A Nanosyntactic Approach to the Transitive Use of V_i-V_i compounds in Chinese

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Introduction: It has been observed that in Japanese V-V compounding, the argument structure of V1 needs to be the same type as that of V2 in general. As is also well known, Chinese can make V-V compounds where the verbs differ in their argument structures (cf. Cheng and Huang (1994), among others). The examples are given in (1):

(1) a. * *Kanojo-wa* *hankachi-o* *naki-nure-ta.*
she handkerchief-ACC cry-wet -PAST

b. *ta* *ku* *shi* *le* *shoupa*
she cry wet PERF handkerchief
"She cried her handkerchief wet."

(2) *ku-xing* 'cry someone awake', *xiao-si* 'laugh someone to death', *xiao-teng* 'laugh one's stomach sore', etc.

The question arising here is why Chinese, but not Japanese, the V-V compound made by the two intransitive verbs has the transitive use. The purpose of this paper is to capture the puzzling characteristic of Chinese V-V compounding in terms of nanosyntax (Stark (2009, 2010)), especially under the framework of the first phrase syntax proposed by Ramchand (2008).

Nanosyntax: This paper employs the framework of nanosyntax advocated by Starke (2009, 2010). The essence of nanosyntax is "size differences" of lexical items; a lexical item spellouts the features [*a*, *b*, *c*], while the other lexical item spellouts the features [*a*, *b*]. Based on this perspective, Starke (2010) argues that language variation is parametrized by the size differences. For instance, the lexical item A in a language may have a different structure from the counterpart B in another language.

Adopting the framework, Ramchand (2008) decomposes a macro event into three types of subevents: *init*(iation), *proc*(ess), and *res*(ult). (3) is taken from Ramchand (2008: 79):

(3) a. Michael arrived.

b. [$_{init}$P Michael arrive$_{init}$ [$_{proc}$P <Michael> <arrive>$_{proc}$ [$_{res}$P <Michael> <arrive>$_{res}$ (XP)]]]

Init is responsible for the causation event and in its spec position, 'subject' of cause, namely Initiator, occurs. *Proc* specifies the change of state or process and in its spec position, 'subject' of process, namely Undergoer, occurs. According to Ramchand, it is the core of the dynamic verbs. *Res* assigns a meaning of result state to a verb and in its spec position, 'subject' of result, namely Resultee, occurs. Based on Ramchand's framework, the verb *arrive* has the *init*, *proc*, and *res* features, as shown in (3b). In (3b), *Michael* is interpreted as Initiator, Undergoer, and Resultee.

Analysis: Drawing on Ramchand's framework, let us reveal features of the verbs in question. The V1s *Naku* and *ku* 'cry' in (1) have *init* and *proc* features, because they are activity verbs and their 'subjects' are Initiator. In contrast to the V1s, the features of V2s *nureru* and *shi* '(become) wet' are different from each other. The dynamic intransitive verb *nureru* has *proc* and *res*

features, whereas *shi* is a state verb and has only the *res* feature. This difference in feature contents corroborates Starke's hypothesis. The feature contents of the verbs are summarized in (4):

(4) a. *naku*, *ku*: *init*, *proc*
b. *nureru*: *proc*, *res*
c. *shi*: *res*

Given the feature contents of *naku* and *nureru*, *naki-nureru* has the following syntactic structure:

(5) *[$_{initP}$ kanojo naku$_{init}$ [$_{procP}$ <kanojo> <naku>$_{proc}$ [$_{resP}$ <hankachi> <nureru$_{\text{[proc]}}$>$_{res}$ (XP)]]]

Agree

In (5), *naku* identifies *init* and *proc* and as a result, *nureru* only identifies *res*. The *proc* feature of *nureru* in (5) remains unchecked, which causes the derivation to crash. According to Ramchand (2008), in this situation, Agree occurs between the unchecked feature and the *proc* head and due to this operation, the *proc* feature of *nureru* is checked. We suggest that Agree unifies the subevents. In (5), *nureru* lexicalizing *res* enters into an Agree relation with *proc*, so that *proc* and *res* are unified. The *proc* feature is lexicalized by *naku*, which also lexicalizes *init*. Hence, Agree unifies *init*, *proc*, and *res*. This unification requires that their 'subjects' are the same, but the 'subject' of *res* is different from the others, as shown in (5). Thus (1b) is judged ungrammatical.

The structure of (1b) from Chinese is represented in (6):

(6) [$_{initP}$ She cry$_{init}$ [$_{procP}$ <she> <cry>$_{proc}$ [$_{resP}$ handkerchief <wet>$_{res}$ (XP)]]]

In contrast to the V-V compound in (1a), Chinese V-V compounds like (1b) and (2) can be transitivized. The reason behind this is that there is no Agree in the Chinese V-V compounds because V2 has only a *res* feature. This means that the subevent *res* is independent from the other subevents. Hence, the former subevent can introduce an argument that is different from an argument introduced by the latter subevents.

Conclusion: To summarize, we have analyzed that the V2 in the Japanese V-V compound has the *proc* and *res* features, whereas that in the Chinese one has the only *res* feature. The lack of *proc* in the Chinese verb *shi* suppresses the unification of the two subevents denoted by the V1 and V2. The suppression of the event unification allows arguments introduced by the two subevets to be different from each other. This leads to the possibility of the transitive use of Chinese intransitive V-V compounds.

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Discourse-Initial *Too/Mo* and Conventional Implicature

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Additive particles such as *also* and *too* have been analyzed as focus adverbs without truth-conditional contribution (König 1991, Iten 2005). Winterstein (2011) argues that the presupposition of *too* should be satisfied by the antecedent truth-conditionally based on the following examples:

(1) #Ritchie solved most problems. Lemmy solved all of them too.

(2) Ritchie solved all the problems. Lemmy solved most of them too.

The presupposition of *too* that somebody different from Lemmy solved all the problems is not satisfied in (1).

I will argue that the contribution of *too* is not truth-conditional, based on the data on wide-scope taking *too* in English and *mo* "also/too" in Japanese. (3) can be uttered without having somewhere else nice.

(3) It is nice here too.

Moreover, the Japanese focus marker *mo* "also/too" can be uttered discourse-initially without sounding erratic. Instead of a contrastive narrow focus, the discourse-initial *mo* sentences have a presentational neutral focus. This paper argues that the semantic contribution of the discourse-initial *mo* "also/too" is conventional implicature without truth-conditional effect.

Mo "also/even," as a focus marker, quantifier-like element (Kuroda 1969), or an additive particle (Lee 2000), typically places contrastive focus on a noun phrase, or adds some alternative element to the given set of individuals, as in (4):

(4) #(Mai-ga ki-te,) [Ken]$_F$ -mo ki-ta.
Mai-NOM come-PAST-and Ken-also come-PAST
"Mai came, and Ken came, too."

The focus-marked *Ken* contrasts with *Mai.* Similar to the English *too* (Karttunen and Peters 1979), a *mo-p* assertion is felicitous only when it follows another sentence such as "Someone other than Ken came" or, at least, when the presuppositions are satisfied by the extralinguistic context. On the other hand, (5)-(10) can be uttered out-of-the-blue.

(5) Soto-mo hiete-ki-ta.
outside-also cold-come-PAST
"It is indeed getting chilly outside."

(6) Yo-mo fuke-ta. Mo neru-to shi-yo.
night-also become.late-PAST already sleep-COMP do-let's
"It's late, indeed. It's time to go to bed."

(modified from Sadanobu (1997: 234))

(7) Ko-no saifu-mo furuku-nat-ta.
this-GEN wallet-also old-become-PAST
"This wallet has indeed become old."

(8) Yo-mo sue-da.
world-also finale-be
"This is the end of the world."

(9) Mari-mo kashiko-i.

Mari-also smart-be

"Mary is indeed smart."

(10) Omae-mo aho-ya-na.

you-also silly-be-EXC

"I must say that you are silly."

The discourse-initial *mo* in (5) does not contrast its syntactic constituent *soto* "outside" with any antecedent. The focus in (5) is neutral and presentational. Instead of a narrow focus on the noun phrase, there is a wide focus on the whole sentence.

(11) Haru-mo takenawa-ni nari-mashi-ta.

spring-also peak-GOAL become-HON-PAST

"Spring has reached its peak." (Numata 2000: 172)

Numata (2000) suggested that *mo* in (11) associates itself with a whole proposition and contrasts other things reminiscent of the season and the transition of time. The speaker presupposes prior situations such as blooming of cherry blossoms, green leaves of trees, and comfortably warm weather. It means that *mo* has wide scope on the entire proposition. Korean *to* "too/also" has a similar usage and Hungarian *is* "and/even" has emphatic usage (see Piñon 1992, for the Hungarian emphatic *is*).

(12) Péter meg igérte, hogy el fog

Peter VM promise.PAST.3SG.DEF that away will

menni és $[el]_F$ is ment.

go.PRES.3SG and away is go.PAST.3SG

"Peter promised he would go, and he went, too!"

(Szalai 1996: 12, F-marking by the author)

I claim that *mo/too* contributes to conventional implicature in line with Potts (2005).

(13) at-issue meaning of (5): be-cold(outside): t^a

CI meaning of (5): undesirable(speaker)(be-cold(outside)): t^c

The at-issue meaning is truth-conditional in which the individuals are type e^a and the propositions are type t^a whereas the non-truth-conditional CI meaning has different types of e^c and t^c respectively. Discourse-initial *too* does not contribute to the truth-conditional meaning but to the conventional implicature.

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A Phonological Approach to Interwoven Dependency Constructions

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Following Shiobara (To appear), I argue against a syntactic analysis for Interwoven Dependency Constructions (IDCs), and present a phonological approach to them. The argument against a syntactic analysis for IDC is primarily based on island insensitivity.

The IDC examples are shown in (1) and (2).

(1) a. [How many cakes]$_i$ and [how many letters]$_j$ (respectively) did May bake $_i$ and John write $_j$ this morning?
b. %[How many letters]$_i$ and [how many cakes]$_j$ did May bake $_j$ and John write $_i$ this morning?

(2) a. (Sorezore) [atarashii fuku]$_i$ to [atarashii kutsu-o]$_j$ John-ga
(respectively) new clothes and new shoes-$_{ACC}$ John-$_{NOM}$
Kiyomi-ga $_i$ ki-te Masami-ga $_j$ haita to itteita (koto)
Kiyomi-$_{NOM}$ put.on-and Masami-$_{NOM}$ put.on C said (fact)
'(the fact that) John said that Kiyomi put on new clothes and Masami put on new shoes'
b. ?[Atarashii fuku]$_i$ to [atarashii kutsu-o]$_j$ John-ga [Masami-ga $_j$ hai-te Kiyomi-ga $_i$ kita to itteita (koto)

The English examples in (1) involve wh-movement and the Japanese examples in (2) involve long-distance scrambling. The example (1a) represents a typical IDC, which has been noted in Dougherty (1970) and Zhang (2007) among others. Interwoven dependency is possible with long-distance scrambling as in (2a), if the fronted elements construct a prosodic unit on their own. Moreover, the order of the fronted elements can be reversed as in (1b) and (2b), though the acceptability varies depending on the informant in the English wh-movement case (as indicated by %), and the sentence somewhat degrades in the Japanese scrambling case (as indicated by ?) (Shiobara (To appear)). The near-freedom in the order of fronted elements observed above already suggests that IDCs as exemplified in (1) and (2) should not be syntactically derived, on the assumption that this kind of optionality is prohibited in the syntax.

Further evidence supporting this same conclusion comes from the fact that some IDCs are insensitive to syntactic islands:

(3) a. ?Which cakes and which letters did Mary bake before John wrote?
b. ?Which cakes and which homework did Mary bake after her son finished?

(4) a. ?Atarashii fuku to atarashii kutsu-o John-ga [musuko-ni kise-te
new clothes and new shoes-ACC John-NOM son-DAT put.on-and
musume-ni hakaseta] hito-o sagashiteiru (koto)
daughter-DAT put.on person/people-ACC look.for (fact)
'(the fact that) John is looking for a person who made (his) son put on new clothes and made (his) daughter put on new shoes'

b. ?Atarashii fuku to atarashii kutsu-o John-ga [musuko-ga ki-te
new clothes and new shoes-ACC John-NOM son-NOM put.on-and
musume-ga haita kara] okotteiru (koto)
daughter-NOM put.on because be.angry (fact)
'(the fact that) John is angry because his son put on new clothes and his daughter put on new shoes'

In (3), the second wh-phrase is extracted out of an adjunct clause, and the sentences are only slightly degraded. In (4a) and (4b), the fronted phrases are scrambled out of a complex NP and an adjunct clause, respectively, and the sentences are again only slightly degraded, a degradation which seems to be due to irrelevant factors such as the unnatural length of the sentences. Insensitivity to syntactic islands suggests that IDCs should not be syntactically derived.

Given the facts i) that a wh-phrase is prosodically prominent and hence forms its own prosodic unit, and ii) that multiple long-distance scrambling is possible only when the scrambled element forms its own prosodic unit (Agbayani et al. (2014)), I argue that IDCs are phonologically derived. It follows then that fronted phrases in IDCs should be interpreted in their original positions: wh-phrases are interpreted in situ, in the same way as a wh-phrase in situ in multiple wh-movement (e.g. *what* in *Who bought what?*), and scrambled phrases are also interpreted in situ.

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Defective Interveners, Adjuncts, and "Two-Peaked" Structure

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This paper gives an account of cases involving "defective-interveners (DIs)" or adjuncts in *tough*-constructions (TCs) & subject-to-subject raising constructions (SSRCs) (Bruening 2014). It is based on: (i) "two-peaked" structure (Epstein, Kitahara, & Seely (EKS) 2013, 2014); (ii) "copy-deletion (CD)": "Delete *all* sisters of lower occurrences (OCCs) of a mover" (EKS 2013); & (iii) *Recoverability:* "Interpret features *at least once"* (EKS 2013). *"Free" simplest Merge* unifying external & internal Merge (EM & IM; Chomsky 2013) allows of unlabeled structures containing a DI or adjunct (Chomsky's 2013 *Labeling Algorithm*). Moreover, DIs & adjuncts turn out to be in a "two-peaked" structure. When the mover's copy in "one set" of the "two-peaked" structure is deleted by CD, a DI (or adjunct) in "the other set" must also be deleted. This is because the mover's copy & DI (or adjunct) share an OCC. Deletion of the DI or adjunct ends up violating *Recoverability* at the sensorimotor (SM) interface because it is the sole copy. This account based on "two-peaked" structure is not applicable to English SSRCs (*John seems to Mary/in meetings to be smart*) due to lack of such a "two-peaked" structure (involving *to Mary/in meetings*). Consider the syntactic-object (SO) in need of labeling: '{XP, YP}, neither a head,' with three 'labeling' possibilities (Chomsky 2013):

(1) a. … XP … {(XP), YP}: SO, labeled based on YP; raising of XP
b. $\{XP_{[+F]}, YP_{[+F]}\}$: SO, labeled based on [+F]; 'feature-sharing'
c. *{XP, YP}: SO, unlabeled in the absence of (1a) or (1b)

Look at (2a, b), which contain an unlabeled SO α:

(2) a. *… XP … $\{_{\alpha}$ {DI/Adj, {~~XP~~, $\{C_F$, $\{_{TP}$ … to … ~~XP~~ …}}}}}
b. … XP … $\{_{\alpha}$ {DI/Adj, $\{C_E$, $\{_{TP}$ … to … ~~XP~~ …}}}}

The SO α consists of a DI (e.g., experiencer-PP)/adjunct phrase & embedded CP. The C-positions of the infinitival embedded clauses in (2a, b) are occupied by C_F & C_E (null prepositional complementizers with French & English properties), respectively (Kayne 1983; preposition-stranding in English, but not in French). XP has to pass through embedded SpecCP in the C_F case, while it does not in the C_E case. English TCs are assumed to involve embedded CPs with C_F as C-head (also Hartman 2009 & Hicks 2009). In (2a), we see a "two-peaked" structure consisting of two intersecting sets: (i) $\{_{\alpha}\{DI/Adj, \{C_F, TP\}\}\}$; & (ii) $\{XP, \{C_F, TP\}\}$. EM takes place before IM for efficiency reasons (EKS 2013). CD of XP entails deletion of the DI/Adj due to their shared OCC ('$\{C_F$, TP}'), in violation of *Recoverability* at SM because the 'deleted' DI/Adj is the sole copy. In (2b), there is no such "two-peaked" structure because the DI/Adj & XP (lower copy) do not share an OCC. But in (2b) α is still unlabeled as an instance of (1c). Consider (3a, b) as examples exemplifying (2a, b), respectively (Bruening 2014):

(3) a. *Sugar was very hard [$_{\alpha}$ [$_{PP}$ on me/in such conditions] [$_{CP}$ ~~sugar~~ C_F [$_{TP}$ … to give up …]]]. (*Sugar was very hard on me/in such conditions to give up;* an English TC)

b. Ruprecht seems [$_{\alpha}$ [$_{PP}$ to his subordinates/in meetings] [$_{CP}$ C_E [$_{TP}$ ~~Ruprecht~~ to be a masterful commander]]].

(*Ruprecht seems to his subordinates/in meetings to be a masterful commander;* an English SSRC)

In (3a), *on me/in such conditions* & *sugar* in SpecCP share an OCC, '[C_F , TP],' & hence CD of *sugar* entails deletion of *on me/in such conditions*, violating *Recoverability* at SM. In (3b), there is no such "two-peaked" structure because *to his subordinates/in meetings* & *Ruprecht* (lower copy) do not share an OCC. But α in (3b) is still without a label. The availability in English of preposition-stranding allows us to obtain for (3b): '{v, {seem + PP + C_E, {$_{\alpha}$ {(PP), {(C_E), {Ruprecht, {to, …}}}}}}},' where the PP *incorporates* into *seem* to make C_E adjacent to *seem* & C_E incorporates into the complex head (also Baker 1988, López 2012). This makes α labeled based on TP ('{Ruprecht, {to, …}}'). Consider some consequences of this analysis:

(4) You'll meet a man [$_{\alpha}$tomorrow *(who) you've seen before]. (= Bruening's 2014 (25b))

English restrictive relatives are assumed to contain a C_F in embedded C. Look at (5), related to (4):

(5) a. *… {v + meet, {a man, {(meet), {tomorrow, {~~a man~~, {C_F, {$_{TP}$ you've …}}}}}}}

(for (4), without *who)*

b. … {v + meet, {a man, {(meet), {tomorrow, {~~a man~~, {who, {C_F, {$_{TP}$ you've…}}}}}}}}

(for (4), with *who;* Kayne 1994 for NS-derivation of *who* & *man*)

In (4/5a), *tomorrow* & *a man* (lower copy) share an OCC, {C_F, TP}, & deletion of *tomorrow* along with CD of *a man* (lower copy) induces a violation of *Recoverability* at SM. In (4/5b), the OCCs of *a man* (lower copy) & *tomorrow* are {who, {C_F, TP}} & {C_F, TP} respectively, keeping the structure grammatical.

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Merging Adjunct to Coordination

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Synopsis: Recently, the distinction between asymmetric property and anti-asymmetric property of Language has been an issue within the Minimalist tenet. In this paper, I will shed the light on the one instance of this distinction, that is complement/adjunct distinction within coordination and propose a novel analysis based on acyclic merge by Stepanov (2001).

Issues: It is widely accepted that coordinate structure involves symmetric relation between two coordinated items. For instance, extraction of one of the conjuncts, or one of the coordinated items yields an ungrammatical sentence (Coordinate Structure Constraint (CSC) by Ross: 1967).

(1) a. *What did you like [apples and *t*]? b. *What did you [drink wine and eat *t*]?

This ungrammaticality in (1) is circumvented iff extraction is the Across-the-Board manner.

(2) What did you like [*t*] b. What did you [drink *t* and eat *t*]

Contrary to the data above, Culicover and Jackendoff (C&J 1997) observe cases where the extraction of one of the coordinated items does not yield an ungrammatical sentence ((3)).

(3) How much can you drink *t* and still stay sober?

Moreover, utilizing the following instances, where one of the conjunction involves a bound variable, C&J claim that one conjunct in the asymmetry breaking coordination is, in fact, a subordinate clause, with which the other clause form the temporal or cause-result relation.

(4) a. You give anyone$_i$ too much money and he$_i$ will go crazy.
b. If you give anyone$_i$ too much money, he$_i$ will go crazy.

Machinery: Utilizing the data above, I will point out the problem of Set-merge, which creates a set {α, β} from α and β and Pair-merge, which creates ordered pair <α, β> (Chomsky 2004). According to this machinery, regular structures are constructed with the Set-merge, while adjunct-structures are constructed with the Pair-merge. Moreover, Pair-merged structure is on the different plane and it is not in a search domain for extraction, since the probe cannot search Goal inside a different plane. However, this pair-merge is said to be stipulate and ad hoc from the theoretical point of view and alternative approaches are investigated among numerous literature (Lebeaux 1988, Stepanov 2001, Oseki 2014 a.o.). In this paper, I will adopt an acyclic approach put forth by Stepanov.

Analysis: Now, let us compare two types of coordination.

(5) a. I drank wine and ate cheese. ↔ I ate cheese and drank wine.
b. I drank a bottle of wine and still stay sober. ≠ #I stay sober and drank a bottle of wine.

As the extraction fact in (2)b shows, the example in (5)a is CSC-sensitive-coordination and it is interchangeable. In contrast, as the extraction fact in (3) shows, the uninterchangeable coordination in (5)b is CSC-insensitive-Coordination. Two conjuncts of the CSC-sensitive-coordination are interchangeable without changing its logical meaning as in (5)a, so conjuncts are order-irrelevant, while ones in the

CSC-insensitive-coordination are not as in (5)b. Now, let us closely look at the cases of CSC-insensitive-coordination. In (6), two conjoined items are temporary distinct, and the event denoted by the first conjunction precedes the event dented by the second conjunct. In this case, the extraction from the clause denoting a precedent event is ungrammatical.

(6) a. *What did Tom read *t* and wrote his article?

b. ?What did Tom read linguistics articles and wrote *t*?

Given the analysis by C&J, the first conjunct in (6) is, in fact, a subordinate (an adjunct) clause. If their analysis is on the right track, one of the conjuncts allows items to be extracted. In fact, the asymmetry in extraction illustrated in (6) is parallel to extraction from an adjunct (adjunct-condition) as in (7).

(7) a. *What did Tom write his article after reading *t*?

b. What did Tom write *t* after reading linguistics articles?

Now, given the universal [$_{\&P}$ XP [& YP]] structure (Hiraiwa and Chino 2014), label of the coordination should be uniformly &P, regardless of the way to introduce the first conjunct. To account for the uniformity of labeling between adjunct and coordinate structure yielded by merge of XP and YP, I claim that the first conjunct is introduced either cyclically or acyclically (Stepanov 2001). Remaining issues of the current analysis is why (6) are uninterchangeable, while regular adjunctions are interchangeable (matrix-adjunct/adjuct-matix). The answer for the first question is that while an overt complimentizer such as "after" clearly denotes the semantic relation between two clauses, semantics of "and" is vacuous and it simply connects two sentences. If the semantics of "and" is vacuous, there is no item which indicates that an event of the first conjunct precedes one of the second conjunct. Thus, two conjunct must follow pragmatic effect (1^{st} conj > 2^{nd} conj w.r.t temporal sequence).

Conclusion: Current approach explains the symmetry/asymmetry of coordination and eliminates an ad hoc theoretical instrument, Set-merge and different plane.