compounds are analogous but controversial for headedness, we'll see that English verb compounds, like Japanese, are invariably head-final.

With regard to the criterion of comprehensibility, this seems to be a matter of context in discourse, as discussed further in §3 below. Acceptability is a more difficult matter to assess, as we will see in (15) below, and is no doubt subject to individual variation. The

issue of productivity will continue to be of concern throughout this paper. For the moment, note that I only knew a few of the above and other attested English VVs in advance of research, for example, *kick-start.* In essence, I coined the others and then did a web-site search to check their prior coinage. In a period of two months, starting in January 2000, I attested well over a thousand verb compounds. Thus, the question arises whether we are dealing with a new English syntactic pattern involving verb fusion. If so, is it competing with or replacing any prior English syntactic pattern performing a similar function? And what is that function?

3 Heterogeneity of sources

To what extent is verb compounding a homogeneous process in English? I have already noted distinct sources for EA verb compounding in the preceding discussion, with respect to coordinate compounds, which appear to be directly coined and lexicalised, and resultative compounds, which are syntactically derived but may be subject in particular cases to subsequent lexicalisation. One aspect of lexicalisation in core EA languages is the phenomenon of bound verbs, that is, verbs which enter into compounds, but do not occur as independent verbs, and whose meaning may even be obscure to current speakers. Matisoff (1973:198) gives a Lahu example in his initial discussion of verb compounds, *qa-mì* ('sing, pass air noisily in or out of mouth', cf. English *snore, pant*) 'sing'. He observes that V1 *qa* is currently used alone only poetically (archaism), and that V2 *mì* is only used in compounds. He infers a free origin for both verbs, noting that such fusions are a historically recurrent phenomenon among Sino-Tibetan languages. This phenomenon is indicative of the length of time in which verb compounding processes have been active in core EA languages. The phenomenon does not occur among English verb compounds, no doubt due to their recency; comparable phenomena are only found in English noun compounding, unproblematically a productive word formation process predating English verb compounding (and even English) by many millennia, e.g., *-hood* as in *neighbourhood*, and *-dom* as in *kingdom*.

The notion that English verb compounding is, or is becoming, a unified grammatical process is supported by the transparency with which the constituent verbs, as independent entities, contribute to the meaning of the compound as a whole. There are, however, some problems to be acknowledged. The difference between (1) and (2) below illustrates the issue.

(1) ... Another measure would have provided $10 million in bonds for a plant to freeze-dry coffee.
starbulletin.com/2001/05/15/business/ story1.html[2]

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[2] For a website source of example, punctuation is always left as is; the search-word is given in bold type.

The compound *freeze-dry* is typical of a great many attested verb compounds. One need not be familiar with the particulars of the machinery involved in the process of freeze-drying coffee in order to recognise the contribution of the constituent verbs to the meaning of the compound verb.

The following example is more problematic.

(2) ... At a recent conference in Austria, he **hang-glided** through the Grand Canyon-without ever leaving the convention hall ...
www.drtomorrow.com/profiles.html

In principle, the semantic contribution of the constituent verbs of *hang-glide* is no less transparent than in *freeze-dry*. However, understanding of the contextual meaning is enhanced by knowledge of the instrument *hang-glider*. Thus, the issue of heterogeneity of verb compounding in English emerges in whether the verb *hang-glide* should be recognised as a backformation from the noun *hang-glider*. If so, its internal structure may be irrelevant to interpretation, and *hang-glide* can be distinguished from various other apparent verb compounds such as *drop-kick*, which may be a conversion of the noun *drop-kick* (cf. Marchand 1969:58ff). For that matter, English VV compounds are often alternatively analysable as NV compounds, for example, *sleep-walk* as 'walk while sleeping' (VV, where the gerund paraphrase of V1 implies a verb, since English gerunds have verb properties that nouns lack, for example, adverbial rather than adjectival qualification), or as 'walk in sleep' (NV). My approach to this problem is to recognise that for individual lexical items different speakers may have different internal analyses, if any at all (cf. Wald and Besserman 2002). In general, the analysis matters, because a VV analysis reinforces the productivity of the VV pattern. In view of speaker variability in analysis, it is more precise to speak of individual examples susceptible to alternative analyses as possible (rather than indisputable) VVs, with the expectation that some, probably many, speakers interpret such compounds on first hearing them (and often thereafter) on the basis of their constituent verbs. To this extent, verb compounding can be considered a unified process in English. Subsequent discussion will provide further examples of English verb compounds whose sources may be historically diverse, but which can be unified by a general grammatical characterisation of English verb compounding discussed in §7 below.

4 Degree of Fusion

English verb compounding is characterised by the fusion of the constituent verb roots so that nothing may intervene between them. The fusion is a consequence of the historical evolution of the pattern of English verb compounding from other forms of compounding, most notably nominal. EA languages differ in the degree of fusion exhibited by compound verbs. All EA languages seem to have some examples of inviolable fusion, but they vary

in the contexts and the extent to which this pattern is productive. In the core area, the productive resultative pattern is not fused. A limited number of additional elements may intervene between the constituent verbs, most notably a negative marker. Thus, Matisoff (1973:266) notes that Lahu resultatives have two meaningfully contrasting negatives; for example, *yɔ̀ tɔ̂?* (pull come.out) 'pull out' (or 'extract by pulling') has the external negative *mâ yɔ̀ tɔ̂?* 'not (even try to) pull out' and the internal negative *yɔ̀ mâ tɔ̂?* (pull NEG come.out) 'pull but fail/not succeed in extracting'. Similar phenomena are noted for the same construction in various other EA languages, e.g., Mandarin (Li and Thompson 1981:427), Vietnamese (Nguyen 1979:178). Interestingly, Gorgoniyev (1966:76) states that internal negation is not common in Khmer resultatives, as if to say external negation may serve the same purpose, but notes that the verb *haj* 'cause' optionally but commonly intervenes in cause resultatives, e.g., *phat (haj) lyyam* (clean cause shine) 'polish'.

Alternative forms of syntactic bonding, a precondition for fusion, are also noted for some resultative compounds consisting of more than two constituent verbs. Thus, for example, Li and Thompson (1981:64) note that the notional object of the Mandarin verb *duān* 'serve (e.g., a bowl of soup)' may intervene in the directional (resultative) compound *duān-shàng-lái* (serve-ascend/up-come) 'serve up (toward speaker)' either between *duān* and *shàng-lái* or *duān-shàng* and *lái*. Similarly, with respect to alternative bonding, the complex *zhì-zào-chéng* (fabricate-create-transform) 'manufacture (e.g., goods from spare parts)' blends the simpler attested compounds of *zhì-zào* 'manufacture' and *zào-chéng* 'create'.

Historical shifts in bonding of verb constituents are evident in the difference between Mandarin *huí lái le* (return come Perfective) vs Cantonese *fa:an-jó làih* (return-Perfective come) 'come back' (Matthews and Yip 1994:46), where bonding seems more advanced in Mandarin than in Cantonese. Similar shifts in bonding are evident in negative placement in Burmese, where NV compounds, for example, *hnou' hse'* (mouth-join) 'greet', are usually negated immediately before the verb, for example, *hnou' mahse'*, but occasionally maintain the integrity of compound, e.g. *mahnou'-hse'* (Okell 1969:40-41).

Japanese and Korean are more similar to English in the fusion of verb compounds. However, there is one difference which reveals an important point about the semantic nature of English verb compounding. As noted above, the Japanese verb compound has an "infinitive" suffix *-i-* intervening between V1 and V2. This element is productively associated with adverbialisation of verbs in subordinate clauses, for example, *wara-i*]-*nagara mukaeru* (smile-*i*]-while greet) 'greet while smiling' (Shibatani 1990:313), cf. Classical Tibetan verb clips, for example, *n:u-bod* (< *n:u-ba-r bod;* weep-nominaliser-adverbialiser exclaim) 'exclaim while weeping < weepingly exclaim' (Beyer 1992:95). Thus, Japanese *-i* effectively subordinates V1 to V2 in compounds. English similarly subordinates V1 to V2 in compounding, with syntactic consequences, discussed further below. However, English verb compounding strictly forbids the V1 root to be overtly marked in any way. Thus, in contrast to other nouns, the English gerund, as an activity

nominal with verb syntactic properties, for example, adverbial rather than adjectival modification (cf. 'wrongly *spelling* the word', gerund, versus 'wrong *spelling* of the word', noun), does not occur in the formation of English compound verbs, and, indeed, would not contribute anything to the meaning of the compound other than to explicitly mark V1 as subordinate to V2 (as in Japanese). The restriction supports the productivity of English verb compounding at the expense of the NV pattern. Consider (3) below.

(3) ... After you have typed your Tibetan text, it can be **spelling-checked** using the normal WordPerfect methods.
www.tibet.dk/tcc/Tibetan4b.htm

Here *spelling* is not the gerund, but a product nominal of the root verb meaning of *spell.* Significantly, this particular NV has largely given way to the VV *spell-check,* in which the activity expressed by V1 is only related to the product nominal *spelling* by pragmatic inference.

Similarly, passivised V1, that is, **V1-*en*-V2, is not allowed in English verb compounding. Thus, for example, the compound adjective *spun-dyed*, used in textile manufacture, has a corresponding compound verb *spin-dye*, not ***spun-dye*. Voice is a property of the compound as a whole, or of V2 as the head. V1 cannot independently undergo any grammatical process.

5 Order of constituents

It is already evident from the preceding discussion that order of constituents plays a crucial role in the semantic interpretation of English verb compounds. The role of V2 as the head of the compound is confirmed by the argument structure of English compounds when the constituent verbs differ in their argument structure. The argument structure of the compound is invariably the same as the argument structure of V2. Thus, consider:

(4) ... She got up and **jump kicked** Drusilla ...
www.slayerfanfic.com/R/RickyGarcia/wouldyou.html

In context, the argument structure of transitive *jump-kick* is that of transitive V2 *kick,* but not of intransitive V1 *jump.* When the order of constituents is reversed, as in (5) below, the compound becomes intransitive in accordance with V2 *jump:*

(5) ... Justice kick-jumped off the wall and fired his cutting beam from the air ...
www.projectmetaverse.org /stories /Winger/tempest/tempest2.html

Currently, very few attested English verb compounds provide reverse pairs to test the headedness properties of V2, even though most verbs attested as V1 in some compounds are also attested as V2 in other compounds. In the broadest sense, this situation is similar to Mandarin, in which most verbs figure as V1 in some compounds and V2 in others,

though rarely with the same companion verbs, as noted further in §6 below. There are, however, a few such verbs in English, of which *test* is a highly productive example, with minimal, if any, effect on the meaning of the compound according to its position. Thus, consider the pair,

(6) ... Don't write the rules down until you've **play tested** your game and ironed out the details ...
www.discovergames.com/skate5. html

(7) ... the guitar is strung up, tuned and play-tested ...
www.tejagerken.com/Article_Folder/factory_tour.html

When the companion verb is transitive, as in the above examples, it shares its (logical) object with *test.* However, when the other verb is intransitive, V2 (whichever it is) determines the argument structure of the compound, as in:

(8) ... After we've **sleep tested** the product, we find that it does not live up to our expectations ...
www.specialtybed.com/magazine/1998/ fall/feature2. php3 (contrast **'*test-sleep* > *-slept* the product')

(9) ... Well I **test-listened** to these speakers couple of times before I bought them ...
www.audioreview.com/reviews/Speaker product 6806.shtml (contrast **'*listen-tested* to these speakers')

There are a few verbs with the order versatility of *test,* for example, *check,* as in attested (police) *check-stop/stop-check* (vehicles). More commonly only one order is attested for any potential pair of compound verbs, so that even **test-sleep* and **listen-test* are not (yet) attested as verbs. A second language learner who said **dry-blow* or **fry-stir* would be readily understood but corrected.

6 Lexicalisation

So far only two temporal orderings of English verb compounds have been exemplified, one in which the referenced activities are temporally unordered, for example, *stir-fry, play-test, test-play, hang-glide*, and another in which they are iconically ordered, for example, *jump-kick, freeze-dry, spell-check.* These are indeed the most commonly observed possibilities, just as in EA languages. However, counter-iconic order is also attested, for example,

(10) ... The remaining trees are then grown on without further thinning until age 25–35 years when they can be **clear-felled** as the final timber crop ...
www.dpi.qld.gov.au/hardwoodsqld/1815.html

Here V1 *clear* (the forest) is the purpose of V2 *fell* (the trees). A resultative order would be unattested **fell-clear*. Note the different argument structures of V1 and V2, i.e., *clear* the forest of/**from trees vs. *clear* trees from/**of the forest. Another example is *drop-ship* (a package, etc.), where the package is *shipped* (V2) and then *dropped* (V1) [off] at its destination (as opposed to *drop-kick* or *drop-feed,* where the order is iconic).

I will leave as problematic whether temporal order should be lexically specified for English verb compounds, or considered a matter of pragmatic interpretation. Decisive in favour of pragmatic interpretation would be a single item which may receive either an iconic or counter-iconic interpretation according to context, but I have not found such examples. Nevertheless, it is clear that English compounding is not constrained by temporal order. As discussed further in §7 below, it seems likely to me that headedness alone is the determinant of order. Thus, **dry-blow* and **fry-stir,* for example, are corrected because the corrector perceives that they have been mistakenly headed, demoting the "more essential" (head) elements *dry* and *fry*.

It is worth noting that the problem of ordering to lexicalisation would be somewhat different for coordinate compounds. As we will see, English does not have coordinate verb compounds. If it did, the issue of headedness would be controversial, as it has been for Mandarin (cf. Packard 2000, 2001; Chung 2001). Li and Thompson (1981:54) consider the parallel (quasi-synonymous) compound to be as productive as the resultative compound. However, their only hint to the ordering of such compounds is that the simple verb *mǎi* alternates with *gòu-mǎi* (buy-buy) 'buy' according to the larger prosodic context, not a lexical matter. The few equivalent English quasi-synonymous coordinate expressions, largely peculiar to legal contexts, are not compounds, but are rhythmically ordered as monosyllabic verb-polysyllabic verb, for example, *aid and abet*, *cease and desist*, *keep and maintain* (cf. Mellinkoff 1963:121). A possible colloquial synonymous expression is *pick and choose*. However, the polysemy of *pick* with respect to picking up an object before choosing to buy it, as in fruit and vegetable shopping, allows an iconic temporal motivation for the order, cf. Mandarin *tiāo xuǎn* (pick/carry select) 'pick/choose'. There are a few apparently reversible compounds in Mandarin, example, *jì-suàn* (count-calculate): *suàn-jì* 'count/calculate', *dòu-zhèng* (fight-struggle): *zhèng-dòu* 'struggle/fight', *wèn xún* (ask-ask) *xún-wèn* 'ask/inquire about'. But in most cases reversal leads to meaningfully distinct compounds from distinct grammatical sources, for example, *qǐ-diào* (rise-hang) 'lift (with a crane)' versus *diào-qǐ* 'hoist (with a rope)', where the second is analysed as a directional resultative (DeFrancis 1996). The first seems to be indeed lexicalised, if the implied instrument is limited to a crane or similar device. Similarly, *zá-róu* (be mixed.up- knead) 'blend' but *róu-zá* 'be jumbled together' seem to imply lexicalisation, in the absence of an interpretation by headedness. Giving pause are pairs like *jī-pò* (attack-break) 'destroy/defeat' and *pò-jī* 'sabotage/attack and destroy'. The first seems similar to a resultative, cf. *dǎ-pò* (hit-break) 'break/smash', while the second closely resembles the first in its more general sense. It might be coordinate, with

indifference to temporal order, but could not be resultative due to the reversed order. Meanwhile, the specialised sense 'sabotage' of *pò-jī* suggests lexicalisation of that order in that sense.

In contrast to Mandarin, reversibility, or indifference to order, is an explicitly recognised feature of a number of Vietnamese quasi-synonymous coordinate compounds, for example, *kính-trong* (admire-respect) or *trong-kính* 'admire/respect' (Thompson 1965:132, Nguyen 1979:xviii). Nguyen adds that for rhetorical effect the linking particle *với* 'and' can optionally intervene between the two constituents of a coordinate compound, for example, *buôn (với) bán* [buy.wholesale (and) sell] 'engage in commerce'. The Mandarin equivalent *mǎi-mài* (buy-sell) is strictly ordered. Thus, it is evident that many Vietnamese coordinate compounds are not fused, and are associated with their syntactic source. The Mandarin coordinate compound is well documented to have evolved from an explicitly coordinate expression, i.e., V1-*ér*-V2 (Norman 1988:121), but in its current state of development it seems to establish nuanced meaning differences in internal order, eventually lexicalising coordinate compounds and removing them from their productive syntactic sources.

7 Semantic context

The issue of semantic context has been implicit in much of the preceding discussion. A useful approximation of the semantic structure of English verb compounding is the paraphrase *V2 PREP V1-ing*, where *V1-ing* is a gerund, not a more specialised *V-ing* nominal (such as the concrete product nominals *spelling, painting* or *building)*. The paraphrase captures the semantic headedness of V2. PREP is key to the generality, and productivity, of English verb compounding. It represents a specific semantic relationship between V1 and V2 beyond head and subordinate (modifier, qualifier, specifier). It must be abstract because, as seen above, different semantic relationships obtain, depending on the sense of the particular compound. For example, *freeze-dry* 'dry (X) *by* freezing (X)', cf. *play-test,* but *clear-fell* 'fell (X) *for* clearing (X/Y)', cf. *test-play.* Sometimes more than one PREP paraphrase is arguably appropriate, for example, *strip-search,* 'search (X) *by/while* stripping (X)', cf. *stir-fry.* Paraphrase, of course, facilitates cross-language comparison for semantic context without necessarily ascribing the same syntactic (headedness) analysis to the compared language, e.g., Mandarin *shì-shè* (test-shoot) 'test-fire (a weapon)', cf. *lì-shè* (stand-shoot) 'fire (a weapon) while standing' (cf. Wu 1999; deFrancis lists these examples only as nominals). Meanwhile, the greatest virtue of paraphrase is the language-specific comparison of English verb compounding with alternative grammatical strategies in the same semantic context, as discussed further below. This is of particular interest to the future productivity of English verb compounding. Is it competing with any other grammatical strategies toward the same semantic ends? If so, what are its chances for success in a particular semantic context?

Effectively excluded from verb compounding by its semantic characterisation are coordinate compounds. There are a few apparent examples of English coordinate compound verbs, for example, *drink-drive, slash-burn, hit-run.* They are all ordered by temporal iconicity, V1 *before* V2, and thus are interpretable as V2 *after* V1-ing, e.g., *drink-drive* as 'drive *after* drinking'. However, they are transparently related to coordinate expressions, the latter usually modifying a noun, for example, '*slash-(and)-burn* agriculture', '*hit-(and)-run* accident'. The following example of *hit-run* demonstrates the effect of converting the coordinate expression into a compound verb:

(11) ... I remember standing there, waiting for them to **hit run** us over, ...
www.lostdream.com/users/dmulhern/dreams/dmulh ern_004.htm

In the coordinate expression V2 *run* is intransitive. But in the compound verb it is transitivised in order to take the object properly belonging to V1 *hit.* The resulting V2 is a transitive phrasal verb *run over.* The semantics of *run* has been changed to conform to the requirement that the object of the compound verb must also be the object of V2. Consequently, only in reference to the expression *hit-and-run* is it possible to interpret the compound as meaning '*run* us over and then *run* (away)'. This parasitic relation between the meaning of the compound and the meaning of another expression removes it from the semantic structure and productive use of English verb compounding. Such verbs are best viewed as direct conversions from the attributive compounds upon which their meanings depend.

Apparent coordinates are sometimes revealed in other ways as not the product of verb compounding, for example:

(12) ... if you drank drove you'd be picked up by the cops ...
www.kuro5hin.org /story/2001/2/7/21155/69149

The inflection on V1 *drink* removes it from verb compounding; **drink-drove* is not attested. On the other hand, *slash-burned* is attested. Thus, unlike *hit-run* and *drink-drive,* it has been remodelled according to verb compounding, and is not a coordinate compound in that context despite its transparent historical origin, cf. *drop-kick* (kick after dropping), etc.

A very productive semantic context for EA verb compounding is reflected in directional compounds, for example, Mandarin *tiào-guò* (jump-cross), Japanese *tobi-kosu* (jump-surpass) 'jump over'. As translations of this semantic type invariably show, the English equivalent is a phrasal verb, not a compound verb. The English semantic pattern allows *jump-cross,* and other verbs equivalent to EA directionals, for example, *rise, lower.* However, in contrast to EA languages, English has and prefers adverbials like *up, down, over,* etc. Here the least that can be suggested is that the English adverbials and their use in forming phrasal verbs has a historical lead in development of almost a millennium over verb compounding in the directional context. There is little discernible motivation to replace them with verb compounds. In addition, as the head position, V2 of VV is

equivalent to the V(1) of directional phrasal verbs in its freedom of selection and determination of argument structure. Thus, when *cross* figures in compounding, as it frequently does, it patterns with the adverbials in assuming the status of V1 rather than V2, for example, attested *cross-jump* (alongside more common examples in which V2 is transitive, for example, *cross-cut*), cf. *down-load, back-pedal.* In sum, verb compounding is an under-utilised resource in directional contexts and likely to remain so. That is, there is little foreseeable probability that **jump-rise* (or even **rise-jump*) will emerge to compete with *jump up*.

A similar situation of under-utilisation occurs in quasi-aspectual contexts, for basically the same reasons, again in contrast to EA verb compounding. Thus, only one arguable case of verb compounding is so far attested in an aspectual context:

(13) ... Click OK to **run start** the installation. Power Word requires minimum of 100 MB of free hard disk space ...
home.freeuk.com/zian/

Paraphrase as *start* PREP (e.g. ?by) *running* is dubious. The sense is simply 'start running (the program)'. In addition, *run* is easily construable as the nominal object of V2 *start,* i.e., '*start* a *run* (of the program)'. OV (Object-Verb) is a type of NV compound, not a VV. A compound like *strike-break* is more readily recognisable as an OV, not a VV. I have not found examples in which the latter takes an object (or is used passively), although V2 *break* is transitive. The manifest reason is that *strike* is already the object. Returning to the less obvious analysis of *run-start,* there are many examples of *-start* as V2, e.g. following *jump-, kick-, push-* etc. In all these cases, manner/means of 'starting' is the contribution of V1, facilitating use of *by* as the appropriate paraphrase PREP, e.g. *kick-start* as 'start *by* kicking', and all are ways of '*run-starting*'.

Note that in aspectual contexts the core EA languages tend to iconically order aspectually related verbs, so that 'begin' figures as V1 with respect to its complement, while 'finish/complete' figures as V2 , for example, Lahu *tā qɔ̂* (begin-hoe) 'start to hoe' but *và? pà* (put.on-finish) 'have already put on'. Similarly, Mandarin features a number of V1 *kāi* 'open > begin' compounds, for example, *kāi-dòng* (open = begin-move) 'set in motion', but V2-*wán* 'use up > finish/complete V2-ing' as the general completive marker, for example, *nòng-wán* (do-finish) 'finish doing'. The same is true of Thai and Vietnamese (cf. Noss 1964:118,128; Thompson 1965:209). In contrast, in Japanese and Korean, as in English, 'begin' and 'finish' are organised as members of the same auxiliary set (cf. Takahashi and Takahashi 1984, Lee 2000). In English the immense historical priority of aspectual auxiliaries preceding their complements, and their general integration into a larger set of syntactically similar auxiliaries and modals, leaves little prospect for verb compounding to become active in this semantic context.

The situation is different with English cause resultatives. English has a number of compound verbs that can be construed as resultative; *freeze-dry* has already been

mentioned several times. The alternative resultative construction is *V1 ADJ2,* for example, 'freeze (something) dry'. cf. *rub raw, slap silly, tickle pink*, etc. In the core EA area verb compounding is not distinct from the *V1 ADJ2* pattern, but English sometimes overtly derives verbs from adjectives, as in the following of example, where the ADJ *flat* must be converted to the verb *flatten* according to the pattern:

(14) ... The first operation *roll forms* the metal to produce the five thicknesses or folds. The second operation **roll flattens** these to produce the tight seam ... www.all-pak.com/t_glossary_metal.asp

So far, English verb compounding is relatively limited in resultative contexts, but it is difficult to predict what the future may have in store, cf.

(15) ... Hagran's eyes **open widened** at the sight of the huge creature ... www.annexia-rpg.com/PBEM/past/story.cfm?Story_ID=7

Many readers may reject the example on aesthetic grounds, but the writer shows an impeccable grasp of the semantic structure of verb compounding.

In sum, the semantic characterisation of English verb compounding facilitates exploration of alternative English grammatical strategies used in the same semantic contexts. English verb compounding seems to be a currently underused grammatical resource. It is particularly underused where other syntactic resources are highly orgamised and actively used, for example, the system of phrasal verbs and prepositional adverbs which control expression of path and direction, and the (auxiliary) verb-complement system which, among other things, controls quasi-aspectual expressions, like 'start/begin' and 'finish/end'. In resultative contexts verb compounding may be gaining ground. The major use of English verb compounding, frequently exemplified above, is to qualify V2 with a V1 activity verb describing the manner/means by which the V2 activity is accomplished (or achieved). This use of verb compounding has been recognised for some EA languages (for example, for Japanese by Matsumoto 1996), and is evident in others, cf. the Mandarin examples given at the beginning of this section, that is, 'test-fire', 'stand-shoot', and also various areally more widespread examples resembling Lahu versatile-prehead compounds, for example, 'steal-listen' (that is, 'eavesdrop' or '(electronically) bug'), mentioned in §2 above. A complicating factor in Mandarin analysis is the possibility of 0-derivation of verbs to adverbs in V1 position, reminiscent of the analytical ambiguity of 0-derivation from verbs to nouns in English, for example, *sleep* in *sleep-walk.* Thus, in contrast to Matisoff's maintenance of the category verb for Lahu *qhɔ̂* 'steal' as a pre-head versatile, (p.212), deFrancis analyses the Mandarin parallel *qiè* (and *tou*) 'steal' as an adverb 'secretly' in the same contexts. Matisoff simply notes for Lahu that *qhɔ̂* functions in context like the English adverb *stealthily,* which overtly runs the gamut of derivational processes from verb to adverb, that is, steal]v-th]n-i]adj-ly]adv. This form of Mandarin compounding remains to be sorted out for the most revealing analysis. So, it

remains to be seen if Mandarin, like English, has a general grammatical resource of "manner/means" verb compounding, available for use when convenient.

8 Argument structure

The preceding characterisation of the semantic structure of verb compounding as *V2 PREP V1-ing*, is incomplete. It is clear that the process is not inhibited by object sharing, since it does not require shared transitivity. But what about subject sharing? Does the subject of V2 necessarily have to be the subject of V1? This issue also comes up in comparing different EA verb compounding systems. Although Li's (1973) comparison of Mandarin and Japanese resultatives, and Gamerschlag's (2000) more general study of the argument structure of Japanese compound verbs, focused on object sharing of the constituent verbs, their discussions indicate that these languages also differ with respect to subject sharing.

The paradigmatic example for the EA difference is the cause resultative 'beat to death', Mandarin *dǎ-sí* (beat-die) but Japanese *naguri-korosu* (beat-kill). The Japanese resultative requires the subject to be shared by V1 and V2. The Chinese cause resultative, in principle, does not require any argument sharing between V1 and V2; the semantic context simply requires that V1 and its arguments be construed as the cause and V2 and its arguments be the outcome. Thus, for example, X *dǎ-sí* Y could mean 'X beat Y until Y died' (without subject sharing) or 'X beat Y until X died' (with subject sharing). Similarly, Matthews and Yip (1994:154–155) provide a Cantonese example without any shared arguments; X *haam séng* Y (cry wake.up) 'X cried so that Y woke up'.

Japanese resultative compounding is much more restricted. Typical of Japanese is the contrast between transitive *yaki-korosu* (burn-kill) 'kill Y by burning Y' and intransitive *yake-shinu* (burn-die) 'die by burning', where the V1s *yaki* and *yake* (< *yake-i*) are based on the transitive/intransitive verb pair *yaku* and *yakeru* respectively (examples from Takahashi and Takahashi 1984). Required selection of the V1 of appropriate transitivity status insures the shared subject. Gamerschlag (2000:6) exemplifies one exception to Japanese subject-sharing, *mai-ageru* (dance-raise) '[wind] whirls up [dry leaves]', the transitive counterpart of the typical intransitive *mai-agaru* (dance-rise) '(leaves) whirl up'. He notes the more general rarity of Japanese intransitive-transitive verb compounds (as opposed to transitive-intranstive compounds where V2 is motional, for example, *moti-aruku* (hold-walk) 'walk (while) holding [something]'). However, in other cases of the rare mixed transitivity order, subject-sharing is preserved (as elsewhere), for example, *warai-tobasu* (laugh-let.fly) 'laugh [something] off' (p.c. Masatomo Ukaji). Thus, *mai-ageru* is quite exceptional.

The semantic structure of English verb compounding makes no reference to object sharing, cf. *jump-kick, test-listen*, but it does seem to indicate subject sharing. Thus, no

examples like Japanese *mai-ageru* are attested in English. In contexts where they are apparent, V1 is invariably attested as "unaccusative" in interpretation. Thus, for example, for attested '*flow-coat* something with paint', V1 *flow* is also attested independently as transitive, i.e. '*flow* paint over something'. Note that, V2 *coat* alone determines the grammatical object of *flow-coat,* as expected by its status as the head.

A more irreducible exception to subject-sharing occurs with a few compounds like *spell-check, copy-protect*, etc. In such cases the subject of V1 is non-specific, and may or not include the subject of V2 as a possible referent, depending on the pragmatic context. For example, in *spell-check* ('check for spelling'), the subject of V1 *spell* is unspecified, and is whoever spelled in the first place, whether the subject of V2 *check* or not. In *copy-protect* ('protect from copying'), it is pragmatically unlikely that the subject of V2 *protect* is the subject of V1 *copy*, since under ordinary circumstances the subject of V2 'protect (a document)' is opposed to unspecified other subjects of V1 who might want to 'copy (the document)', cf.

(16) ... a newly developed twist-push-pull cap that is **tamper-protected** by a perforated shrink band ...
www.petpla.net/petplanet/insider/2001/04–05/articles/inthemarket.shtml

With respect to objecthood, the case of *tamper-protect* is the same as *flow-coat.* That is, V2 alone determines the logical object of the compound. The example shows that grammatical subject sharing can be restored, thanks to the long established ability of English to passivise the object of a prepositional phrase, so that *cap* as grammatical subject of passive V1 *tampered with* shares that status with passive V2 *protected.* The difference between *flow-coat* and *tamper-protect* is simply that in the latter the oblique *(with)* object of V1 is the direct object of V2, rather than the other way around. Thus, *with* does not occur in the grammatical context of (16) above.

The generalisation seems to be an additional condition to the effect that the subject of V1 can be unspecified, and, subject to pragmatic interpretation, it may include the subject of V2. Specifically disallowed by this formulation is that the subject of V1 has some other argument relation to V2 rather than subjecthood. Thus, the presumed type of Japanese *mai-ageru* is not possible in English verb compounding. It also seems that when V1 in English verb compounding is unspecified, it necessarily shares a non-subject argument with V2, but not necessarily the same grammatical non-subject type of argument, so that sharing of identical subjects can be restored by passivisation, as in (16) above. The simplest statement of the additional condition is that for purposes of verb compounding English verbs have only two kinds of arguments, subject and non-subject, and that referential identity is required of either a subject or non-subject argument of both verbs.

Currently, the additional condition to the formula *V2 PREP V1-ing* is only used with a few V2s, for example, *-check, -protec*t. In most cases specific subjects are shared by verb compounds, and where V1 is transitive it most commonly shares the direct object with V2.

The additional condition anticipates further productivity in the less usual as well as the more usual contexts.

9 Concluding remarks

With an eye toward the future development of what is still a relatively new grammatical strategy in English, the preceding notes have generalised a productivity for English verb compounding beyond its most active current uses. In some cases where it is very productive in most EA languages, it is rarely used in English, for example, in directional semantic contexts, where it does not have any obvious advantage over currently productive English grammatical strategies, especially. adverbial prepositions and phrasal verbs. Its strength lies elsewhere. Its most salient strength is the economy of expression it provides for binding two (or more) activities into a single process, especially when its headedness highlights the culminating activity (accomplishment/achievement) of most interest in the context of use, for example, *freeze-dry, stir-fry, drop-kick,* (trained dogs) *sniff-search* (luggage), etc. Thus, it is not surprising to find this economy most exploited in technical domains, where recurrent complex processes are frequently referred to. There are now a sufficiently large number of generally familiar examples to promote current speakers' general awareness of verb compounding. Its utility lies in solving syntactic problems for which alternative strategies are awkward or much less economical, for example, involve wordy prepositional phrases. The following example illustrates:

(17) ... She then **drip-paints** the figures in enamel and finishes by stenciling on the words.
... www.biddingtons.com/os/category/FIXcur167_23.shtml

What is the alternative? Maybe leaving V2 as a simple verb *paint* and then inserting a prepositional phrase 'by *dripping* enamel (paint)', most likely further necessitating an additional goal argument for *drip,* e.g. 'on it (= the posterboard, or whatever)'.

It is not clear to me that the core EA languages would profit much from adopting a pattern of verb compounding as general as that described above for English, since their syntax seems already quite economical in allowing juxtaposition of verbs without fusion (and omitting understood arguments). Thus, the productivity of semantic contexts for verb compounding beyond those generally discussed in the literature on these EA languages, but most favoured in English, remains at issue.

The situation is different for the peripheral more highly inflected EA languages such as Japanese. Here more severe constraints on the argument structure of verb compounding may play a role in preventing greater productivity. Thus, for example, Shibatani (1990:239) describes a process by which verbs can be compounded into VV]n nominals, including intransitive-transitive order, for example, *tati-yomi* (stand-read) '(do) reading while stranding'. The compound economises on using a suffix like *-nagara* 'while' with

V1, but requires the use of the verb *suru* 'do' as an auxiliary to allow use as a verb. Interestingly, Beyer (1992:110 fn10) describes a similar situation for Lhasa Tibetan on the western periphery of the EA verb compounding area, for example, *ce-t.en ts.he* (< *skyel-Ndren byed*; *accompany-lead*]n do) 'ship (e.g. by courier)'. Many English VV-ing nominal compounds that do not (yet) have verb compounded counterparts are similarly attested, e.g., *bite-fighting, bounce-floating, cling-holding, freeze-cutting, hook-shooting, rush-cooking, straddle-riding*, and innumerable others. However, according to the semantic structure of English verb compounding, nothing prevents the grammatical remodeling of these nominal compounds as verbs by whoever finds it convenient to do so. In the event they are remodelled, the semantic structure of English verb compounding is sufficient to interpret the compounds without reference to the nominal compounds, to the same extent that the nominal compounds are interpretable without further context. It remains to future observation to see how soon any or all such VV-ing]n nominals are replaced by VV]v compounds. It similarly remains to the future to see how long grammatical constraints stand in the way of greater productivity of EA verb compounding. For the present it remains to be determined what those constraints are, and especially for the core EA languages, to what extent apparent limits on verb compounding are determined by pragmatics rather than by grammar. With regard to pragmatic limits, Matisoff's statement for Lahu compounds, cited more fully in section 2 above, is worth repeating: "It is as difficult to invent a comprehensible and acceptable Lahu compound as it is to create any neologism." My web-searching experience with English compound verbs suggests that speakers are currently creating neologisms faster than they can be compiled by the most ambitious dictionary.

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