An Analysis on Syntactic Derivation of "Patient + Agent + Ergative Verb"

Dan Du
Shanghai International Studies University, Shanghai, China

Chunxiang Wu
Shanghai International Studies University, Shanghai, China

Abstract—"Patient + Agent + Ergative verb", in fact, it is a kind of absolutive structure, in which word order and case marking contribute to its formation. It assumes that "Patient + Ergative verb" is the basis syntactic structure, which generates "Patient + Agent + Ergative verb". And it verifies the hypothesis by checking of light verbs, the characteristics of split-ergativity and Case Hierarchy.

Index Terms—patient, agent, ergative, absolutive, word order, case

I. INTRODUCTION

According to Croft (2001), word languages are divided into six types in view of word order called micro-word order: accusative, ergative, unergative, passive, antipassive and inverse. Comparing with the macro-word order such as SVO, SOV, OVS, OSV, VSO and VOS, typological linguists regard these micro-word order as a typological feature of word order, and all these exist in Chinese syntax. Liu Xiaolin (2006, 2008) and Liu Xiaolin & Wang Wenbin (2009, 2010) think that Chinese diverse word orders are closely related with Chinese syntactic category, such as case markers, quantifier system, complement system. The grammatical category in ancient Chinese combines with monosyllabic verbs, which contributes to verbal weakening, semantic self-sufficiency and transitivization.

(1)

a. 张三吃了饭。(accusative)
   zhāngsān chī le fàn
   Zhang San eat CS   meal
   'Zhang San has eaten.'

b. 张三打碎了杯子。(ergative)
   zhāngsān   dǎsuì   le   bēizǐ
   Zhang San broke   CS   cup
   'Zhang San broke the cup.'

c. 张三到了。(unergative)
   zhāngsān   dào   le
   Zhang San arrive CS
   'Zhang San has arrived.'

d. 张三吃了。(antipassive)
   zhāngsān   chī le
   Zhang San   eat CS
   'Zhang San has eaten.'

e. 饭被吃了。(passive)
   fàn   bèi   chī le
   meal done   eat CS
   'The meal was eaten'

f. 饭吃了。(inverse)
   fàn   chī le
   meal eat CS
   * 'The meal was eaten'

Based on Chinese syntactic characteristics and semantics in ergative-absolutive system, "Agent + Ergative verb + Patient" can be transformed into "Patient + Ergative verb" (Jin Lixin & Wang Hongwei, 2014). Another micro-order "Patient + Agent + Ergative verb" based on "Patient + Ergative verb" also exists in Chinese syntactic category. And this micro-word order also exists in Chinese existential sentence, resultative complement and "把"bǎ sentence. Shi Yuzhi (2000), Shi Chunhong (2004) and Xu Liejiong & Liu Danqing (1998) call this micro-word order as absolutive topic

sentence. What is the motivation or mechanism of this micro-word order, or is it derived from other word orders? Why does this kind of micro-word order occur in Chinese? Above are research questions in this study.

II. TRANSFORMATION OF SYNTACTIC POSITION IN CHINESE SYNTAX

There is a common problem for absolutive verbs, existential verbs and verbs in "把"bǎ sentence: how to explain the case as the noun component postponing absolutive verbs? In other words, why the patient in the ergative-absolutive syntactic system can be located in the syntactic subject? The real motivation of this syntactic shift is the case theory. Many scholars interpreted that existential verbs and verbs in "把"bǎ sentence transformed into unaccasative verbs were based on the internal argument hypothesis. But this study assumes that these unaccasative verbs all behave split-ergative nature, which will be proved by syntactic transformation as follows.

A. Syntactic Transformation in Resultative Complement

(2)
a. 我吃完饭了。
    wǒ chī wán fàn   le
    1SG eat PFV   meal CS
    'I have eaten'
b. 饭吃完了。
    fàn   chī wán   le
    meal   eat PFV   CS
    'The meal was finished'
(3)
a. 张三喝完了酒。
    zhāngsān hē wán le jiǔ
    Zhang San drink PFV CS   wine
    'Zhang San drunk up the wine'
b. 酒喝完了。
    jiǔ   hē   wán   le
    wine drink   PFV   CS
    'wine has been drunk up'
(4)
a. 我看完了这本书。
    wǒ   kàn wán le zhè   běn shū
    1SG   read PFV CS this   CL book
    'I finished reading this book'
b. 这本书看完了。
    zhè   běn shū kàn   wán   le
    this   CL book read   PFV CS
    'This book was finished'

The above sentences (a) in (1)-(4) belongs to resultative complement structures, which also have syntactic characteristics of ergativity, but not all verbs in resultative complement structure are ergative verbs. It is found that when the semantic of the resultant predicate points to the object and the life degree of the former and the latter argument is different, the verbs are ergative verbs (Wang Zhongxiang & Jin Lixin, 2017). But in the above examples, there are still the following ways of transformation, such as "Agent + Ergative verb + Patient" can be transformed into "Patient + Agent + Ergative verb", but "Agent + Patient + Ergative verb" is unjustified.

(5) I have eaten the meal.
a. 我吃完了饭。
    wǒ chī wán fàn   le
    1SG eat PFV   meal CS
b. 饭我吃完了。
    fàn   wǒ   chī wán le
    Meal 1SG   eat PFV CS
c. *我饭吃完了。
    wǒ   fàn   chī wán le
    1SG meal eat   PFV CS
(6) Zhang San drunk up the wine.
a. 张三喝完了酒。
    zhāngsān hē wán le jiǔ
    Zhang San drink PFV CS wine

b. 酒张三喝完了。
  　jiǔ zhāngsān hē   wán le
  　wine ZhangSan   drink PFV CS

c. *张三酒喝完了。
  　zhāngsān jiǔ   hē wán le
  　ZhangSan   wine drink PFV CS

(7) I finished reading this book.

a. 我看完了这本书。
  　wǒ   kàn wán le zhè   běn shū
  　1SG   read PFV CS this   CL book

b. 这本书我看完了。
  　zhè běn shū   wǒ   kàn   wán le
  　this CL book 1SG   read   PFV CS

c. *我这本书看完了。
  　wǒ zhè běn shū   kàn wán le
  　1SG this   CL   book   read PFV CS

But in (6c) and (7c), "Zhang San" and "wine", "I" and "this book" both have possessive relationship, "Zhang San's wine have drunk up" and "My book have been finished" are justified. But in the following examples, this kind of transformation is illegal.

(8) The story amuses the child.

a. 故事听乐了孩子。
  　gùshì   tīng lè   le háizǐ
  　story   listen happy   CS   child

b *孩子听乐了故事。
  　háizǐ tīng lè   le gùshì
  　child listen happy CS story

c. *故事孩子听乐了。
  　gùshì   háizǐ   tīng lè   le
  　story   chila   listen happy CS

(9) The novel moves sister.

a. 小说看哭了姐姐。
  　xiǎoshuō kàn   kū le jiějiě
  　novel   read cry CS   sister

b. *姐姐看哭了小说。
  　jiějiě kàn kū   le xiǎoshuō
  　sister read cry CS novel

c. *小说姐姐看哭了。
  　xiǎoshuō jiějiě kàn   kū   le
  　novel   sister   read cry   CS

(10) Mother is tired of washing clothes

a. 衣服洗累了妈妈。
  　yīfú   xǐ   lěi   le māmā
  　clothes wash tied CS mother

b. *妈妈洗累了衣服。
  　māmā xǐ   lěi   le yīfú
  　mother wash tires CS clothes

c. *衣服妈妈洗累了。
  　yīfú   māmā xǐ   lěi   le
  　clothes mother wash tired CS

Syntactic structures in (b) are illegal because the semantic components of the former and the latter arguments in resultative complement structure are unbalanced. In "听了", "看哭" and "洗累", the former verb can explain the latter verb by the manner and reason, but not the latter item from the view of result and state. What's more, the syntactic position of the former and the latter in attributive structures cannot be inverse. In (a), the semantics of the former item points to the object, such as "听", "了", "看", "哭", "洗" and "累" all point to "孩子", "姐姐" and "妈妈". In (b), the semantics of the former item does not point to the object because the object cannot be the causative complement of the latter. The latter clause complement and the object cannot form the dominating-dominated relationship, so (b) and (c) both are illegal. According to Wang Zhongxiang & Jin Lixin (2017), 'ergative resultative complement structure' refers to the semantic heteronyms of V_1 and V_2. In other words, V_1 points to the main argument and V_2 points to the object.

And the transformation between "Agent + Ergative verb + Patient" and "Patient + Agent + Ergative verb" can only take place in the 'ergative resultative complement structure'.

B. Syntactic Transformation in Existential Sentence

Li Yuming (1987) discussed the interchangeability of N_1 and N_2 in existential sentences "N_1 + existential verb + N_2", which can be transformed into "N_2 + existential verb + N_1', such as "台上坐着主席团" transforms into "主席团坐在台上". The condition is that the semantics of N_1 and N_2 are non-commutative and the existential verbs are inversely connected. It mainly depends on the local strength of N_1 and the strength of combination with the existential verbs; on the other hand, it also depends on the types of the locative phrase. However, Li Yuming does not deal with the situation where N_1 and N_2 can be present before the verb at the same time. So "N_1 + N_2 + existential verb" is justified, while "N_2 + N_1 + existential verb" is not.

(11) The presidium was sitting on the stage.
   a. 台上坐着主席团。
      tái   shàng zuò zhe zhǔxítuán
      stage on   sit   CS presidium
   b.主席团台上坐着。
      zhǔxítuán tái   shàng zuò zhe
      presidium stage on   sit   CS
   c. *台上主席团坐着
      tái   shàng zhǔxítuán zuò zhe
      stage on   presidium sit   CS
(12) Three prisoners run from the prison.
   a. 监狱里跑了三个犯人。
      jiānyùlǐ pǎo le   sān gè   fànrén
      prison   run CS three CL prisoner
   b. 监狱里三个犯人跑了。
      jiānyùlǐ sān gè fànrén pǎo le
      prison three CL prisoner run CS
   c. *三个犯人监狱里跑了。
      sān gè   fànrén   jiānyùlǐ pǎo le
      three CL prisoner prison   run CS
But the following examples cannot exchange into "N_1 + N_2 + existential verb".
(13) There is a drawing on the wall.
   a. 墙上挂了一幅画。
      qiángshàng guà le   yì   fú   huà
      wall   on   hung CS   one CL drawing
   b. 一幅画挂在墙上。
      yì   fú   huà   guà zài   qiángshàng
      one CL drawing hung on   wall   on
   c. *墙上一幅画挂了。
      qiángshàng yì   fú   huà   guà le
      wall   on   one Cl   drawing hung CS
(14) There are several patches on the clothes.
   a. 衣服上补了几个补丁。
      yīfú   shàng bǔ   le   jǐ   gè   bǔdīng
      clothes on   make up CS several CL   patch
   b. 几个补丁补在衣服上。
      jǐ   gè   bǔdīng bǔ   zài   yīfú   shàng
      several CL   patch   make up on   clothes on
   c. *衣服上几个补丁补了。
      yīfú   shàng jǐ   gè   bǔdīng bǔ   le
      clothes on   several CL   patch   make up CS
Taking the semantic nature of the main verb, Dixon (1994) divided 'Subject' into two kinds, 'split-S' and 'fluid-S'. We have noted that there is a semantic basis to the assignment of 'Agent' and 'Object' to the semantic roles in a transitive clause. 'S', in contrast, simply marks the sole core—NP in an intransitive clause. Since each grammar must include semantically contrastive marking for 'A' and 'O', this can usefully be applied also to S—those 'S' which are semantically similar to A will be 'Sa', marked like 'A', and those 'S' which are semantically similar to 'O' will be 'So', marked like 'O'. What's more, 'Sa' verbs refers to an activity that is likely to be controlled, while 'So' verbs refer to a non-controlled activity or state (Dixon,1994, p. 70).

In (13)-(14), there is not semantic relationship like 'Agent' and 'Patient' in "一幅画" and "墙上", "几个补丁" and "衣服". In other words, "一幅画" and "衣服" deal with a prototypical controlled activity, in which activity is done without agent. But in (11)-(12), "主席团" and "三个犯人" describes a prototypically controlled activity, which means that activity can be controlled, and they are also the agent of existential verbs "坐着" and "跑着". This syntax expresses the split-ergative nature, so 'S' can be marked as 'A'. And "N$_1$ + existential verb + N$_2$" can be transformed into "N$_2$ + N$_1$ + existential verb".

C.   "把"bǎ Sentence

(15) Wu Song killed the tiger.
a. 武松把老虎打死了。
   wǔsōng   bǎ   lǎohǔ   dǎ   sǐ   le
   Wu Song make tiger   bit   dead   CS
b.*武松老虎打死了。
   wǔsōng lǎohǔ   dǎ   sǐ   le
   Wu Song tiger   bit   dead   CS
c. 老虎被武松打死了。
   lǎohǔ bèi wǔsōng   dǎ   sǐ   le
   tiger make Wu Song bit dead   CS
d. 老虎武松打死了。
   lǎohǔ wǔsōng   dǎ   sǐ   le
   tiger Wu Song   bit   dead   CS

Comparing (a) and (b), the patient "老虎" depends on the case mark strongly, when "老虎" shifts from the objective position without the case mark "把"bǎ, (b) is illegal. Comparing (c) and (d), the agent "武松" can shift from the subjective position without the case mark "被"bèi. It may be due to pragmatic factors, not syntactic factors as "老虎" occupies the topic position. It supposes that the case mark "把"bǎ is obligatory, not "被"bèi.

Most of resultant verbs have intransitive usage, and the object can be used with ergative nature, because the second morpheme can transform transitive verbs into intransitive verbs. Chinese verb-complement structure have gone through a process of separation, that is, "Verb + Object + Complement", but in modern Chinese this form disappeared and changed into "Object + Verb + Complement" with case markings "把"bǎ, "被"bèi, "将"jiāng, "让"ràng preceding the object. But in modern Chinese, form and word order are both case marking. In the following examples, the objects "菜" and "皮鞋" act as formal subjects in the sentence by changing the syntactic position, that is, the change of word order.

(16)
a. 服务员端来了菜。
   fúwùyuán duānlái le cài
   waiter   carry   CS meal
   'The waiter carries the meal'
b. 菜端来了
   cài   duānlái le
   meal carry   CS
   'The meal is carrying'
(17)
a. 他擦亮了皮鞋。
   tā cāliàng le   píxié
   He polish CS   shoes
   'He polishes the shoes'
b. 皮鞋擦亮了。
   píxié   cāliàng le
   shoes polish CS
   'The shoes were polished'

Zhang Bojiang (2014) demonstrates that the case marking "把"bǎ not only cannot be omitted, but also bears syntactic and semantic functions; semantically, it is more thoroughly affected, and syntactically it is often embodied with perfective aspect. But in the above examples, when the agent disappears, "把"bǎ could still be omitted, such as (16d)-(17d). "把"bǎ is proved to be a syntactic mark of absolutive case (Jin Lixin & Cui Guibo, 2017). We can assume that "把"bǎ occurs in transitive structures in ergative-absolutive system. The tendency in world languages is that word order only occurs when the morphological and lexical markers are missing. This is also the tendency of ergative-absolutive languages. However, the syntactic structures are "Patient + Agent + Ergative verb" and "Patient + Ergative verb", in which the patient takes up the position of the subject. The agent that precedes ergative verbs and postpones the patient has no syntactic marking. Therefore, when the agent appears before the verb and has no syntactic

marking, it can be judged by word order. For example:
(18)
  a. 服务员把菜端来了。
     fúwùyuán bǎ   cài   duānlái le
     waiter   make   meal carry   CS
     'The waiter carries the meal'
  b. 菜服务员端来了。
     cài fúwùyuán duānlái   le
     meal waiter   carry   CS
     'The meal is carring by the waiter'
(19)
  a. 他把皮鞋擦亮了。
     tā bǎ   píxié cāliàng le
     he make shoes polish   CS
     'He polishes the shoes'
  b. 皮鞋他擦亮了。
     píxié tā cāliàng le
     shoes he polish   CS
     'The shoes were polished by him'

III. JUDGEMENT OF THE BASIC WORD ORDER

There is a common problem for absolutive verbs, existential verbs and verbs in "把"bǎ sentences: how to explain the case as the noun component postpones the verbs? In other words, why the patient in the ergative-absolutive syntactic system can be located as the syntactic subject?

Logically, in the structure "Patient + Agent + Ergative verb", there are four syntactic relationships:
(i) N_1 is the argument, not N_2.
(ii) N_2 is the argument, not N_1.
(iii) N_1 and N_2 are both the arguments.
(iv) N_1 and N_2 are neither the argument.

Linguists generally distinguish arguments by three ways: syntactic consistence, word order, and case marking. In the syntactic configuration, "N_1" and "N_2" have relatively fixed syntactic positions, "N_1" is the agent and "N_2" is the patient. But "$N_1 + V + N_2$" can be transformed to "$N_2 + N_1 + V$", and the syntactic and semantic structure is "Patient + Agent + Ergative verb". Therefore, only other syntactic means can be used to distinguish that N_1 and N_2 are both the argument of 'Ergative verb'.

According to linguistic typology, there are six kinds of word order: SVO, SOV, VSO, VOS, OSV and OVS. SVO, SOV and VSO are the basic word order in most world languages, and subject generally precedes the object. But these three word orders are different in syntactic marking. In SVO word order, the semantic relationship between subject and object can be justified by the syntactic position; while in SOV and VSO word order, subject and object both precede or postpone verbs, it is difficult to justify the semantic relationship between them. Thus, other marked or highly marked patterns can be derived by shifting, adding locative marks, deleting and so on.

That is to say, the principle of derivation between related sentence patterns is to deduce the marked from the unmarked, and to deduce the highly marked from the low marked. Chinese is a typical SVO language with unmarked structure. In terms of language universals, the syntactic configuration of "Subject/Agent + Verb + Object/Patient" is the basic sentence pattern for languages lack inflection. The semantic structure relationship between verb and argument can be judged by syntactic sequence. Because Chinese is a typical isolated language and lacks morphological markers, it chooses word order to distinguish semantic roles of two arguments and verbs. According to Chinese resultant complement structures, existential sentence and "把"bǎ sentence, it is considered that "Patient + Verb" is the basic sentence pattern of these three sentence patterns in ergative-absolutive system. In other words, the unmarked sentence pattern or the less marked sentence pattern, "Patient+ Agent + Ergative verb" is derived by syntactic shift. What is the basic sentence pattern of "Patient + Agent + Ergative verb"? Is "Agent + Ergative verb + Patient" or "Patient + Verb" ? That is to say, the derivation principle between the related sentence patterns is to deduce the marked from the unmarked and the high from the low marked. What is the relationship between the three sentence patterns? Which is the basic sentence pattern?

(20)
  a. 酒张三喝完了。
     jiǔ zhāngsān zhāngsān
     wine Zhang San drink up CS
     'Zhang San drinks up the wine'
  b. 张三喝完了。

zhāngsān zhāngsān
Zhang San drink up CS
'Zhang San drinks up'
c. 酒喝完了。
jiǔ　hē　wán　le
wine drink　PFV CS
'Wine has been drunk up'
(21)
a. 监狱里三个犯人跑了。
jiānyùlǐ sān gè fànrén pǎo le
prison three CL prisoner run CS
'Three prisoner run away from the prison'
b. 监狱里跑了三个犯人。
jiānyùlǐ pǎo le　sān gè　fànrén
prison　run CS three CL prisoner
'Three prisoner run away from the prison'
c. 三个犯人跑了。
sān gè　fànrén　pǎo le
three CL prisoner run CS
'Three prisoner run away'
(22)
a.老虎武松打死了。
lǎohǔ wǔsōng　dǎ　sǐ　le
tiger Wu Song bit dead　CS
'The tiger was killed by Wu Song'
b. *武松打死了。
wǔsōng　dǎ　sǐ　le
Wu Song bit dead　CS
'Wu Song was killed'
c.老虎打死了。
lǎohǔ　dǎ　sǐ　le
tiger　bit dead　CS
'The tiger was killed'

The patient mentioned above can be used as a topic in the subjective sentence. When the patient is activated in the following paragraphs, it may disappear. The agent is the object of the statement of the whole event and the agent of the action, and when the subject of the agent is activated in the following paragraphs, it may also disappear. Thus it becomes the subjective statement of the patient, such as (c). But comparing (a) with the sentence of ergative subject (b) and the sentence of absolutive subject (c), the patient and agent exist simultaneously, so what is the marking degree of the agent and the patient? Which of the two sentence patterns is more basic? In this paper, it assumes that "Patient + Ergative verb" is the basic sentences of "Agent + Ergative verb + Patient" and "Patient + Agent + Ergative verb", which both are derived from "Patient + Ergative verb" by word order.

Hu Jianhua (2010) holds that Chinese verbs usually enter into syntactic structures as bare verbs, and when the verbal arguments are separated from their case, they can be inert and hidden, or they can be activated by the matching of NP and verbs. When NP is not consistent with verbal features, the verbal arguments will be inert and the bare verbs directly enter into syntactic structures. How to determine the referential feature of nominal components is determined by syntactic environment, so are the verbs. The nominal arguments needs to be activated by nominal elements, otherwise, it will be inert and exist as an invisible argument. So the problem of the release of the topic is the problem of collocation between verbs and nouns in Chinese. "Agent" and "Patient", both or either will be released in different syntactic environment, but when it is activated the most easily, it must be the basic sentence structure.

In Chinese, many ergative verbs are initially intransitive verbs. In ancient Chinese, many intransitive verbs and adjectives have causative semantics, such as '死'(death) can be expressed as '使……死'(cause somebody to die). In modern Chinese, the causative usage of intransitive verb and adjective have been greatly weakened, but it may remained in modern Chinese, which causes the existence of the objects in some intransitive sentences. In fact, there is still an agent in the syntax, but according to the syntactic context, the agent is not activated and the degree of receptive mark is low. In the ergative-absolutive system, it is usually a verb-complement structure, while the complement usually is an intransitive verb or adjective at the beginning of lexicalization (or a phrase), and the complement becomes intransitive. So its semantics becomes self-sufficient, which will weaken the mobility. In other words, the movement-complement structure is mostly "patient + ergative verb" structure.

In addition, there is a certain degree of freedom in the syntactic position of the agent, and the patient in the ergative-absolutive system. So what causes this syntactic feature? It is proposed that verbs in the traditional sense are divided into the root verb and the light verb. At the same time, the argument role in the sentence is provided by the light verb. Because Chinese light verb is defined not as the lexical structure but as the syntactic structure, and verbs can be combined freely with the light verb. Different light verbs give different argument roles to the relevant components, so that agents and the patient have a certain degree of freedom in the syntactic position. Grimshawl (1990) proposed that the causer takes precedence as the subject. In other words, the causer is involved in the merger, because 'Cause' assigns a causer to [spectral CausP], such as:

(23)[$_{DoP}$ [$_{Do'}$[Do][$_{CausP}$ 酒 [$_{Caus'}$[Caus][$_{VP}$ [张三][$_V$ 喝完了]]]]]]

The causer '酒'wine precedes the subject '张三'Zhang San, and they all take up the position in [Spec, CausP], '张三'Zhang San is also the agent. If we select a functional category such as 'Do', the components that meet the feature requirements may shift to [EPP, DoP] in order to verify the EPP feature.

(24) [$_{DoP}$ 张三[$_{Do'}$[$_{Do}$喝完了][$_{CausP}$ 酒[$_{Caus'}$[$_{Cuas}$ t 喝完了][$_{VP}$ [t 张三][$_V$ t 喝完了]]]]]]

In (24), according to the light verb, '酒'wine, as a patient, still precedes the agent. Taking into the syntactic context into consideration, when the agent '张三'Zhang San needs to be activated, then it will shift. According to semantic sequence of the subject and the object (Chen Ping, 1994): Agent > Sensitive case > Instrumental case > Related case > Locative case > Object > Patient. The patient has many kinds of archetypal receptive characteristics, so it has a great degree of freedom when it acts as an object. Therefore, the syntactic position is more active. At the same time, the degree of patient marker is lower than that of agent marker, and the former is more basic. For example, in (25), "Patient + ergative verb" is the basic sentence pattern, and the "agent" is constantly activated.

(25) a. [CP 那封信 i[VP 写好了 ti]]

    b. [CP 那封信 i[TP pro[VP 写好了 ti]]]

    c. [CP 那封信 i[TP 我[VP 写好了 ti]]]

IV. MOTIVATION OF THE DERIVATION OF "PATIENT + AGENT + ERGATIVE VERB"

In this section, we undertake an analysis of the motivation of the derivation of "Patient + Agent + Ergative verb".

A. Characteristics of Split-ergativity

'S', 'A' and 'O' are taken as universal syntactic relations, which are applicable at both underlying and derived syntactic levels. And the basic core syntactic relations are 'S', 'A' and 'O', when we have two clauses syntactically linked, each will be either intransitive (with 'S') or transitive (with 'A' and 'O'). Thus we have nine basic possibility for the syntactic functions of a common NP in the two clauses—any of 'S/O/A' followed by any of 'S/A/O'. And 'Pivot' is a language-particular category with two possibilities: 'S/A' and 'S/O'.

(26)
(a) S1=S2   Bill entered and sat down.
(b) S1=O2   Bill entered and was seen by Fed.
(c) S1=A2   Bill entered and saw Fred.
(d) O1=S2   Bill was seen by Fred and laughed.
(e) A1=S2   Fred saw Bill and laughed.
(f) O1=O2   Bill was kicked by Tom and punched by Bob (or Tom kicked and Bob
        Punch Bill).
(g) A1=A2   Bill kicked Jim and punched Bill.
(h) O1=A2   Bob was kicked by Tom and punched Bill.
(i) A1=O2   Bob punched Bill and was kicked by Tom.
(j) O1=O2 A1=A2 Fred punched and kicked Bill.
(k) O1=A2 A1=O2 Fred punched Bill and was kicked by him (or Fred punched and
          was kicked by Bill). (Dixon 1994: 158)

Not all language operate in term of a pivot. For those with a switch-reference system, (a), (c), (e), (g) and (j) would receive the marking for 'same S/A' and (b), (d), (f), (h), (i) and (k) would be marked for 'different S/A' (this mark generally goes onto the verb of the second clause). The second occurrence of the common NP can then be omitted, and will be retrievable by hearers. But in (a), (c), (e), (g) and (j), there is no mark so long as they have an NP in common, the NP can be in any function in each clause, so it may belongs to 'S/A' pivot. While in (b), (d), (f), (h), (i) and (k) need to be marked for 'different S/A', when the common NP is 'O' function in the clause the the clause may be passivised for NP omission to be followed, so it bears the 'S/O' pivot (Dixon,1994, pp. 158-160).

Taking the syntactic and semantic features of the resultative complement into consideration, existential sentences and "把" bǎ sentences are not in ergative system, either in accusative system, while they bears the feature of the split-ergativity. Zhang Bojiang (2014) thinks that Chinese syntactic pivot is 'A/S', not 'S/O', while Shi Dingxu (2000),

and Zhang Guoxian & Lu Jianqi (2014) demonstrate that Chinese syntactic pivot is 'S/O'. But based on the above research, it assumes that the above research did not fully take Chinese syntactic system into account. So it puts forward the hypothesis: in the accusative system, the Chinese syntactic drive is A/S, not 'S/O'; and in the case of ergative system, Chinese syntactic drive is 'S/O', not 'A/S', which is more independent than 'A/S'. And it is proved that 'S/O' is the basic word order.

One is that some verbs have poor independence when 'S' precedes verbs and it needs auxiliary marking to make sentences, while S does not need to be followed by verbs. The word order of related clauses can only be 'S/O', not 'A/S', which means that 'S/O' is more basic. Wang Jianjun (2006) defines the subsequent component of existential sentences. There are generally two types: firstly, the descriptive content and the preceding existential sentence form a single sentence and act as syntactic elements, such as "村里有个姑娘叫小芳" (There is a girl called Xiaofang in the village"); and secondly, the description consists of a single sentence or a compound sentence with the preceding existential sentence, such as "桌子上放着一盆鲜花，红红的。" (There is a pot of red flowers on the table). In this study, it mainly refers to the second case. There is a pause between the verb and the verbal complement or phrases. These verbal phrases tend to omit the subject. The subject of these omissions generally acts two syntactic functions, the existential subject and the syntactic object. For example:

(27) 手里拿着许多白哈巴狗 $_O$，▲$_A$ 吱吱地叫着。
　　　shǒulǐ   ná   zhe   xǔduō bái hābāgǒu   zhīzhīdì jiào zhe
　　　in hands take CS   many white pup   squeak   CS
　　　'There were many white pups in hands, who are squeaking.'

(28) 上面有块补丁 $_O$，▲$_A$ 补得不好看。
　　　Shàngmiàn yǒu   kuài bǔdīng bǔdé   bù   hǎo kàn
　　　On   have CL   patch   patch NG good look
　　　'There is a patch on it that does not look good.'

(29) 笼屉上果然放着一盒盒饭 $_O$，▲$_A$ 还冒着热气。
　　　Lóngtìshàng guǒrán fàngzhe   yì hé héfàn   hái   mào zhe rèqì
　　　steamer on   actually put CS   one CL box lunch still emit CS steaming
　　　'There actually is a box lunch on the steamer, which still emits steaming.'

In (27)-(29), in the subsequent component, ▲$_A$ and "白哈巴狗", "补丁", "饭" all act as the existential subject and the syntactic object, which can be omitted in the following sentences. So in Chinese existential sentences, the pivot is 'S/O' not 'A/S', the syntactic word order is "Patient + Ergative verb", in which the patient has no mark.

(30) a. 前天早上碰上个骑驴媳妇，▲$_A$ 穿了一身孝……
　　　　Qiántiān   zǎoshàng   pèngshàng gè qí lú   xífù, chuān le yìshēn xiào
　　　　the day before yesterday morning   meet   CL ride donkey woman   wear CS one CL   mourning dress
　　　　'The day before yesterday, I met a woman in the morning who was riding a donkey, dressed in a mourning dress...'

　b. 前天早上我碰上个骑驴媳妇，▲$_A$ 穿了一身孝……
　　　　Qiántiān   zǎoshàng pèngshàng gè qí lú   xífù, chuān le yìshēn xiào
　　　　the day before yesterday morning   meet   CL ride donkey woman wear CS one CL   mourning dress
　　　　'The day before yesterday, I met a woman in the morning who was riding a donkey, dressed in a mourning dress...'

"我" and "骑驴媳妇" both can collocate with "穿了一身孝" in lexical and semantic terms. But in (b), "骑驴媳妇" and "穿了一身孝" are combined to form the syntactic structure—"Patient + Ergative verb", which is actually related to the 'S/O' pivot in Chinese existential sentence.

B. Case Hierarchy

Lu Bingfu & Jin Lixin think that there are three marking modes in ergative system(2015, p 178) :
(i) The agent is marked, while the patient is not, such as in Dyirbal;
(ii) The agent and the patient both are marked, such as in Tukang Besi;
(iii) The patient is marked, while the agent is not, such as in Nias.
Dixon (1994) distinguishes between lexical ergativity and syntactic ergativity, "The so-called lexical ergativity means that the relationship among 'S', 'A' and 'O' is marked by case markings and verbal affixes"(p. 64). While syntactic ergativity prefers to prepositions, postpositions and word order, Chinese bears the feature of syntactic ergativity. So in "Patient + Agent + Ergative verb", the patient and agent have marks by word order.
Dixon (1994) put up "Case Hierarchy" (p. 57):
Subject/Patient > Object/Agent > Dative > Other oblique case
The subject/patient is more likely to have no markers than the object/agent, and the subject/ patient is more preferentially related to the predicate than the object/agent in which there is a consistent relationship between the predicate and person, gender, and number. According to the syntactic derivation in resultative complement, existential subsequent sentence and "把"bǎ sentence, when the agent and patient both precede the verb, it can judge their semantics

by word order. Based on "Agent + Ergative verb + Patient", the agent and patient both change their syntactic position. But the patient is more likely to have no mark, and the agent is usually marked by word order. 'A/S' acts as the subject in accusative system, while 'P/S' acts as the patient in ergative system; they respectively follow the Hierarchy of Identifiability Principle (the agent is higher than the patient) and Semantic Proximity Principle (the patient is closer to the verb than the agent), so the patient precedes the agent in syntactic position.

V. CONCLUSION

"Patient + Agent + Ergative verb", in fact, it is a kind of patient-verb structure, and word order and case marking contribute to its formation. It assumes that "Patient + Ergative verb" is the basis syntactic structure, which is the derivation of "Patient + Agent + Ergative verb". In this paper, it verifies the hypothesis through the checking of the light verbs, the stinger system in the ergative languages and Case Hierarchy. In subject-object system, Chinese syntactic pivot is 'A/S' not 'S/O'; while in ergative-absolutive system, Chinese syntactic pivot is 'S/O' not 'A/S'. 'S/O' is more independent than 'A/S', so 'S/O' is the basic word order. What's more in the ergative-absolutive system, when the verb precedes the subject, it will be marked; while the verb postpones the subject, it needs no marking. On the other hand, in the relative clause, the pivot is 'S/O' not 'A/S'. The 'Subject/Patient' is more likely to have no markers than the 'Object/Agent', and the 'Subject/ Patient' is more preferentially related to the predicate than the 'Object/Agent' in which there is a consistent relationship between the predicate and the number, sex, and case. According to the syntactic derivation in resultative complement, existential subsequent sentence and the "把" bǎ sentence, "Patient + Ergative verb" is the basis syntactic structure, which is the derivation of "Patient + Agent + Ergative verb".

APPENDIX. ABBREVIATIONS

A	Agent
CL	Classifier
CS	Change of state
N	Noun
N_1	Noun class 1
N_2	Noun class 2
NP	Noun phrase
PFV	Perfective
O	Object
S	Subject
V	Verb
V_1	Verb class 1
V_2	Verb class 2

REFERENCES

[1] Chen Ping. (1994). On the Coordination principle of Three Kinds of Sentence and Semantic Components in Chinese (Shilun Hanyu Zhong Sanzhong Juzi Chengfen yu Yuyi Chengfen de Peijia Yuanze). *Studies of the Chinese Language*, 3, 161-168.
[2] Croft, W. (2001). Radical Construction Grammar. Beijing: Beijing Press.
[3] Dixon, R. (1994). Ergativity. Cambridge: CUP.
[4] Grimshawl, J. (1990). Argument Structure. Cambridge, MA.: The MIT Press.
[5] Hu Jianhua. (2010). The Distribution and Selection of Arguments Prominence and Locality in Grammar (Lunyuan de Fenbu yu Xuanze—Yufa zhong de Xianzhuxing he Jubuxing). *Studies of the Chinese Language*, 1, 3-20.
[6] Jin Lixin, Cui Guibo. (2019). Analysis on the Structural and Functional Motivation of "把" bǎ Sentence ("bǎ" ziju de Jiegou Gongneng Dongyin Fenxi). *Chinese Language Learning*, 1, 3-12.
[7] Jin Lixin, Wang Hongwei. (2014). Ergative Case, Absolutive Case and the Classification of Verbs (Dongci Fenlei he Shige Tongge ji Shiyu Tongyu). *Foreign Language Teaching and Research*, 1, 45-57.
[8] Li Yuming. (1987). The Derivation of Subject and Object in Existential Sentence (Cunxian Jiegou zhong de Zhubin Huyi Xianxiang Yanjiu). *Studies in Language and Linguistics*, 2, 14-29.
[9] Liu Xiaolin, Wang Wenbin. (2010). The Weaking of Verbal Quality, Semantic Self-sufficiency, Syntactic Ergativization of Verbs and the Effect of Word Order Variants (Dongxing Ruohua Yuyi Zizu Zuogehua yu Yuxuleixing Tezheng Xiaoying). *Modern Foreign Language*, 2, 133-141.
[10] Liu Xiaolin, Wang Wenbin. (2009). The Quantification Mechanism of the Chinese Verb System and Its Syntactic and Typological Impact (Lun Hanyu Dongci Lianghuaxing Chengfen de Jufa he Yuyan Leixing Xiaoying). *Modern Foreign Language*, 1, 42-50.
[11] Liu Xiaolin. (2008). On the Hierarchy Behaviors of Ergativization in SSC and Its Typological Value (*Teshu Jushi Zuogehua de Qiangruo jiqi Leixingxue Yiyi*). *Journal of Foreign Languages*, 3, 31-38.
[12] Liu Xiaolin. (2006). Verb-complement, Special Sentence Constructions and ergativization (*Buyu Teshu Jushi he Zuogehua*). *Modern Foreign Language*, 3, 248-256.
[13] Lu Bingfu, Jin Lixin. (2015). Language Typology Course (Yuyan Leixingxue Jiaocheng). Beijing: Peking Press.

[14] Shi Chunhong. (2004). Marking Degree and Basic Word Order of Chinese Sentence Pattern (Hanyu Jushi de Biaojidu ji Jiben Yuxu Wenti). *Chinese Language Learning*, 2, 10-18.

[15] Shi Dingxu. (2000). The Flexibility of Chinese Syntax and the Theory of Syntax (*Hanyu Jufa de Linghuoxing he Jufa Lilun*). *Contemporary Linguistics*, 1, 18-26.

[16] Shi Yuzhi. (2000). Cognitive and Semantic Foundations of Grammar (Yufu de Renzhi Yuyi Jichu). Nanchang: Jiangxi Education Press.

[17] Wang Jianjun. (2006). Diachronic Research on Chinese Existential Sentences (Hanyu Cunzaiju de Lishi Yanjiu). Tianjin: Tianjin Ancient Press.

[18] Wang Zhongxiang, Jin Lixin. (2017). Quadripartite Classifications of Verb-result Compounds from the Perspective of Ergativity (Dongjieshi de Sifen Xitong jiqi Shige Tezheng Kaochang). *Journal of Xinjiang University*, 1, 140-145.

[19] Xu Liejiong, Liu Danqing. (1998). Topic: Structural and Functional Analysis (Huati de Jiegou yu Gongneng). Shanghai: Shanghai Education Press.

[20] Zhang Bojiang. (2014). Chinese Syntax from a Cross-linguistic perspective: A Case Study on Relation between "Ba"-construction and Antipassive (Hanyu Jushi de KuaYuyan Guan-- "bǎ" ziju yu Ni Beidongtai Guanxi Shangque). *Linguistic Science*, 6, 587-600.

[21] Zhang Guoxian, Lu Jian. (2014). Speaker's Affective Expression and Pragmatic Slope of Attributive Sentence (Yanzhe de Qinggan Biaoda yu Dingyu Juwei Zhanju de Yuyong Xiepo). *Chinese Teaching in the World*, 3, 291-309.

Dan Du (b. 1989) is a PhD. student in Shanghai International Studies University. Her research interests include typological linguistics, syntax, and the Teaching of Chinese as a Foreign Language.

Chunxiang Wu (b. 1973) is Professor of Linguistics and PhD supervisor in Shanghai International Studies University. His research interests include syntax, rhetorical studies, sociolinguistics and the Teaching of Chinese as a Foreign Language.