Category and Case Mismatches in Coordination†

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0. Introduction

A lively discussion of coordinate structures can be found in Johannessen (1998), Munn (1993), Borsley (1994), Progovac (1998), Zoerner (1999) and others. To analyze a syntax of coordination, we cannot get by with avoiding problems with category and Case mismatches, which are still controversial. This paper will examine two types of mismatches of syntactic categories and Case. First, different categorial types of conjuncts can be coordinated, which is a category mismatch, though the conjuncts in general must belong to the same syntactic category. Second, nominal conjuncts can be different in Case from one another in a binary or multiple coordination, which causes an internal mismatch, whereas some nominal conjuncts can have unexpected Cases, which causes an external mismatch. Then, this paper is an attempt to account for these mismatches. Moreover, new light will be shed on Chinese coordinate structures, which have not so far been analyzed rigorously.

This paper is structured as follows: Section 1 will examine the internal and external Case mismatches. Section 2 will examine the category mismatch. Section 3 will deal with Chinese coordination.

1. Case mismatches

In this section we will examine two types of Case mismatches in coordinate constructions: an internal Case mismatch and an external Case mismatch.

1.1 Internal Case mismatch

In English, nominal conjuncts can be different in Case from one another in a binary or multiple coordination, yielding an internal Case mismatch, whch is called Unbalanced Coordination in Johannessen (1998), as shown in the following:

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† This paper evolved from the discussion at the lecture given by Yoshi Kubo. We are grateful to Mark Volpe, John Hatcher, Jefferson Peters and Tim Cross for their help with English data. Special thanks go to Kosuke Nagasue for helpful discussion on the content of the paper.
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(1) a. She and him are going to the party.
b. He and her are going to the party.
c. *Her and he are going to the party.
d. *Him and she are going to the party.
e. Him and I are going to the party.

In English the nominal subject has nominative Case, as shown in the contrast between (2a) and (2b):

(2) a. She criticized him.
b. *Her criticized him.

In (1a-e), however, nominal conjuncts in the subject position have different Case from each other. Let us notice that in binary coordination (1a-e) the first conjunct has an expected nominative Case but the second conjunct does not, but that (1e), unlike (1c) and (1d), is acceptable, though the first conjunct does not have the expected nominative Case.[1]

(3) a. *Mary criticized him and she.
b. *Mary saw he and her.
c. Mary saw him and her.
d. Mary saw him and me.
e. Mary saw him and I.

The examples in (3) show that in the object position the internal Case mismatch is not found except for the first person pronoun.

Let us consider multiple coordination.[2]

(4) a. She, he and I all left.
b. *Her, he and I all left.
c. *She, him and I all left.
d. ??She, he and me all left.

[1] The difference in acceptability between (1c, d) and (1e) might be attributed to the property of the first person pronoun, as shown in (3d) and (3e). We will not leave the idiosyncratic property of the first person pronoun open.

[2] Zoerner(1995) points out that (5e) and (5f) are acceptable, but according to our informants they are not acceptable.

e. *Her, he and me all left.
f. ??Her, him and I all left.
g. *She, him and me all left.

(5) a. Johnson saw her, him and me.
b. *Johnson saw her, he and I.
c. *Johnson saw she, him and I.
d. *Johnson saw she, he and me.
e. *Johnson saw her, he and me.
f. *Johnson saw her, him and I.
g. *Johnson saw she, him and me.

The examples in (4) and (5) suggest that the internal Case mismatch can be found in the subject position, but not in the object position. There is subject-object asymmetry with respect to the internal Case mismatch. Let us notice that in the internal Case mismatch non-final conjuncts have an expected Case while only the final conjunct has a deviant Case except for the first person pronoun, which might be consistent with Zoerner's (1995) generalization about the internal Case mismatch:

(6) All non-final conjuncts must have identical Case.

The generalization (6), however, holds for the internal Case mismatch in the subject position, but not in the object position.

1.2 External Case mismatch

All of the nominal conjuncts in the subject position, but not in the object position, can occur with unexpected Case, which is an instance of the external Case mismatch. Johannessen (1998) calls the external Case mismatch an Extraordinary Balanced Coordination.

(7) a. Them and us will go.
b. Him, her and me all left.
c. He, she and I all left.

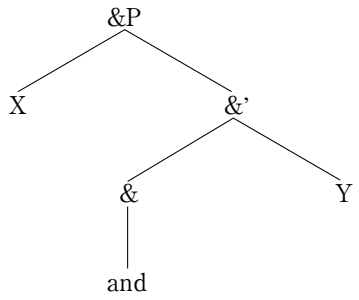
(8) a. *Bill criticized he and she.
b. *Bill criticized she and I.
c. *Bill criticized he, she and I.
d. Bill criticized him, her and me.

In the subject position all conjuncts appear with expected Case, nominative Case or unexpected deviant Case, accusative Case. On the other hand, in the object position all conjuncts cannot occur with unexpected deviant Case, nominative Case. The external Case mismatch can be found in the subject position, but not in the object position. In other words, there is subject-object asymmetry with respect to the external Case mismatch, just like the internal Case mismatch.

1.3 &P

The coordinate construction has so far been analyzed as coordination phrase(&P) in Johannessen (1998), Zoerner (1995), Munn (1993) and others.

(9)



The &P approach by Johannessen (1998) and Zoerner (1995) might account for the differences in word order of the head and the conjuncts. With respect to Case, according to Johannessen (1998), the features of &P are inherited not only from its head, but also from its specifier through Spec-head agreement. For example, the expected Case, nominative Case in the sbject position or accusative Case in the object position can be checked against the head of TP or the head of VP, respectively. It then follows that the Case features of the first conjunct can be checked, leading to deletion of the uninterpretable Case feature, which is consistent with the generalization that the first conjunct occurs with the expected Case. As pointed out in Borsley (2005), however, there is no evidence that a specifier and its phrase agree for Case through Spec-head agreement.[3]

Further, a problem arises with the &P approach. How is the Case of the second conjunct accounted for? Johannessen (1998) makes use of two kinds of mechanisms: one is head-complement agreement and the other is default Case. The head-complement agreement might account for the fact that all conjuncts have an expected Case. The Case features of

[3] For details, see Borsley (2005).

the second conjunct is checked through head-complement agreement, just as that of the first conjunct is checked through spec-head agreement. As a consequence, the first conjunct as the specifier has the same Case feature as the second conjunct as the complement. However, there is no evidence that the specifier and the complement shares the same Case feature. The head-complement agreement approach is not persuasive. The internal and external Case mismatch might be accounted for by the default Case. According to Johannessen (1998), the head of &P undergoes Case licensing where the head of &P assigns the particular Case or default Case as the lexical entry, and the default Case in English is accusative.

The default Case varies among languages. Some evidence can be provided to support that the default Case in English is accusative. First, let us consider mad magazine sentences in English, which are discussed in Akmajian (1984).

(10) a. What! Her call me up?! Never.
b. What! *She call me up?! Never. (Akmajian 1984)
(11) a. Him wear a tuxedo?!
b. *Him gets a job?!
c. *Her {might / will} call me up?! (ibid.)

Akmajian (1984) argues that in mad magazine sentences the nominal subject occurs with accusative Case, but not with nominative Case. Let us note that in mad magazine sentences tense and modals never appear, which suggests that mad magazine sentences lack a tense or TP. It then follows that in mad magazine sentences the nominal subject cannot be checked, and so it is subject to default Case assignment.

Second, as pointed out in Johannessen (1998), let us consider the following:

(12) A: Who talked about apples?
B: Me / *I / *Me did / I did. (Johannessen 1998)

In (12), speaker B's utterance carries accusative Case in a position where it is the only word in the sentence. It then follows that there is no element to check its Case. Default Case, ie., accusative Case in English, can be assigned to a nominal argument which occupies a position where it cannot be checked any other Case. Thus, the default Case assumption might account for the internal and external Case mismatches, but in Johannessen (1998) it is not clear how nominal conjuncts get default Case. Then, we will discuss default Case for details in the next subsection.

1.4 Default Case at PF

The recent version of the minimalist program in Chomsky (2001) has shifted from the mechanism of feature checking to that of feature valuation. According to the feature valuation analysis, uninterpretive features on a head can be assumed to be unvalued when entering the derivation, and to get their values only under the operation of Agree. In other words, the structural Case of arguments is established derivationally. For example, a nominal expression with Φ-features such as person and number, enters the derivation with an unvalued Case feature, and the operation of Agree between the nominal and a functional head like T or v values the Case feature of the nominal according to the type of the Case assigner. Nominative Case assignment to a nominal with first and singular features is illustrated below:

(13)

T	α		T	α
Per [ ]	Per [1st]	⟶	Per [1st]	Per [1st]
Num [ ]	Num [sg]		Num [sg]	Per [1st]
	Case [ ]			Case [Nom]

Let us notice here that unvalued person and number features are valued by Agree with a valued counterpart and that the unvalued Case feature is valued by Agree with the designated Case assigner, i.e., T or v. In Chomsky's (2001) feature valuation analysis, valuation mechanism of Case features is different from that of person and number features. In other words, Case features are different from person and number features, in that Case features are uninterpretable while person and number features are interpretable for nominal expressions.

Let us turn to default Case. Default Case varies among languages. First, let us consider Korean. Korean allows default nominative Case for Caseless NP, which requires a default Case assigning strategy. Jang&Kim(2002) stipulates that such a strategy is similar to the *of*-insertion strategy for satisfying the Case Filter in English. Second, let us consider Icelandic. Icelandic allows nominative NPs to occur in the subject position of certain infinitival clauses. Andrews(1982) assumes that in Icelandic nominative Case is unmarked, so that there is no nominative Case-marking rule and nominative is not a value of Case. But a problem arises, as pointed out in Andrews(1982). In Icelandic finite verbs agree with nominative subjects in person and number while the verb forms with nonnominative subjects are third person singular. Then, we assume that Icelandic assigns default nominative Case

at PF to nominal items which are neither inherently Case-marked (quirky Case), nor in an appropriate feature valuation relation with an appropriate head. We assume default Case assignment as follows:

(14) Default Case can be assigned to a nominal argument at PF which occupies a position where its Case feature cannot be valued in the overt syntax.

In other words, the default Case assigning strategy is assumed to be a PF operation.

Let us turn to the internal and external Case mismatch. In English the following three types of coordination can be found in the subject position.

(15) a. [Nominative & Nominative]
b. [Nominative & Accusative] (internal Case mismatch)
c. [Accusative & Accusative] (external Case mismatch)

In (15a) the nominal subject is subject to the operation Agree with T in the overt syntax, and so the Case feature is valued in the overt syntax. In (15c), the subject is not in the appropriate feature valuation relation with the appropriate head T, i.e., not subject to the operation Agree with T in the overt syntax. Then it follows that the Case feature of the subject is unvalued, and the subject can be assumed to get default Case, accusative Case at PF. In (15b), the first conjunct is subject to the operation Agree with T in the overt syntax, through Spec-head agreement, but the Case feature of the second conjunct is unvalued. Let us notice here that the first conjunct in (15b) has the Case value in the overt syntax whereas the one in (15c) does not have. In other words, as mentioned above, the coordinated subject showing the external Case mismatch is not in the appropriate feature valuation relation with the head of TP. Here a problem arises. Why is the subject in (15b), but not the one in (15c), in the appropriate feature valuation relation? It can be attributed to a difference in syntactic position between the subject in (15b) and the one in (15c).

(16) a. *Him, fortunately, has such a good son.
b. ?Him and her, fortunately, have been to Japan.
c. *Her, Bill thought had been to Japan.
d. ?Him and her, I think have been to Japan.

The contrast in acceptability between (16a, c) and (16b, d) suggests that the coordinated subject showing the external Case mismatch does not occupy the specifier position of TP, but the specifier position of a higher maximal projection than TP, probably TOPP.

(17) a. He, she and I left.
b. ?Him, her and me left.
(18) a. Him and her, they left.
b. Him, her and me, we left.

In (18a) and (18b), which show the external Case mismatch, the initial coordinated phrase is left-dislocated topic, and the subject referring to it occupies the subject position, the specifier position of TP. It then follows that the topic position is a place where default Case can be assigned. Let us suppose that the coordinated subject showing external Case mismatch occupies the topic position, which is higher than TP.[4]

(19) a. She and he have been to New York.
b. She and he've been to New York.
(20) a. Her and him have been to New York.
b. *Her and him've been to New York.
c. ??/*Him and her've been to New York.
(21) a. He and her have been to Yew York.
b. ?He and her've been to New York.

In general, as stated in Radford(2004), 'have'-cliticization allows only when the auxiliary verb 'have' is adjacent to a pronoun, as shown in (22).

(22) a. They've been to Boston.
b. *They've their cars washed at the gas station.

Given that 'have' can cliticize onto an immediately adjacent pronoun, it follows that the coordinated subject in (19) and (21) is adjacent to 'have' while the subject in (20) is not. That is, the subject in (20) can be assumed to occupy a position where a topic occurs, and so the subject is not adjacent to the auxiliary verb 'have', yielding unacceptability.

[4] For the topic position, see Rizzi (1997) and Kubo et al.(2001).

Thus, the accusative subject in (15c) showing the external Case mismatch occupies a different syntactic position from the nominative subject in (15a) and [nominative&accusative] subject in (15b). Therefore, the accusative subject in the first conjunct can be assumed to get default Case at PF.

We have seen two mechanisms of Case valuation. One is Case valuation in the overt syntax, and the other is default Case assignment at PF. Then, some problems arise. First, how is the Case feature of the second conjunct in (15b) and (15c) valued? That is, the problem is with mechanism of Case valuation to the second conjunct. This mechanism applies to the second conjunct in (15b) but not to the one in (15c), or to both. In the former, the difference in Case of the second conjuncts might be attributed to the syntactic positions of the second conjuncts or optionality of application of feature valuation mechanism to the second conjuncts. Second, why is only the coordinated subject showing external Case mismatch allowed in the topic position? The resolution of the details is beyond the scope of our present inquiry, and therefore will leave this problem open.

2. On Bizarre And aNd anD

It is almost like unlocking the door which leads to the world of paradox when you try to reveal the nature of coordination. Several researchers have tried to solve or discover the true nature of coordination. Their approaches, however, might not be successful in some parts (Johannessen1998, Kayne 1994, Munn 1993, Progovac 1998, Zoerner1995, and others). In this section, we will try to reveal the nature of coordination focusing on the issue of coordination of likes constraint (henceforth, CLC) in the newly developed framework Distributed Morphology (henceforth, DM) (Arad 2003, Halle and Marantz 1994, Harley and Noyer 1999, Marantz 1997, Volpe 2006). In the section 2.1, we will demonstrate the extant analyses on CLC and show they are not adequate to capture all of the features of CLC. In the section 2.2, we will propose, contrary to the proposal in Johannessen (1998), that a conjunction itself does not pose a requirement of the sameness of its conjuncts, but rather the CLC can be reduced to a more fundamental configurational requirement. If all the conjuncts are in the same syntactic position, they must be interpreted in the same way, which is ensured by a configurational theta-theory (Hale and Keyser 1993, 2003). In the section 2.3, we will assume that a certain type of coordinate structure might be best analyzed as having an adjunction structure.

2.1 Coordination of Likes Constraints (CLC)

Chomsky (1957) observes that different categories cannot be conjoined as (23) and (24) indicate, which is referred as Coordination of Likes Constraints (henceforth, CLC).

(23) I like the scene [$_{PP}$ of the movie] and [$_{PP}$ of the play].

(24) *The scene [$_{PP}$ of the movie] and [$_{CP}$ that I wrote].

Furthermore, based on the data (25) and (26) below, Schachter (1977:90) formulates CLC as (27), which shows semantics only cannot explain the ungrammaticality of (26) since (25) and (26) involve conjuncts which have semantically equal function but only (26) is ruled out. Schachter suggests that conjuncts must have syntactically the same function to be conjoined.

(25) Bobby is the man [$_{CP}$ who was defeated by Billy Jean] and [$_{CP}$ who beat Margaret].

(26) *Bobby is the man [$_{VP}$ defeated by Billie Jean] and [$_{CP}$ who beat Margaret].

(27) The constituents of a coordinate construction must belong to the same *syntactic* category and have the same *semantic* functions.

There are, however, as pointed out by Zoerner (1995) and Progovac (1998), counter-examples to Shachter's generalization (27) whose conjuncts apparently are different syntactic categories.

(28) Pat has become [$_{NP}$ a banker] and [$_{AP}$ very conservative]. (Sag et al. 1985)

(29) Robin is [$_{AP}$ ugly], [$_{NP}$ a dolt] and [$_{PP}$ of no help]. (Zoerner1995)

(30) Robin considers Kim [$_{AP}$ completely evil], [$_{NP}$ a total witch], and [$_{PP}$ beyond salvation]. (Zoerner 1995)

(31) [$_{NP}$ Robin's help] and [$_{CP}$ that (s)he gave it so willingly] delighted Kim. (Zoerner 1995)

(32) Robin realized [$_{CP}$ that the sky was falling] and [$_{NP}$ the gravity of the situation].
(Zoerner 1995)

As the examples in (28-32) shows, conjuncts which have different syntactic categories can be conjoined, for instance, in (28) [$_{NP}$ a banker] and [$_{AP}$ very conservative] are conjoined. Furthermore, it is noteworthy that the order of these types of conjuncts is almost freely reversible just like the coordinate structure whose conjuncts are the same categories does.

(33) a. I like the scene [$_{PP}$ of the movie] and [$_{PP}$ of the play].
b. I like the scene [$_{PP}$ of the play] and [$_{PP}$ of the movie].

(34) a. Robin realized [$_{CP}$ that the sky was falling] and [$_{NP}$ the gravity of the situation].
(Zoerner 1995)
b. Robin realized [$_{NP}$ the gravity of the situation] and [$_{CP}$ that the sky was falling].

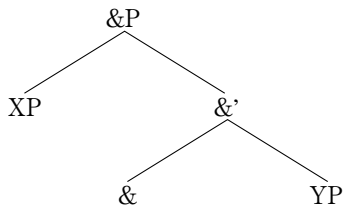
As the examples in (33) show, the order of conjuncts is reversible, and as the examples in (34) indicate, even when the each conjunct has a different syntactic category, the order of conjuncts is reversible. On the other hand, there are some cases where conjuncts cannot be conjoined even when they belong to the same syntactic category.

(35) *Jack and the key opened the door.

In the example (35) above, even though the conjuncts [Jack] and [the key] belong to the same syntactic category DP, but the sentence is ill-formed. Several researchers have tried to solve the problem of CLC, but so far there seems no sufficient theory or principle to explain the examples above.[5] The theories which treat a conjunction as a head, for example, do not mention anything about CLC, for example, Johannessen proposes the following configuration for a coordinate structure.

[5] Gazder et al. (1985) attempts to solve the problem of CLC by reconsidering lexical categories in terms of [V, N] categorial features. Jacobson (1987) assumes that AP, PP and NP can be analyzed as a category PRED, so the conjuncts in the examples in (28)-(32) belong to a PRED, and apparent counter-examples to CLC can be explained by the introduction of PRED (Possible problems of these approaches, see Progovac 1998).

(36)



According to Johannessen, a conjunction & projects its own projection and it takes each conjunct as a specifier and a complement. In the configuration above, only the features of element in the specifier gets into a checking relation with the head &; therefore, Johannessen's configuration itself says nothing about CLC.[6] To explain the general data above, Johannessen assumes an additional condition, namely, Economy of Conjunction Marking. The justification of Johannessen's Economy of Conjunction Marking is beyond the scope of this section, so we will leave it open. In the following section, we will suggest that CLC can be explained without referring to Johannessen's Economy of Conjunction Marking.

2.2 No More CLC

In this section, we will explore a possibility to discard the CLC and propose that CLC is not a requirement which a head & casts for its conjuncts but it can be reduced to an interpretational requirement. In the framework of Distributed Morphology(henceforth, DM), a theta-role or argument structure is reduced to purely configurational relationships of the elements; a distinct position in a configuration is interpreted distinctively. As the following examples in (37) indicates, NPs which must be interpreted in different theta-roles cannot be conjoined.

(37) a. John opened the door.
b. The key opened the door.
c. *John and the key opened the door.

In the framework of DM, this fact can be elegantly explained; [John and the key] in the example (37c) occupies the same edge or the specifier position of vP in the configuration, so the elements [John] and [the key] must be interpreted as playing the same role in the donated event. The "Encyclopedic knowledge", however, ensures that [John] and [the key] cannot be interpreted as the same role, for example as an agent, and the sentence is ruled out. Remember in the examples of unlike category coordination (28)-(32) repeated

[6] According to Johannessen, the second conjunct looks like getting a free ride under certain circumstances, but the first conjunct must meet the subcategorization of the verbal head, whose selection is established by Spec-head checking.

here as (38)-(42), the conjuncts in each grammatical sentence are interpreted in the same way even though their syntactic categories are different.

(38) Pat has become [$_{NP}$ a banker] and [$_{AP}$ very conservative]. (Sag et al. 1985)

(39) Robin is [$_{AP}$ ugly], [$_{NP}$ a dolt] and [$_{PP}$ of no help]. (Zoerner1995)

(40) Robin considers Kim [$_{AP}$ completely evil], [$_{NP}$ a total witch], and [$_{PP}$ beyond salvation]. (ibid.)

(41) [$_{NP}$ Robin's help] and [$_{CP}$ that (s)he gave it so willingly] delighted Kim. (ibid.)

(42) Robin realized [$_{CP}$ that the sky was falling] and [$_{NP}$ the gravity of the situation]. (ibid.)

Assuming Johannessen's &P configuration is on the right track, we can naturally come to a conclusion that the conjuncts in an &P appears in the same position in the sentence and must be interpreted as the same role.[7,8]

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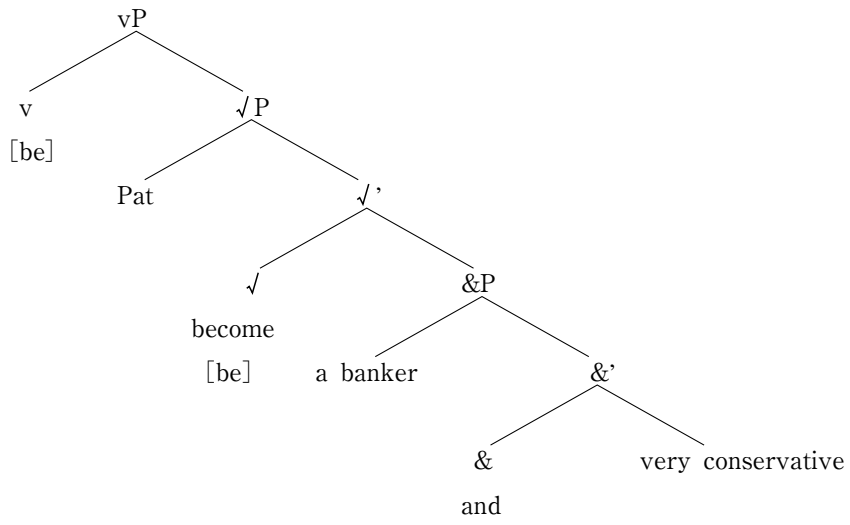
[7] It is controversial whether the confuguration (43) is derived in syntax. Some researchers argue the coordinate structures are derived through a PF deletion and a reanalysis. In this paper, we will tentatively adapt an analysis which treats the [a banker] and [very conservative] directly merge with a head &. However, the analysis presented in this paper would be tenable with the PF deletion approach assuming the condition of coordination that the sentential conjuncts must be interpreted as semantically same type, which is ensured by theta configurationality. We will leave deeper discussion for the future work.

[8] According to Harley and Noyer (2000), in the framework of DM, a root is a bundle of features which enter into a syntactic operation. A root can appear in any types of configuration, but the root must be licensed in a local domain. A root is underspecified for a given syntactic possibility, and have [±v], [±be], [±cause], [±DP1] and [±DP2] features. A root which has a [+cause] can be licensed in an environment where the category-determining little v morpheme has the same [+cause] feature. Assuming this approach in on the right track, we can elegantly explain the following argument alternations.

(i) a. Jack laughed.
b. Jack laughed at Mary.
c. Jack laughed a big laugh.
d. Jack laughed himself tired.
e. The audience laughed the musician off the stage.

The root [laugh] is, as (ia), classified as an unergative verb, so it is underspecified for the features [-cause], [+DP1] but not for other features. Therefore, the root [laugh] is licensed as long as the underspecified feature is in a licensing condition. In a cognate object construction (ic) the feature [-cause] and [+DP1] is licensed and the unselected object [a big laugh] freely appear as long as the feature of the root is licensed. In the resultative configuration (id-e), the sentences are well-formed as long as the features of the root are also licensed. (See Harley and Noyer 2000 for more detail.)

(43)



As the configuration above demonstrates, &P occupies a complement position of the verb *become* which has a [be] feature. When the root has a [be] feature, it precludes the possibility of having a specifier of vP and the root phrase is interpreted as a predicate, which requires that the subject of the predication and the predicate must appear in the configuration. Therefore, each conjunct must be interpreted as a predicate without referring to its syntactic category. We can capture the nature of coordination by assuming a configurational theta-theory in the framework of DM, and at the same time we can discard an ad hoc condition like CLC completely. Furthermore, the approach presented above is supported syntactically. Based on the following example (44), Ross (1967: 98-99) formulates the constraint on the extraction of conjuncts, which is called Coordinate Structure Constraint (henceforth, CSC) as shown in (45).

(44) *[$_{NP}$ Which surgeon] did Kim date t and [$_{NP}$ a lawyer] ?
(Ross 1967 cited in Progovac 1998)

(45) Coordinate Structure Constraint (CSC)
In a coordinate structure, no conjunct may be moved out, nor may any element contained in a conjunct be moved out of the conjunct.

Notice that, as the examples in (46) clearly show, a coordinate structure which includes conjuncts whose syntactic categories are mismatching also follows CSC and the extraction of a conjunct out of &P is prohibited.

(46) a. Bill has become [$_{NP}$ a banker] and [$_{AP}$ very conservative].
b. *What has Bill become t and very conservative?

Therefore, the approach proceeded above is syntactically supported to have an &P configuration. Possible counter-examples to the alternative analysis presented here might be the case of (25)-(26) repeated here as (47)-(48).

(47) Bobby is the man [$_{CP}$ who was defeated by Billy Jean] and [$_{CP}$ who beat Margaret].

(48) *Bobby is the man [$_{VP}$ defeated by Billie Jean] and [$_{CP}$ who beat Margaret].

The conjuncts in these examples have semantically equal functions, but still (48) is ruled out. We assume that these examples are not counter-examples in an adequate sense. The ungrammaticality of the sentence (48) cannot be attributed to overt syntax, but to a failure of PF operation. It has been assumed that at the representation level of PF the identical elements can be deleted following the Economy Principle (Chomsky 1995).

(49) *Bobby is the man [$_{VP}$ ~~who was~~ defeated by Billie Jean] and [$_{CP}$ who beat Margaret]. (PF)

The sentence (49) demonstrates the PF deletion to derive the ungrammatical example (48). As you can see, the identical element is only *who* in each CP but the copula *was* is also deleted, which leads to PF crash. Therefore, we can elegantly account for all the examples above without referring to additional conditions like CLC or Economy of Conjunction Marking[9], keeping the configuration of &P proposed by Johannessen (1998). There is another example which seems slightly different from &Ps discussed above.

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[9] Johannessen (1998) assumes the following condition to exclude some ungrammatical sentences.

Economy of Conjunction Marking
An extra (overt) conjunction marker signals an increase in the complexity of the event structure, according to the following formula:
Zero-coordination= one participant (one event necessarily)
1-coordination= two participants (one or more events)
2-coordiantion= two participants/ two events
(The number of participants above refers to the number of conjuncts that are separate participants in the event(s).)

In this paper, we will tentatively ignore the justification or a direct argument against this condition. If the approach proceeded above is on the right track, ungrammatical sentences can be successfully ruled out without referring to any additional condition, which is an ideal result in terms of the Occam's razor.

(50) a. You can depend on [$_{NP}$ my assistant] and [$_{CP}$ that he will be on time].
b. *You can depend on [$_{CP}$ that my assistant will be on time] and [$_{NP}$ his intelligence]. (Progovac 1998)
c. *You can depend on [$_{CP}$ that he will be on time]. (ibid.)

(51) a. Pat was annoyed by [$_{NP}$ the children'noise] and [$_{CP}$ that their parents did nothing to stop the noise]
b. *Pat was annoyed by [$_{CP}$ that their parents did nothing to stop the noise] and [$_{NP}$ the children'noise] (Progovac 1998)
c. *Pat was annoyed by [$_{CP}$ that their parents did nothing to stop it]. (ibid.)

As shown in (50)-(51), different syntactic categories seem to be conjoined. For example, in (50a) [$_{NP}$ my assistant] and [$_{CP}$ that he will be on time] are conjoined. Note that as depicted in (50b) and (51b), the conjuncts are not reversible, which is contrary to the type which allows reversing conjuncts as shown in (34) repeated here as (52).[10]

(52) a. Robin realized [$_{CP}$ that the sky was falling] and [$_{NP}$ the gravity of the situation]. (Zoerner 1995)
b. Robin realized [$_{NP}$ the gravity of the situation] and [$_{CP}$ that the sky was falling].

Furthermore, as the ungrammaticality of the examples (50c) and (51c) indicates, the *that*-clause in each sentence is not an argument selected by the root or the verbal configuration. Now the question is whether the theory discussed above is compatible with these facts or not. We suggest that the examples (50) and (51) can be treated as a sub-type of Johanessen's &P configuration. First, the examples (50a) and (51a) also follow CSC as shown below:

(53) a. You can depend on my assistant and that he will be on time.
b. *Who can you depend on t and that he(the man) will be on time?

An extraction of a conjunct out of a &P is only allowed if all conjuncts are extracted, which is called Across-the-Board (ATB) as demonstrated below:

[10] Here we assume the root [realize] has a feature [-cause], and the DP [the gravity of the situation] is selected by its verbal environment. Furthermore, we assume the CP [that the sky is falling] is also selected by its verbal environment as a clausal nominal argument.

(54) Which surgeon did Kim date friends of t and enemies of t? (Progovac 1998)

Notice that the examples in (50) and (51) also allow ATB as demonstrated below:

(55) a. You can depend on my assistant and that he will be on time.
b. Who can you depend on t and that t will be on time?

This syntactic evidence strongly favors an approach to treat these examples as a certain type of &P. Now the question is an impossibility of reversing the conjuncts, which is possible in a coordinate structure as illustrated in (52). Notice that, as the examples in (56) demonstrate, there are some cases where reversing of conjuncts is also ruled out.

(56) a. Jack read and reviewed the paper.
b. *Jack reviewed and read the paper.

In the case of the examples in (56), the ungrammaticality of the sentence (56b) does not come from a failure of syntactic derivation, but rather the sentence is ruled out by "Encyclopedic knowledge", namely, the event of reviewing must be a result or a purpose of the event of reading, so the event of reading must precede that of reviewing. We assume that (50b) and (51b) are also ruled out by our "Encyclopedic knowledge", and further we assume that they are similar to an appositive *that*-clause illustrated as (57) below.[11,12]

(57) a. I was surprised to hear the news [$_{CP}$ that Jack killed Bill].
b. *I was surprised to hear [$_{CP}$ that Jack killed Bill] the news.

(57b) is ruled out by a failure of constructing a proper informational structure, that is to say, the appositive clause is used to establish a further specification of the information of the proceeding nominal. We propose that (50b) repeated here as (58b) is ruled out by a failure of constructing an adequate informational structure ensured by our "Encyclopedic knowledge".

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[11] The impossibility of reversing an appositive *that*-clause would also come from a syntactic restriction, like a Case theory. The derivation of an appositive clause is extremely controversial and could be an example of a Late Merge after a Spell-Out, so here we will tentatively leave it open and focus on the semantic aspect of an appositive *that*-clause.

[12] See Vries (2006) for a current analysis which treats an appositive relative as a kind of a coordinate structure.

(58) a. You can depend on my assistant and that he will be on time.
b. *You can depend on that he will be on time and my assistant.

In (58), *that*-clause apparently specifies the additional features or characters of the former nominal. Therefore, if the order of the conjuncts is reversed, the information structure is broken down and ruled out by our "Encyclopedic knowledge". In this section, we have demonstrated that we can discard the adhoc condition like CLC, and, adopting the framework of DM, proposed that a conjunction itself has no categorical requirement but the tendency that conjuncts whose categories are the same are conjoined is a result of an interpretational requirement of a syntactic configuration. In the following section, we will show another type of coordinate structure which, contrary to Johannessen's &P analysis, should be treated as having an adjunction structure.

2.3 An Adjunct &P

In the previous section, we have demonstrated that we can discard the notion of CLC by adopting the theta-configurationality in a framework of DM. There are, however, seemingly problematic data as shown below:

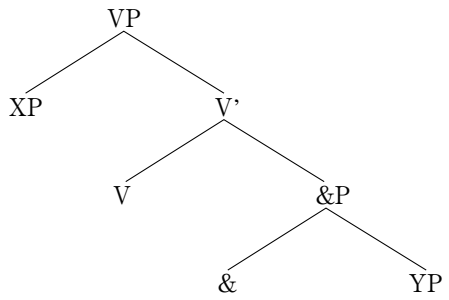
(59) a. Jack read [$_{NP}$ the difficult book] and [Adv.P rapidly].
b. Jack read [$_{NP}$ the difficult book] and [Adv.P only yesterday].
c. Jack read [$_{NP}$ the difficult book] and [$_{PP}$ in a dark room].
d. Jack read [$_{NP}$ the difficult book] and [$_{PP}$ in only 30 minutes].

In the examples in (59), different categories are conjoined, for example, in (59a) a NP *difficult book* and an adverb *rapidly* are conjoined. Surprisingly these examples show quite a different features from the coordinate structures which we have discussed in the previous section. First, contrary to coordinate structures so far discussed, the conjunction *and* in (59) is optional.

(60) a. *Jack loves Mary Ellen.
(cf. Jack loves Mary and Ellen.)
b. *You can depend on my assitant that he will be on time.
(cf. You can depend on my assistant and that he will be on time.)
c. Jack read the difficult book rapidly.
(cf. Jack read the difficult book and rapidly.)

As shown in the examples (60a, b), a conjunction is not omissible whereas in (60c), the conjunction is optional. Now the question is whether we can analyze these examples as Johannessen's &P configuration or not. It would not be supportive to assume they have the same &P configuration as the previous examples since, if Johannessen's analysis of &P is on the right track, the checking relations between a specifier of &P and a head of &P must be consistent and a language internal optionality might not be expected (as a matter of course, a cross-linguistic optionality of conjunct is observed). Therefore, we propose that the coordinate structure in (59) consists of an adjunction structure as shown below.[13]

(61)



As shown in the configuration above, the &P adjoins to VP and importantly the &P itself does not have its specifier. This adjunction analysis as the second type of the coordinate structure can be verified syntactically and semantically. Remember that the extraction of a conjunct from a &P is prohibited by CSC as the ungrammatical example (62a) indicates and only the extraction of both conjuncts is allowed as shown in (62b), which is called ATB.

(62) a. *Which surgeon did Kim date t and a lawyer?
b. Which surgeon did Kim date friends of t and enemies of t?

Crucially, any examples in (59) do not follow CSC and the extraction of a conjunct is allowed as the examples in (63) indicate.

(63) a. What did Jack read and rapidly?

[13] This proposal is different from an adjunct analysis of &P proposed by Munn (1993) in a strict sense. Munn (1993) assumes that &P adjoins to the first conjunct or a NP. In this section, we propose that this is not the case, but the &P adjoins to VP and the adjunction of &P to VP is supported empirically by examples where the first conjunct is free from CSC as discussed below.

b. What did Jack read and in a dark room?
c. What did Jack read and only yesterday?
d. What did Jack read and in only 30 minutes?

There is another example which seems to be free from CSC as shown in (64) where one of the conjuncts [*How much*] is extracted. Lakoff (1986) argues that CSC is wrong generalization positing an example like (64) as a counter-example.

(64) [How much] can you drink t and still stay sober? (Lakoff 1986 cited in Progovac 1998)

Here, we take it in a different way putting together with the examples in (63) and an adjunct &P analysis proposed above. We assume that these examples where the first conjunct can be extracted escaping from CSC indicate that the first conjunct is not a constituent of &P, but rather the &P adjoined to VP as the configuration (61) illustrates.[14] Therefore, putting the contradictory examples and CSC together, the adjunct analysis of the &P is syntactically motivated. Furthermore, there is a semantic difference between examples with *and* and examples without it.

(65) a. Jack read the difficult book and in only 30 minutes.
b. Jack read the difficult book in only 30 minutes.

When the conjunction *and* appears in the configuration as in (65a), the information of &P gains an emphasis or a focus which cannot be observed without the conjunction as in (65b). Assuming a distinct meaning dwells in a distinct configuration, we assume the &P which adds and induces a focus on the sentence is an adjunct which has a focus force. Therefore, the adjunct analysis of the &P is also supported in a semantic field.

In this section, we have proposed that a certain &P should be explained as having an adjunction structure, which casts a crucial doubt on any analysis which treat &P as having a uniform configuration.

[14] Postal (in press) cited in Progovac (1998) also argue that the example (42) is not a true instance of &P but the &P is playing a role as an adjunct.

How many *ands* are in the title of this section? You can find four kinds of *and* or could be more. We have proposed that a conjunction *and* should not be uniformly analyzed to capture their behavior and might be best analyzed as two distinct *ands* which have distinct configurations. Now, what is the third and the forth *ands*? The candidate of the third type of *and* is presented in an Appendix leaving a strict justification for the future work. We will leave the forth type of *and* as a possibility to discover another kind of *and* or, contrary to the proposal of this section, to provide a uniform explanation for all conjunctions *ands* presented here.

3. On Chinese coordination

In this section, we will check whether different categorical types of conjuncts can be coordinated in Chinese, and whereafter we will examine two types of Chinese coordinators. As to Case, we will not consider it here because Chinese does not show Case in morphological form.

3.1 The Fundamental Analysis of Chinese Coordinators

Compared to English coordinators 'and', Chinese has two kinds of words: 'he(和)', 'yu(与)', 'ji(及)', 'tong(同)', 'gen(跟)'; vs. 'bing(并)', 'bingqie(并且)', 'erqie(而且)'. In 3.1, we will mainly focus on 'he(和)' and 'bingqie(并且)', and show the differences between these two kinds of typical Chinese coordinators.[15] Firstly, see the examples below:

(66) a. 老师[l28 sh43] 和[h○] 学生[xu○ sh5ng] 都[d●u] 在[z51] 教室[j50 sh41] 里[l42]。(与[y54]/及[j40]/同[tong]/跟[g5n]/*并且[b4ng qi50]/*而且[○r qi50])
laoshi he xuesheng dou zai jiaoshi li (yu/ji/tong/gen/*bingqie/*erqie)
teacher and student all P[16] classroom inside
'Teacher(s) and student(s) all are in the classroom.'

b. 我们[w4men] 能够[n○ngg4u] 并[b4ng] 必须[b41 x55] 完成[w2nch○ng] 这个[zh49 ge] 任务[r4n wu]。(并且[b4ng qi50]/而且[○r qi50]/*和[h○]/*与[y54])
women nenggou bing bixu wancheng zhege renwu (bingqie/erqie/*he/*yu)
we can and must complete this task
'We can and must complete this task.'

[15] We take 'he(和)' as our main researching object, because it is used most frequently and it is the most typical coordinator in Modern Chinese as Wu (2005a) mentioned.
[16] P stands for Preposition here.

We can see that ‘he(和)’ cannot replace ‘bing(并)/bingqie(并且)’ in (66b), and the reverse version is also impossible in (66a). That is to say, though ‘he(和)’ and ‘bingqie(并且)’ both are coordinators and can be translated as the counterpart of the English ‘and’, they are different in their usages.

Before discussing the differences between ‘he(和)’ and ‘bingqie(并且)’, we want to show that for the Chinese binary coordination, only the same categorical types of conjuncts can be coordinated, which is in accordance with Coordination of Likes Constraint (CLC, see Chomsky 1957, Williams 1978, Schacher 1977). Although ‘unlike category coordination’ is founded in many other languages, this phenomenon does not appear in Chinese. (In this paper only binary coordination is discussed, as to multiple coordination, we leave them for future research.) What will happen when we directly translate English sentences of unlike category coordination into Chinese?

(67) a. Pat is a Republican and proud of it. (NP and AP)
b. I am hoping for an invitation and optimistic about my chances. (VP and AP)
c. John is sick and in a foul mood. (AP and PP)

(Sag et al. 1985)

(68) a. *Pat 是 一个 共和党人 并且/和 自豪。
Pat shi yige gonghedangren bingqie/he zihao
Pat be a Republican and proud

b. *我 在 期待 一个 邀请 并且/和 对 我的 机会 乐观
wo zai qidai yige yaoqing bingqie/he dui wode jihui leguan
I -ing hope a invitation and about my chance optimistic

c. *Jack 病了 并且/和 在 恶劣的 心情 下。
Jack bingle bingqie/he zai eliede xinqing xia
Jack sick and P foul mood in

Comparing (67) to (68), we know that in Chinese binary coordination, the unlike categories are not permitted. Although Wu (2002) argues that there are unlike category coordination in Chinese, with deeper analysis we argue that those examples in Wu (2002) cannot be regarded as unlike category coordination or be easily accepted as grammatical sentences.

(69) a. 他 对 新疆的 山山水水 都 充满了
ta dui xinjiangde shanshanshuishui dou chongmanle
he to Xinjiang’s landscape all full of

[juan3 lian4 he2 shen1 qing2]。
juanlian he shenqing
love and affectionateness
'There is full of love and affectionateness (in his heart) to Xinjiang's landscape.'

b. *t1men zhi4dao3 [zai4 re4gou3dian4 pang2 huo4 yao3kai1 la1ji1dai4]
tamen zhidao zai regoudian pang huo yaokai lajidai
they know P hotdog shop side or gnaw open garbage bag
xun2zhao3 shi2wu4。
xunzhao shiwu
find food
'They know to find out food beside the hotdog's shop or by gnawing open the garbage bag.'

In Wu (2002), the coordination structures of (69a, b) are analyzed as [VP+NP], [PP+VP]. The first conjunct 'love' in (69a) can actually be regarded as a verb sometimes. However, it is not true at any time. We can still use the same coordination of (69a) and just add a possessive pronoun 'tade (his)' before it. Then we get:

(70) t1de juan4 lian4 he2 shen1qing2。
tade juanlian he shenqing
his love and affectionateness
'his love and affectionateness'

In this new phrase (70), as the head of an NP, 'juanlian (love)' is absolutely a noun. In fact, the English word 'love' is the same one, which can of course be used as a verb and also can be used as a noun, for example 'a love of language'. Therefore, we argue that Wu (2002) made a wrong analysis. (69a) should be analyzed as [N+N]. As to (69b), I, as a native Chinese speaker, cannot take it as a grammatical sentence. If we add a preposition 'tongguo (by)' before the latter conjunct to form a PP, then the sentence will become perfectly good. See (71a):

(71) a. [zai4 re4gou3dian4 pang2 huo4 tong•ng gu4o yao3kai1 la1ji1dai4]
zai regoudian pang huo tongguo yaokai lajidai
P hotdog shop side or by gnaw open garbage bag

b. 它们 知道 [咬开 垃圾袋] 或 [在 热狗店 旁
tamen zhidao yaokai lajidai huo zai regoudian pang
they know gnaw open garbage bag or P hotdog shop side
寻找 食物]。
xunzhao shiwu
find food
'They know to gnaw open the garbage bag or to find out food beside the hotdog's shop.'

If the two conjuncts of (69b) are transposed[17], we can get (71b), which is a grammatical sentence. At first sight, it seems that (71b) proves that different categorical conjuncts can be coordinated. If we reread the whole sentence again, however, we can find out that the fact is opposite. As we remark the scope of conjuncts, the latter one includes a VP of 'find food'. We argue that this VP changes the second conjunct from PP to VP. Therefore, the structure of coordination changes to [VP+VP] and the sentence becomes grammatical. This also can be regarded as evidence that coordination of Chinese only accepts the same categorical conjuncts.

In fact, up to now, we have not found out any examples of unlike category coordination in Chinese through examining a lot of sentences from the database of Internet or other papers. Therefore, we argue that Chinese is a kind of language which follows the CLC strictly and does not permit the unlike category coordination.

3.2 The differences between 'he(和)' and 'bingqie(并且)'

In this part, we will mainly discuss the differences between the two kinds of coordinators: 'he(和)' and 'bingqie(并且)'. Firstly check the conjunctions with different categorical conjuncts:

(72) a. Noun: 在 桌子 上 有 牛奶 和/*并且 面包。
zai zhuozi shang you niunai he/bingqie mianbao
P table upon have milk and bread
'There is milk and bread on the table.'

[17] This idea is mentioned by Professor Kubo.

b. Adverb 他 快速地 *和/并且 完美地 解决 了 问题。
ta kuaisudi he/bingqie wanmeidi jiejue le wenti
he rapidly and perfectly solve PT[18] problem
'He has solved the problem rapidly and perfectly.'

c. Adjective 人 可以 变得 高大 和/并且 强壮。
ren keyi biande gaoda he/bingqie qiangzhuang
people can become tall and strong
'People can become tall and strong.'

d. Verb 记录 和/并且 保留 一些 证据
jilu he/bingqie baoliu yixie zhengju
record and save some evidences
'record and save some evidences'

e. NP 张三 的 书 和/*并且 李四 的 铅笔
Zhangsan DE[19] shu he/bingqie Lisi DE qianbi
Zhangsan's book and Lisi's pencil
'Zhangsan's book and Lisi's pencil'

f. VP 这份 文件 记录 了 时间 *和/并且
zhefen wenjian jilu le shijian he/bingqie
this file record PT time and
被 用做 了 证据。
bei yongzuo le zhengju
PA[20] use PT evidence
'This file recorded the time and was used as the evidence.'

g. AP 高大 的 和/*并且 强壮 的 战士
gaoda de he/bingqie qiangzhuang de zhanshi
tall DE and strong DE fighter
'tall and strong fighter'

h. PP 在 桌子 上 和/*并且 在 椅子 下面
zai zhuozi shang he/bingqie zai yizi xiamian
P table on and P chair under
'on the table and under the chair'

[18] PT stands for past tense.
[19] DE here can be considered as an Adjective Marker when adjectives modify nouns or pronouns. For example: 'active person' should be translated into '积极的人' and almost can not be translated into '积极人'.
[20] PA stands for passive marker here.

	N	Adv.	Adj.	V	NP	VP	AP	PP
‘he(和)’	+	−	+	+	+	−	+	+
‘bingqie(并且)’	−	+	+	+	−	+	−	−

Figure 1[21]

We can see their differences from Figure 1:

In word level, ‘he(和)’ can take conjuncts of N, Adj., and V; ‘bingqie(并且)’ can take Adv., Adj., and V. Both of them can take Adj. and V. However, N is only available for ‘he(和)’, and Adv is only available for ‘bingqie(并且)’. Wu (2005a) compared the two kinds of coordinators and claimed that the expressional function of ‘he(和)’ coordination is Reference, and ‘bingqie(并且)’ coordination is Predication. This might be a part of the reason why N is only for ‘he(和)’ and Adv. is only for ‘bingqie(并且)’. Another point is that there are differences in their interpretations although both of them can coordinate two Adjectives or two Verbs. In ‘bingqie(并且)’ structure, the first Adjective should be more important, intensive and emphatic than the second one. However, in ‘he(和)’ structure, there is no difference between the first Adjective and the second one. For Verbs, they show a sequential action in ‘bingqie(并且)’ structure and the interpretations will change if the two verbs are interchanged. These are not reflected in ‘he(和)’ structure.

In the phrase level, ‘he(和)’ can take conjuncts of NP, AP, and PP; ‘bingqie(并且)’ can take only VP.

Notice here that both of them can take Adj. and V, which are in the same word level. However, in the phrase level, they have no intersection. This point might be worthy for us to make a deeper discussion. Now, let us see more complicated examples:

(73) ‘This room is swept and cleaned.’

a. 这个 房间 被 打扫 了 *和/并且 被 整理 了。
zhege fangjian bei dasao le he/bingqie bei zhengli le
this room PA sweep PT and PA clean PT

b. 这个 房间 被 打扫 了 和/*并且 整理 了。
this room PA sweep PT and clean PT

c. 这个 房间 被 打扫 *和/并且 被 整理 了。
this room PA sweep and PA clean PT

[21] There is one more case: Preposition. The reason why we don’t list it in Figure 1 is that in Chinese P can not be coordinated by any conjunction. Therefore, we need not discuss P in this paper.

d. 这个 房间 被 打扫 和/并且 整理 了。
zh49 ge f36ng j3n b4 d38 s38 h0 b4ng q50 zh5ng l42 le
this room PA sweep and clean PT

Their structures are:

a. [PA+V+PT] + * 'he(和)' / 'bingqie(并且)' + [PA+V+PT]
b. PA+ [[V+PT] + 'he(和)' /* 'bingqie(并且)' + [V+PT]]
c. [[PA+V] + * 'he(和)' / 'bingqie(并且)' + [PA+V]] +PT
d. PA+ [V+ 'he(和)' / 'bingqie(并且)' +V] +PT

As we get the result from Figure 1, the structures of (73a-d) also show that: a) in word level, both 'he(和)' and 'bingqie(并且)' are acceptable; b) in phrase level, 'he(和)' can be used only when the passive marker 'bei(PA)' is out of the coordination structure; and c) 'bingqie(并且)' is acceptable for V and VP, but it is bad when it coordinates the structures of [V+PT]. From the analysis above, we assume that [V+PT] is not a complete VP, but part of a VP. However, as (73c) shows, [PA+PT] should be looked at as a complete VP because only 'bingqie(并且)' is acceptable in this case. As a result, we understand that in Chinese functional marker PA can make a complete VP and tense marker PT cannot make a complete VP. That is to say, in Chinese, functional marker is more significant than tense marker.

We can also find out other different structures concerning 'BE' verb as below:

(74) 'His attitude is active and serious.'

a. 他的 态度 是 积极的 *和/并且 是 认真的。
t39 de t3t du sh41 j43 j40 de h0 b4ng q50 sh41 r4n zh5n de
tade taidu shi jijide he/bingqie shi renzhende
his attitude be active and be serious

b. 他的 态度 是 积极的 和/*并且 认真的。
t39 de t3t du sh41 j43 j40 de h0 b4ng q50 r4n zh5n de
his attitude be active and serious

c. 他的 态度 是 积极 和/并且 认真 的。
t39 de t3t du sh41 j43 j40 h0 b4ng q50 r4n zh5n de
his attitude be active and serious DE

Their structures are:

a. [BE+AP] +* 'he(和)' / 'bingqie(并且)' + [BE+AP]
b. BE+ [AP+ 'he(和)' /* 'bingqie(并且)' +AP]
c. BE+ [A+ 'he(和)' / 'bingqie(并且)' +A] +DE

The structures of (74a-c) show that: a) in word level, both 'he(和)' and 'bingqie(并且)' are acceptable; b) in phrase level, 'he(和)' can be used when the conjuncts are APs; and c) 'bingqie(并且)' is acceptable because it coordinates two [BE+AP], which can be considered as two VPs. The analysis above shows that the result is consistent with what we get from Figure 1.

A further analysis:

- For two Nouns, we cannot distinguish them in degree, or extent.
  For two Adverbs, we can distinguish them by the difference in their degree, extent or significance.
- For Adjective and V:
  a) In 'he(和)' structure, there is no difference between the two Adjectives or the two Vs in degree, extent, significance or order of actions.
  b) In 'bingqie(并且)' structure, the difference in degree, extent, significance or order of actions appears.

(75) a. [耐用 和 贵重] 的 部件 可以 保证 品质。
naiyong he guizhong DE bujian keyi baozheng pinzhi
durable and valuable AM[22] fittings can guarantee quality
'Durable and valuable fittings can guarantee the quality.'

b. [贵重 和 耐用] 的 部件 可以 保证 品质。
guizhong he naiyong DE bujian keyi baozheng pinzhi
valuable and durable AM fittings can guarantee quality
'Valuable and durable fittings can guarantee the quality.'

(76) a.* [耐用 和 贵重] 的 部件 可以 保证 效益。
naiyong he guizhong DE bujian keyi baozheng xiaoyi
durable and valuable AM fittings can guarantee benefit
'Durable and valuable fittings can guarantee the benefit.'

b.* [贵重 和 耐用] 的 部件 可以 保证 效益。
guizhong he naiyong DE bujian keyi baozheng xiaoyi
valuable and durable AM fittings can guarantee benefit
'Valuable and durable fittings can guarantee the benefit.'

c. [耐用 并且 贵重] 的 部件 可以 保证 效益。
naiyong bingqie guizhong DE bujian keyi baozheng xiaoyi

[22] AM stands for Adjective Marker.

durable and valuable AM fittings can guarantee benefit
'Durable and valuable fittings can guarantee the benefit.'

d.* [贵重 并且 耐用] 的 部件 可以 保证 效益。
guizhong bingqie naiyong DE bujian keyi baozheng xiaoyi
valuable and durable AM fittings can guarantee benefit
'Valuable and durable fittings can guarantee the benifit.'

In (75), there is no difference between the two conjuncts in 'he(和)' structures. Thus, it won't cause any conflict within both (75a) and (75b) when the two conjuncts are interchanged. Analyzing the two conjuncts in semantics, we find that 'durable' can be used with 'benefit' together but 'valuable' cannot. Therefore, both (76a) and (76b) are ungrammatical because there is no difference between the two conjuncts 'durable' and 'valuable' in 'he (和)' structure coordination and they are equally related to the word 'benefit'. If 'bingqie (并且)' structure is the same as 'he(和)' structure, then (76c) and (76d) can be expected certainly to be ungrammatical. However, (76c) is grammatical. Whether the first conjunct can be related to 'benefit' is the difference between (76c) and (76d). The conflicting word 'valualbe' in (76c) is the second conjunct, therefore the sentence can be accepted. That is to say the two conjuncts in 'bingqie(并且)' structure are not at the same level as in 'he (和)' structure. The fact that (76c) is good but (76d) is bad certifies that the first conjunct is more important and emphatic than the second conjunct in 'bingqie(并且)' structure. For this reason, we argue that the conjuncts in 'he(和)' structure must be at the same level. However, 'bingqie(并且)' structure shows the reverse result that the two conjuncts are not at the same level. We can also find out this kind of difference in [V+and+V] pattern.

(77) a. 昨天 我们 在 聚会 上 [唱歌 和 跳舞] 了。
zuotian women zai juhui shang changge he tiaowu le
yesterday we P party in sing and dance PT
'Yesterday we sang and danced in the party.'

b. 昨天 我们 在 聚会 上 [跳舞 和 唱歌] 了。
zuotian women zai juhui shang tiaowu he changge le
yesterday we P party in dance and sing PT
'Yesterday we danced and sang in the party.'

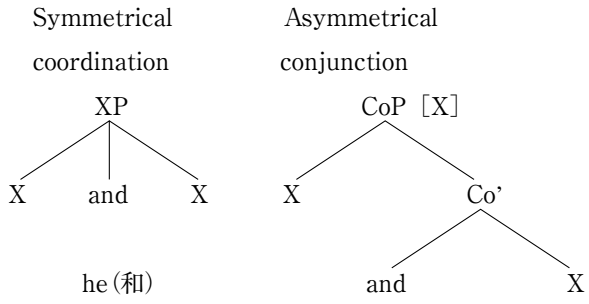
(78) a. 昨天 我们 在 聚会 上 [唱歌 并且 跳舞] 了。
zuotian women zai juhui shang changge bingqie tiaowu le
yesterday we P party in sing and dance PT

‘Yesterday we sang and danced in the party.’

b. 昨天 我们 在 聚会 上 [跳舞 并且 唱歌] 了。
zuotian women zai juhui shang tiaowu bingqie changge le
yesterday we P party in dance and sing PT
‘Yesterday we danced and sang in the party.’

We can see that there is the difference between the two kinds of coordination too. In (77), there is no distinction between the two sentences since the action ‘sing’ and ‘dance’ is random and they show no sequence in time or order. In (78), however, there is a distinction because the action ‘sing’ and ‘dance’ are in a sequence. That is to say, the action ‘sing’ occurs before the action ‘dance’ in (78a), and it is contrary in (78b). This means that the ‘bingqie(并且)’ structures in (78) are different from the ‘he(和)’ structures in (77). More precisely, it can be said that the first conjunct is more important and emphatic than the second conjunct in ‘bingqie(并且)’ structure. Therefore we argue that the conjuncts in ‘he(和)’ structure must be at the same level. and the two conjuncts in ‘bingqie(并且)’ structure must be at the different level.

Thus, we argue that ‘he(和)’ and ‘bingqie(并且)’ should have different structures: one is a symmetrical coordination, in which the two conjuncts are in the same level (as a flat structure proposed by Gazdar et al 1985); one is an asymmetrical conjunction, in which the two conjuncts are not in the same level (as a binary branching structure claimed by Munn 1993, Johannessen 1998, and many other linguists). We suggest that their structure might be analyzed as below:

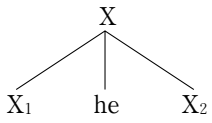


he(和)

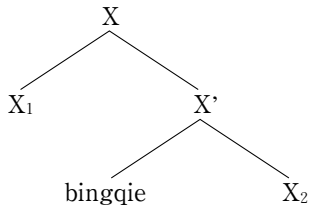
bingqie(并且)

For X level:

N/Adj./V

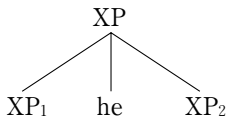


Adv./Adj./V

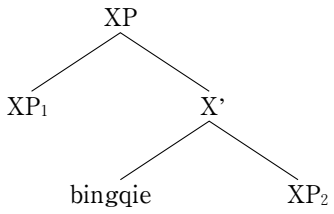


For XP level:

NP/AP/PP



VP



Up to now, we discussed the differences between 'he(和)' structure and 'bingqie(并且)' structure and certified that they should have different structures. There is, of course, another problem how to certify and explain that their structures shown above are true? As to this problem, we will leave it to the future research.

3.3 Conclusion

From the analysis above, we get our conclusions:

A. Chinese is a kind of language that only accepts the same categorical conjuncts. There is no unlike category coordination in Chinese. And the coordination follows CLC strictly.

B. There are actually two types of different coordinators in Chinese, 'he(和)' type and 'bingqie(并且)' type. The main differences are in two aspects: 1) as Wu (2005a) mentioned, the expressional function of 'he(和)' coordination is Reference, and 'bingqie(并且)' coordination is Predication. This difference decides that in word level, N is only available for 'he(和)' and Adv. is only for 'bingqie(并且)', and in phrase level, only VP is acceptable for 'bingqie(并且)'. 2) another main difference lies on their semantic meaning. There is no distinction between the conjuncts in 'he(和)' coordination. For 'bingqie(并且)', however, if the two conjuncts are interchanged, the semantic meaning will be changed too. Thus, we argue that they should be analyzed as two different structures respectively.

In fact, the English coordinator 'and' also shows that there are two different usages and meanings when it coordinates two verbs. For example:

(79) a. John [kicked] and [slapped] Mary.
b. John [bought] and (then) [ate] an apple.

We can see that 'and' in (79b) has the meaning of the action sequencing, which is not shown in (79a). Therefore, we argue that 'and' should be analyzed as two types too: one is symmetrical coordinator; another is asymmetrical conjunction. This opinion can be reflected by the different Chinese coordinators: 'he(和)' and 'bingqie(并且)'.

Appendix: "*The linguists laughed and laughed.*" (Takeshi Usuki)

There is another interesting example of coordinate structure which we assume to involve a third type of conjunction as illustrated below (1a). In the example (1a), the same verbs are conjoined and have an idiomatic reading which is similar to the interpretation of a cognate object construction (1b).

(1) a. The linguists laughed and laughed.[23]
b. The linguists laughed a big laugh.
c. #The linguists laughed and smiled.

Furthermore, and interestingly the idiomatic reading is available only when the same verb is repeated, so we cannot have the idiomatic reading from the example (1c). Takano (2005) analyzes a coordinate structure where two verbs are conjoined in English and Japanese as in (2) and (3).

(2) John copied and filed the paper. (Takano 2005)

[23] Interestingly, this idiomatic V-and -V is ruled in only if activity verbs are conjoined. As the examples below (i) show, the sentences are ruled out if achievement verbs or accomplishment verbs are conjoined.

(i) a. The linguists laughed and laughed.
b. *The linguists arrived and arrived.
c. *The windows broke and broke.

The problem concerning verb classes is beyond the scope of this paper, so we will leave it as a future work.

There are some examples which seems to involve a coordinate structure in Japanese as illustrated in (3). Takano (2005) assumes that, taking up a Carlson's (1987) criteria, the true coordinate structure in Japanese is the type illustrated as (3a) and the others are not.

(3) a. John-ga sono ronbun-o kopiisi fairusita
(Null &, the first conjunct must be bare form.)
John-NOM that paper-ACC copy filed
b. John-ga sono ronbun-o kopiisi-te fairusita. (Gerundive/ participal form)
John-NOM that paper-ACC copy-ing filed
c. John-ga sono ronbun-o kopiisita sosite fairusita.
John-NOM that paper-ACC copied and filed (Not V & V, but TP & TP)
(Takano 2005)

According to Carlson (1987), the sentential internal reading appears only in coordinate structures regardless of having a coordinate structures in a subject position or in an object position.

(4) a. Bob and Alice attend different classes.
(sentence internal reading): 'Bob attends Biology 101 and Alice attends Philosophy 799.'
(sentence external reading): 'Bob and Mary attend to Philosophy 799, which is different from a class they attended yesterday.'

In the example above, for example, the sentence can be interpreted as 'Bob attends Biology 101 and Alice attends Philosophy 799.', which we call as a sentence internal reading. As we can see, the sentence internal reading is available both in coordinate structures which appear in a subject position and an object position.

(5) a. John saw and reviewed different films. (sentence internal reading OK)
b. Different dogs chased and bit the cat. (sentence internal reading OK)

Takano assumes that the sentence internal reading is only available in (3a) as demonstrated in (6), and argues that in Japanese the true coordinate structure is a type shown as (3a) and the others might involve different syntactic configurations.

(6) a. #Tigau/Kotonaru/*Betubetuno gakusei-ga ronbun-o kopiisi-te fairusita.
Different student-NOM paper-ACC copy-ing filed
'A different student copied the paper and then filed it.'

b. #Tigau/Kotonaru/*Betubetuno gakusei-ga ronbun-o kopiisita sosite fairusita.
Different student-NOM paper-ACC copied and filed
'A different student copied the paper and he/she filed it.'

c. Tigau/Kotonaru/*Betubetuno gakusei-ga ronbun-o kopiisi fairusita.
Different student-NOM paper-ACC copy filed
'Different students copied and filed the paper.'

Now, returning to the example (1a) repeated here as (7), it is surprising to notice that the sentence internal reading is not available. As shown in (7), only the idiomatic reading or the sentence external reading is available.

(7) Different linguists laughed and laughed.
(*sentence internal reading): "A linguist Mark laughed and another linguist Bill laughed."
(sentence external reading): "A linguist Mark laughed and laughed and another linguist Bill laughed and laughed."

Then, the question is what is the status of *and* in *laughed and laughed*, and how to derive the idiomatic interpretation of the phrase *laughed and laughed*. As the example above indicates, the event donated by the phrase *laughed and laughed* is not a culmination of the two distinct events, but rather an exaggeration of a single event. It would be worth exploring a cross-linguistic data to justify a certain linguistic phenomena, so let us turn to Japanese examples which is equivalent to *laughed and laughed*.

(8) a. Gengogakusha-wa warai-ni-wara-tta.
Linguist-Top laugh-Ni-laugh-Past
'Linguists laughed and laughed.'

b. *John-wa warai-ni nai-ta
John-Top laughed-Ni cried
'John laughed and cried'

As in the case of English data, the idiomatic reading is only accomplished by a repetition of the same verb. Moreover, as in the case of English, the sentence internal reading is not available in Japanese too as demonstrated in (9).

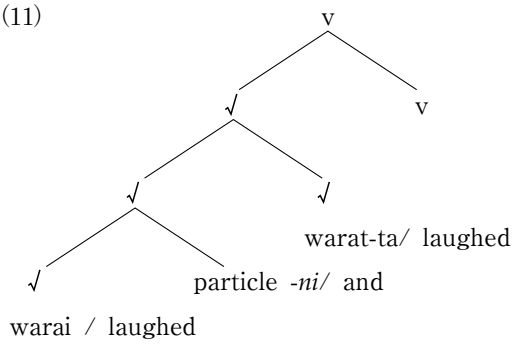
(9) Tigau/Kotonaru/*Betubetuno gengogakusha-ga watai-ni warat-ta
Different linguists-Nom laughed-Ni laghed
'Different linguists laughed and laughed.'
(*sentence internal reading): "A linguist Mark laughed and another linguist Bill laughed."
(sentence external reading): "A linguist Mark laughed and laughed and another linguist Bill laughed and laughed."

warai 'laugh' is so called *renyokei* or a bare stem, and *warai-ni warat-ta* 'laughed and laughed' cannot induce a sentence internal reading since the even donated by *warai-ni warat-ta* is a single event. Therefore, the lack of the sentence internal reading shows that *-ni* may not be a head &. Then, the question is what is the status of *-ni* in Japanese. In Japanese there are several kinds of *-ni* as shown below:

(10) a. John-wa ooi-ni wara-tta.
John-Top greatly laugh-Past.
'John laughed greatly.'
b. Ninjin-ni Jagaimo-ni Tamanegi (List reading)
Carrot-and Potato-and Onion
'Carrot, Potato and Onion.'
c. John-wa Mary-ni tegami-o okutt-ta
John-Top Mary-to a letter-Acc sent
'John send a letter to Mary.'

First, as in the (10a) *-ni* can be a particle which attaches to adverb. Second as in (10b) *-ni* can work to induce a list reading. Finally, as in (10c) *-ni* functions as a postposition. We assume that *-ni* in *warai-ni warat-ta* is a particle which is equivalent to (10a) taking up their semantic and functional similarities. Furthermore, we propose the configuration for *warai-ni warat-ta* is as below and English counterpart also has the same configuration.

(11)



In the framework of DM, when the category-determining f-head (v, n and a) merges with root, its semantics and phonology is closed off. Idiomatic meaning of a word is accomplished by merging a root with a f-head directly (e.g. *hanare , awase*). (see Marantz 1997, Arad 2003 and Volpe 2006 for more data in Japanese).[24] Assuming the derivation of *laughed and laughed* as shown in (11), we can naturally explain the fact that the expression *laughed and laughed* has an idiomatic reading. Moreover, the fact that the internal sentence reading is not available in these examples empirically supports the proposed analysis above. The proposal that treats a certain type of *and* as a particle would have a strong impact on a previous analysis of a coordination in English. In this section, the existence of a particle *and* in English remains to be a stipulation and needs more investigation, which is far beyond the scope of this section. Therefore, here we just introduce the possibility to treat it as a particle and leave it for the future work hoping to break the ice of mysterious natures of coordinate structures.

[24] If the proposed analysis which treat and as a particle, we might expect to have a nominal counterpart. The fact, however, seems to be more complicated as shown below:

(i) a. ??the laugh and laugh competition.
b. the laughing and laughing competition.

If the proposed configuration above is on the right track, we expect to have a nominal example (ia). According to our informants, however, the (ia) is degraded and (ib) is preferred. If the data are what they are, the derivation of verbal phrase may consist of far more complex process of derivation. It is rather mysterious and we will leave it open here for the future work.

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