On Unaccusativity

Naoko TAKAHASHI

1. Introduction

Perlmutter (1978) argues that the class of intransitive verbs is not homogeneous but consists of two subclasses and each associates with different syntactic configurations. These subclasses are called unergatives and unaccusatives. This classification of intransitive verbs into unergatives and unaccusatives is called unaccusativity or split intransitivity. Many researchers assume that the subjects of unaccusative verbs, but not those of unergative verbs, share the syntactic and semantic properties of direct objects of transitive verbs (Levin and Rappaport Hovav1995, among others).

The aim of this paper is to investigate whether or not some of current theories provide satisfactory diagnoses for the regularities of these subclasses. This paper also focuses on the two specific different theories on unaccusativity, one is syntactic and the other is semantic, and it attempts to find some answers for the following questions: why the syntactic theory assumes the two different syntactic configurations and the other theory does not; and how these two theories explain the assumption that subjects of unaccusative verbs, but not those of unergative verbs, share syntactic and/or semantic properties of direct objects of transitive verbs.

This paper consists of five sections. Section 2 introduces Perlmutter's Unaccusativity Hypothesis (1978), which is the groundwork of this

classification, and it explains how the two different classes of intransitive verbs are determined in his theory. Section 3 argues for the reliabilities of three diagnoses which determine the subclasses. Section 4 compares the explanation for unaccusativity in Government and Binding Theory, which takes a syntactic approach to unaccusativity, with the explanation in Role and Reference Grammar, which takes a semantic approach to unaccusativity. Finally, Section 5 states the conclusion of this paper.

2. Introduction to Unaccusativity Hypothesis

As mentioned previously, Perlmutter (1978) points out that intransitive verbs can be split into two categories; unergatives and unaccusatives. He argues that verbs in each class have different syntactic behaviors. Perlmutter calls the idea Unaccusative Hypothesis (hereafter UH) and he formats it in the framework of Relational Grammar. This hypothesis assumes underlying grammatical relations such that unergative verbs have non-derived subjects (i.e. surface subjects are generated as subjects) while surface subjects of unaccusative verbs originate as direct objects. This explanation also leads to the assumption that subjects of unaccusatives share certain properties with direct objects of transitive predicates whereas subjects of unergatives do not share those properties with them.

Perlmutter provides a diagnosis of impersonal passive forms in Dutch to support his accounts. He demonstrates that intransitive verbs in Dutch can be categorized into the two groups depending on their appearance in impersonal passives: the existence of an impersonal passive signals its unergative verb classification, and its nonexistence indicates its unaccusative verb classification. Consider the following example from Perlmutter and Postal (1984:110, (106)):

(1) a. In de zomer wordt er   hier vaak   gezwommen.
         in the summer Aux   there Dum frequently swim[1]
         '[literally] In the summer it is swum here frequently.'

     b. *In de zomer wordt er   hier vaak   verdoronken.
          in the summer Aux   there Dum frequently drown
         '[literally] In the summer it is drowned here frequently.'[2]

In the impersonal passivization process, these sentences undergo a promotion of a dummy element to the subject (Grimshow 1987:254). As shown in (1), *zwemmen* 'swim' can occur in an impersonal passive form in (1a) whereas *vernken* 'drown' cannot in (1b). Thus, it is assumed that these verbs have a different syntactic behavior.

   Based on this analysis, Perlmutter (1978) and Perlmutter and Postal (1984) argue that semantic coherence exists within the two classes. The list below sketches some of the general factors that determine the unergative and unaccusative classes (1978:162-163):[3]

Predicates determining initially unergative clauses

a. Predicates describing willed or volitional acts: work, play, speak, talk, smile, grin, frown, grimace, think, meditate, cogitate, daydream, skate, ski, swim, hunt, bicycle, walk, skip (voluntary), jog, etc.
    Manner of speaking verbs: whisper, shout, mumble, growl, bellow, blurt out, etc.
    Predicates describing sounds made by animals: bark, neigh, whinny, quack, roar (voluntary), chirp, etc.
b. Certain involuntary bodily processes: cough, sneeze, hiccough, belch, burp, vomit, defecate, urinate, etc.

Predicates determining initially unaccusative clauses

a. Predicates expressed by adjectives in English: This is a very large class, including predicates, describing sizes, shapes, weights, colors, smells, states of mind, etc.
b. Predicates whose initial nuclear term is semantically a Patient: burn, fall, drop, sink, float, slide, slip, glide, soar, flow, ooze, seep, trickle, drip, gush, hang, dangle, sway, etc.
    Inchoatives: melt, freeze, evaporate, vaporize, solidify, crystallize, dim, brighten, ridden, darken, etc.
c. Predicates of existing and happening: exist, happen, transpire, occur, take place, and various
    Inchoatives: arise, ensue, result, shop up, end up, turn up, pop up, vanish,

disappear, etc.

d. Non-voluntary emission of stimuli that impinge on the senses (light, noise, smell, etc.): shine, sparkle, glitter, glisten, glow, jingle, clink, clang, snap (involuntary), crackle, pop, etc.

e. Aspectual predicates: begin, start, stop, cease, continue, end, etc.

f. Duratives: last, remain, stay, survive, etc. [Perhaps these should be considered a subclass of group (c) above.]

The examples cited on the list above are English examples; nevertheless, Perlmutter assumes that predicates with equivalent meanings in other languages behave in the same way. Some people might say that Perlmutter has not provided a detailed semantic diagnosis besides the classification based on the meanings of those verbs and this classification still seems to be controversial. However, this list definitely captures certain general notions of unaccusativity or split intransitivity.

3. Unaccusativity Diagnoses

This section examines three types of diagnoses which attempt to provide a key for the unergative-unaccusative split. They are resultative constructions in English and auxiliary selection and *ne*-cliticization in Italian. This section also discusses the reliability of these diagnoses.

3.1 English Resultative Construction

English resultative constructions are widely employed for diagnoses of unaccusativity. Levin and Rappaport Hovav (1995:34) argue that "a resultative phrase is an XP (a certain phrase) that denotes the state achieved by the referent of the noun phrase (NP hereafter) it is predicated of as a result of the action denoted by the verb in the resultative construction." They also claim that a resultative phrase can be predicated of the immediately postverbal NP but cannot of a subject or of an oblique NP.[4] For instance, a resultative phrase can be associated with the direct object NP of a transitive

verb as follows:[5]

(2) a. We burned **the cake black**.   (O'Grady 1999:14)

 b. We sponged **the table clean**.

In (2a), the NP *the cake* is associated with the resultative phrase *black* as a result of burning, and the NP *the table* with the resultative phrase *clean* in (2b) as a result of sponging. Moreover, a resultative phrase can be associated with the subject of an unaccusative verb:[6]

(3) a. **The water** froze **solid**.   (O'Grady 1999:14, (24))

 b. **The bottle** broke **open**.

The above sentences in (3) can be interpreted to mean that the water became solid as a result of freezing in (3a) and the bottle become open as a result of breaking in (3b).

 Next, consider the data along with unergative verbs in (4) and that along with transitive verbs in (5). Resultative phrases cannot be associated with either the subject of an unergative verb nor the subject of a transitive verb (O'Grady 1999:14, (25); (26)):

(4) a. ***He** shouted **hoarse**.
   ([literally] He shouted until he got hoarse.)

 b. ***The baby** cried **tired.**
   ([literally] The baby cried until s/he got tired.)

(5) a. ***The baby** watched TV **tired**.
   ([literally] The baby watched TV until s/he got tired.)

 b. ***The child** ate cooked **full.**
   ([literally] The child ate cooked until s/he was full.)

He cannot be associated with the resultative phrase *hoarse* as a result of shouting in (4a), and *the baby* cannot be associated with the resultative phrase *tired* as a result of crying in (4b). Also, subjects of transitive verbs cannot be associated with their resultative phrases as in (5).

 Thus, this result shows that resultative construction can be a diagnosis

for unaccusativity: resultative phrases can associate their meanings with subjects of unaccusatives (and direct objects of transitive verbs) while they cannot be associated with subjects of unergative verbs (and subjects of transitive verbs).[7]

However, according to Levin and Rappaport Hovav (1995), there are some problems with this analysis. Two types of unaccusative verbs may not appear in resultative constructions. They are inherently directed motion verbs, such as *come, go,* and *arrive,* and stative verbs, such as *remain.* Look at the following sentences (Levin and Rappaport Hovav 1995:56, (51)):

(6)　a.　**Willa** arrived **breathless**.

　　　b.　**Carla** remained in the country **bored**.

These sentences might have depictive reading, but the sentence in (6a) cannot mean that *Willa* became *breathless* as a result of arriving, and (6b) cannot mean that *Carla* became *bored* by remaining in the country. Thus, neither *breathless* nor *board* can be a resultative phrase in (6). These counterexamples show that the resultative construction analysis cannot predict unaccusativity satisfactorily, and we need to explain why these two types of unaccusative verbs cannot behave in the same way as the other unaccusative verbs do.

3.2 *Ne*-cliticization and Auxiliary Selection in Italian

Ne-cliticization and auxiliary selections and are used as diagnoses for unaccusativity in Italian (Burzio 1986; Levin and Rappaport Hovav 1995; Grimshow 1987, among others). In Italian, the subject of an unaccusative verb such as *arrivare* 'arrive' can appear either before the verb as in (7a), or after the verb as in (7b):

(7) a. **Molti esperti** arriveranno.　　(Burzio 1986:21, (4ia))
　　　 many experts will.arrive
　　　 'Many experts will arrive.'

　　 b. Arriveranno **molti esperti**.　　(Burzio 1986:21, (4ib))
　　　 will.arrive　 many experts
　　　 'Many experts will arrive.'

Certain verbs take the clitic *ne* ('of-them') only if the subject of an unaccusative verb remains in the postverval position as follows:

(8) **Ne**　　 arriveranno **molti.**　　(Burzio 1986:22, (5i))
　　 of.them will.arrive　 many
　　 'Many of them will arrive.'

This cliticization is also applicable to the object of transitive verbs:[8]

(9) **Ne**　　 ha insultto **due** Giacomo.　　(O'Grady 1999, 14, (27))
　　 of.them has insulted two Giacomo
　　 'Giacomo has insulted two of them.'

While the subject of an unaccusative verb and the object of a transitive verb undergo this cliticization, the unergative verb *telefonare* 'telephone' does not. Compare the two sentences in (10):

(10) a. ****Ne**　　　 **telefonano**　　 **molti.**　　(Burzio 1986:31, (30b))
　　　　 of them　　 will.telephone many
　　　　 [literally] 'Many of them will telephone.'

　　 b. Telefoneranno **molti esperti**　　(Burzio 1986:21, (4iib))
　　　 will.telephone many experts
　　　 'Many experts will telephone.'

In addition, cliticization cannot apply to the subject of a transitive verb:

(11) ****Ne**　　 hanno indultatao Giacomo **due**　(O'Grady 1999:15, (31))
　　　 of.them have　 insulted　 Giacomo two
　　　 'Two of them have insulted Giacomo.'

Thus, *ne*-cliticization reveals a different behavior between unergatives and unaccusatives.[9]

　 Auxiliary selection in Italian is also discussed as one of the candidates for diagnoses of unaccusativity (Burzio 1986; Grimshow 1987; among

others). It is generally assumed that unaccusative verbs select *essere* 'be' whereas unergative verbs select *avere* 'have' in Italian:

(12) a. Grovanni **e** arrivato. (with *essere*) (Burzio 1986:53, (79a))
Giovanni has arrived.

b. Giovanni **ha** telefonato (with *avere*) (Burzio 1986:53, (79b))
Giovanni has telephoned.

However, we have some problems with this analysis with Italian data. There are some verbs in Italian which choose either *essere* 'be' or *avere* 'have' (Van Valin 1987; 1990, Rosen 1984). The verb *corsa* 'run' is one of the examples:

(13) a. Luisa **e** corsa a casa.   (Van Valin 1987:647, (9b))
Luisa is run   to home
'Luisa ran home.'

b. Luisa **ha** corso nel   parco.   (Van Valin 1987:647, (9a))
Luisa has run   in.the park
'Luisa ran in the park.'

As in (13), either *essere* or *avere* occur with the verb *corsa* 'run.' Therefore, the auxiliary selection cannot be a reliable diagnosis for unaccusativity either.

Furthermore, Levin and Rappaport Hovav cite Lonzi's (1985) discussion on auxiliary selection in Italian. Recall that unaccusative verbs undergo *ne*-cliticization while unergative verbs do not. Also, unergative verbs in Italian select *avere* 'have' in auxiliary selection. Based on this analysis, the verb *telefonare* 'telephone' is generally considered an unergative verb. However, Lonzi gives the data which the verb *telefonare* 'telephone' appears with the clitic *ne:*

(14) Ti   accorgerai che in quest' uffucio **ne   telefonano** davvero
you'll realize   that in this   office of.them telephone   really
molti, di stranieri.
many of foreigners
'[litterally] You will realize that many of foreigners really telephone
into the office.'   (Lonzi 1985:113, (71b))[10]

Accordingly, we could conlude that the diagnoses, *ne*-cliticization and auxiliary selection are not completely reliable in determining the unergative-unaccusative split.[11]

Section 3 has attempted to show that there is no perfect diagnosis which can determine unaccusativity. Although the diagnoses which are represented in this section may be at least partly explained in terms of unaccusativity, they are not sufficient. In addition, it seems that there are no universal diagnoses across languages since each language has a different structure and idiosyncratic grammatical processes. English does not have auxiliary selections, and Japanese does not allow impersonal passivization, and so forth. Based on the results on the diagnoses above, the next section discusses how two theories attempt to explain unaccusativity.

4. Syntactic Approach vs. Semantic Approach

This section compares a syntactic approach and a semantic approach to unaccusativity. In order to account for the UH, Government and Binding Theory (GB Theory hereafter) (e.g. Burzio 1986, Haegeman 1991, among others) adopts a syntactic view that these two types of intransitive verbs are associated with different syntactic configurations. On the other hand, Role and Reference Grammar (e.g. Van Valin 1987, 1990; Kishimoto 1996, among others) adopts a semantic view that the split between unergative and unaccusative should be accounted based on semantic determinant factors.

This section compares accounts of unaccusativity based on these two theories and attempts to find answers to the questions which were addressed in Section 1: why a syntactic theory assumes two different syntactic configurations and the other theory does not; and how these two theories explain the assumption that subjects of unaccusative verbs, but not subjects of unergative verbs share syntactic and/or semantic properties of direct

objects of transitive verbs.

4.1. Syntactic Approach

One of the syntactic views of unaccusativity is introduced by Burzio (1986) in GB Theory. He proposes that unaccusative verbs and unergative verbs associate with a different underlying syntactic configuration. The syntactic difference between unaccusatives and unergatives is that the argument of an unergative verb is underlyingly a subject whereas the argument of an unaccusative verb is underlyingly a direct object although it appears on the surface as a subject. The difference between the two classes is represented syntactically in underlying (D-structure) configurations as in (15) (Kishimoto 1996:248, (1)):

(15) a. Unergative verbs: [s NP [VP   ]]

      b. Unaccusative verbs: [s   [VP NP]]

Along with this argument, two crucial questions are raised. They are 1) what the evidence for two different configurations is and why the object of an unaccusative verb has to move to its subject position, instead of staying where it is; and 2) how the theory explains the assumption that subjects of unaccusative verbs, but not subjects of unergative verbs share syntactic properties of direct objects of transitive verbs.

Let us examine the first question. Burzio analyzes *ne*-cliticization in order to explain the syntactic evidence for the internal and external asymmetry. Recall the discussion on *ne*-cliticization in Italian in Section 3.2. The subject of an unaccusative verb such as *arrivare* 'arrive' can appear either before the verb or after the verb. These unaccusative verbs take the clitic *ne* ('of-them') only if the subject remains in a postverval position:

(16) a. Arriveranno **molti esperti**.   (Burzio 1986:21, (4ib))
          will.arrive   many experts
          'Many experts will arrive.'

     b. **Ne**   arriveranno **molti**.   (Burzio 1986:22, (5i))
          of.them will.arrive   many
          'Many of them will arrive.'

Burzio calls the NP (in bold face) in (16a) an 'inverted subject' (1986:22)
and the clitic *ne* originates from the head position within the NP (inverted
subject) and moves to the surface subject position (I-position in GB Theory).
Accordingly, the underlying structure of (16b) can be represented as in
(17):

(17) **Ne**$_i$ [VP arriveranno [NP **molti t**$_i$]].[12]
       of.them   will.arrive   many
       'Mary of them will arrive.'

This shows that *ne* is extracted from a post-verbal NP. Also, the cliticization
of the objects of transitive verbs can be described with an underlying
structure:

(18) **Ne**$_i$ [VP ha   insultto [NP **due t**$_i$]] Giacomo.
       of.them   has insulted   two   Giacomo
       'Giacomo has insulted two of them.'
       (Haegeman:324, (49b)

Furthermore, the subject of a passive verb undergoes *ne*-cliticization, and
(19) shows the underlying structure:

(19) **Ne**$_i$ [VP furono arrestati [NP **molti t**$_i$]]
       of.them   were   arrested   many
       'Many of them were arrested.'
       (Haegeman:326, (56))

The data in (17), (18), and (19) shows that the subject of a passive verb
and that of an unaccusative verb share the same syntactic property with
the object of a transitive verb such that *ne* is extracted from a post-verbal
NP. Burzio states this phenomenon as follows:

(20) Ne-Cl (*ne*-cliticization) is possible with respect to an i-subject (inverted subject) related to a direct object. (Burzio 1996:26, (16))

Why does the object of an unaccusative verb have to move to its subject position, instead of staying where it is? Burzio explains in terms of Case and theta roles.[13] He explains that accusative verbs (also passive verbs) do not have an ability to assign a theta role to the subject, thus they will not assign the object Case. This explains why the NP movement is necessary in both unaccusative and passive cases. If unaccusatives do not assign object Case, the postverbal NP is forced to move to the subject position to get Case.

This explanation is also related to the answer to the second question, how subject of unaccusative verbs shares syntactic properties of direct objects of transitive verbs (and subjects of passives.) It can be concluded that single arguments of unaccusative verbs, arguments of passive verbs, and objects of transitive verbs are all underlying objects, which cannot assign Case to the subject. Therefore, arguments of unaccusative verbs (and those of passive verbs) need to move to their subject positions.

Next, let us consider unergative verbs. While the subject of an unaccusative verb, that of a passive verb, and the object of a transitive verb, undergo this cliticization, the unergative verb *telefonare* 'telephone' does not:

(21) a. Telefoneranno **molti esperti**   (Burzio 1986:21, (4, iib))
         will.telephone many experts
         'many experts will telephone.'

     b. *Ne*_i   [VP telefonano] [NP **molti t***i*]
         of.them will.telephone   many
         [literally] 'Many of them will telephone.'
         (Burzio 1986:31, (30b))

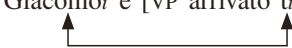In addition, cliticization cannot apply to the subject of a transitive verb:

(22)   ***Ne**   [VP hanno indultatao Giacomo] [NP **due t**]
        of.them   have insulted Giacomo   two
        'Two of them have insulted Giacomo.'
        (O'Grady 1999:15, (31))

Both ungrammatical cases show the clitic *ne* cannot be extracted from the subject positions of unergative verbs and transitive verbs. Thus, it can be concluded that single arguments of unergatives and subjects of transitive verbs share the same syntactic property. They are both underlying subjects. With respect to NP movement, Burzio explains that unergative verbs and transitive verbs can assign a theta role to the subject and they can also assign object Case. Therefore, NP movement is not necessary in these cases.[14]

With regard to auxiliary selection, Burzio gives the same type of account. He provides the selection principle for auxiliary *essere* 'be' as follows. The underlying structures are also in (23):

(23) ***Essere* selection** (Burzio 1986:55)

There is a chain between the subject position and the complement position of the verb.

a.   Giacomo$_i$ e [VP arrivato t$_i$]   (unaccusative)

'Giovanni has   arrived.'   (Burzio 1986:53, (79a))

b.   Giacomo ha [VP telefonato]   (unergative)
     'Giovanni has   telephoned.'   (Burzio 1986:53, (79b))

In (23a), forming a chain, *Giacomo* has moved to the subject position leaving a coindexed trace, and this sentence fulfills the condition for *essere* selection. On the other hand, no movement is necessary in (23b) since there is no *essere* in the sentence.

Now, the problem of this approach is that, as mentioned in Section 3.2, there are some verbs in Italian which choose both *essere* 'be' and *avere* 'have' (Van Valin 1987; 1990, Rosen 1984). Let us take a look at another

example:[15]

(24) a. Il   dibattito **e** contunuato. (*ha)
         the debated is continued   has
         'The debate continued.'
         (Levin and Rappaport Hovav 1995:6, (2b))

     b. Mario **ha** continuato.   (*e)
         Mario has continued   is
         'Mario continued.'
         (Levin and Rappaport Hovav 1995:6, (2a))

The verb *contunuato* appear with either *essere* or *avere* in (24). It seems that we cannot explain these verbs' behavior in Burzio's analysis. Furthermore, his theory cannot account for Lonzi's (1985)'s example in (14), either. Thus, Buzio's analysis has problems explaining unaccusativity.

4.2. Semantic approach

Within the framework of Role and Reference Grammar (RRG hereafter), Van Valin (1987; 1990) employs a lexical decomposition analysis proposed by Dowty (1979). He claims that the crucial facts of the two types of intransitives can be described in semantic terms without having recourse to the syntactic notions of "subject" and direct "object". Before we discuss Van Valin's treatment on unaccusativity, let us summarize the RRG briefly.

According to Van Valin, verbs are classified according to their inherent aspectual properties in this lexical semantic theory. The lexical decompositions in RRG are based on Vendler's (1967) aspectual verb categorizations: state, activity, accomplishment, and achievement.

In RRG, formal decomposed lexical representations, which are called logical structures (LSs hereafter), are assigned to the each aspectual verb class. The operators and connectives that are employed in LSs are: BECOME, which indicates inchoativeness; DO, which indicates agency; and CAUSE, which indicates a causal relation between two events. Using

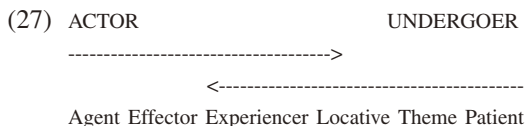them, the formal presentations for the verb classes can be illustrated as in

(25) (Van Valin 1990:224):[16]

(25) a.   STATE: **predicate'** (x) or (x, y)
      b.   ACHIEVEMENT: BECOME **predicate'** (x) or (x, y)
      c.   ACTIVITY (+/- Agentive):   (DO (x)) [**predicate'** (x) or (x, y)])
      d.   ACCOMPLISHMENT: ϕ CAUSE ϕ, where ϕ is normally an activity predicate
                                 and ϕ an achievement predicate.

Moreover, Van Valin considers the semantic roles which are identified in argument positions in LSs. The definitions of thematic relations for state and activity verbs are summarized as in (26) (Van Valin 1990:226):

(26) I   STATE VERBS
      A.   Locative   **be-at'** (x, y)   x = locative, y = theme
      B.   Nonlocational
           1.   State or condition   **predicate'** (x)   x = patient
           2.   Perception   **see'** (x, y)   x = experiencer, y = theme
           3.   Cognition   **believe** (x, y)   x = experiencer, y = theme
           4.   Possession   **have** (x, y)   x = locative, y = theme
           5.   Attrib/Identificational **be** (x, y) x = locative, y = theme
      II   ACTIVITY VERBS
      A.   Uncontrolled   **predicate'** (x, (y))   x = effector (y = locative)
      B.   Controlled
                                 DO (x, [**predicate'** (x, y)]) x = agent, (y = locative)

According to Van Valin, a verb's thematic relations are attributable to its verb class and to its LS. In addition to the tier of thematic roles, Van Valin proposes the semantic macroroles of "actor" and "undergoer" in his analysis. They are two primary arguments of a transitive predication and determined based on the thematic roles. In transitive predicates, the relationship between actor and undergoer is described by the Actor-Undergoer Hierarchy in (27) (Van Valin 1990:226):

(27) ACTOR   UNDERGOER
      ------------------------------------->
                        <-------------------------------------
      Agent Effector Experiencer Locative Theme Patient

The selection of the macroroles is determined on the basis of thematic roles in accordance with this hierarchy. The prototypical actor is an agent

and prototypical undergoer is a patient. Effectors and experiencers with verbs of cognition and perception can be actors, and locative and themes can also be undergoers. For instance, for the volitional transitive verb *throw*, which takes both agent and theme, the agent is an actor and the theme is an undergoer. For a verb which takes only one argument, either actor or undegoer is assigned to the single argument. Accordingly, Van Valin states the Macrorole Assignment Principle as given in (28):

(28) **General Macrorole Assignment Principles** (Van Valin 1990:227):

    a.   **Number**: the number of macroroles verb takes is less than or equal to the number of arguments in its LS.
        1. If a verb has two or more arguments in its LS, it will take two macroroles.
        2. If a verb has one argument in its LS, it will take one macrorole.

    b.   **Nature**: for verbs which take one macrorole,
        1. If the verb has an activity predicate in its LS, the macrorole is actor.
        2. If the verb has no activity predicate in its LS, the macrorole is undergoer.

This principle can explain the question of how subjects of unaccusative verbs but not subjects of unergative verbs share syntactic and/or semantic properties of direct objects of transitive verbs. In RRG, although the semantic macroroles of actor and undergoer serve as the interface between thematic relations and grammatical relations, they are defined based on the thematic relations and are not altered by grammatical operations such as passivization and causativization. Therefore, without the notion of "subject" and "object", noun arguments can share the same semantic properties. Consequently, it is not necessary to have the two different grammatical configurations. In addition, there is no assumption that subjects of unaccusative verbs share syntactic and/or semantic properties of direct objects of transitive verbs in RRG.

Now, let us return to the discussion of auxiliary selection in Italian. Regarding auxiliary selection, Van Valin divides verbs into three groups according to the selection of the auxiliaries (Van Valin 1990:232):

(29) a. **Verbs that take *avere*:** *parlare* 'take'; *piangere* 'cry'; *ballare* 'dance'; *singhiozzare* 'sob'; *camminare* 'walk'; *viaggiare* 'travel'

    b. **Verbs that take *essere*:** *arrivare* 'arrive'; *sembrare* 'seem'; *affondare* 'sink'; *stare* 'stay'; *piacere* 'like'; *essere* 'be'; *andare* 'go'; *annegare* 'drown'

    c. **Verbs that take either *avere* or *essere*:** *correre* 'run'; *saltare* 'jump'; *volare* 'fly'; *fiorire* 'bloom'

With respect to the unergative-unaccusative split, Van Valin proposes that the verbs in (29a) are all activity verbs and the verbs in (29b) are state, achievement, or accomplishment verbs. To determine their aspectual classes, he applies Dowty's aspectual tests employing adverbial phrases such as *per un' ora* 'for an hour' and *in un' ora* 'in an hour': activities occur with *for an hour* but not with *in an hour* while accomplishments occur with *in an hour* but not with *for an hour* (Van Valin 1990:232):

(30) a. Angela ha parlato/pianto/ballato/camminato per/*in un' ora.
       Angela has talked/cried/danced/walked   for/in an hour
       'Angela talked/cried/danced/walked or /*in an hour.'

    b. Anglela e arrivata/annegata/morta *per/in un' ora
       Angela is arrived/drowned/died   for/in an hour
       'Angela arrived/drowned/died *for/in an hour.'

Consequently, Van Valin states a formulation for auxiliary selection for intransitive verbs in Italian:

(31) **Auxiliary Selection with intransitive verbs**
(Van Valin 1990:223, (17))
Select *essere* if the LS of the verb contains a state predicate.

Furthermore, he formulates a *ne*-cliticization rule as follows :

(32) ***Ne*-Cliticization** (Van Valin 1990:233, (18))
Ne realizes the lowest-ranking argument on the Actor-Undergoer hierarchy in the state predicate in the LS of the predicate in the clause.

Thus, he concludes that all verbs which have a state predicate in their LSs can participate in both auxiliary selection and ne-cliticization. Regarding the verbs in (29c), which take either *avere* or *essere,* Van Valin argues that these verbs differ in aspectual interpretations. For instance, consider the verb *correre 'run.'* The example in (13) is repeated below.

(33) a. Luisa **è** corsa a casa.   (Van Valin 1987:647, (9b))
       Luisa is run   to home
       'Luisa ran home.'

     b. Luisa **ha** corso nel   parco.   (Van Valin 1987:647, (9a))
        Luisa has run   in.the park
        'Luisa ran in the park.'

Van Valin discusses that the verb in (33a) is an accomplishment verb and that in (33b) is an activity verb. He provides an aspectual test to support his argument as shown in (34a) and (34b). The data in (34a') and (34b') represent the LSs of each verb:

(34) a. Luisa **è**corsa a casa in/per   un' ora
       Luisa is.run   to home in/for   an hour
       'Luisa ran home in/for an hour.'
       [with *per* = 'at home for an hour', not 'running for an hour']
       (Van Valin 1990:237, (29))

     a'. [**run'** (Luisa)] CAUSE [BECOME **be-at'** (house, Luisa)]

     b. Luisa **ha** corso nel   parco per/*in un' ora.
        Luisa has run   in.the park for/in   an hour
        'Luisa ran in the park for/*in an hour.'
        (Van Valin 1990:237, (28))

     b'. **run'** (Luisa)

Thus, Van Valin concludes that the verbs which select *essere* are either stative, achievement, or accomplishment verbs while the ones which select *avere* are activity verbs. The first three classes have a state predicate in their LS in common, which triggers the selection *essere.* He further mentions that the intransitive spit actually depends on whether a given verb denotes

activity or nonactivity. He concludes all of the verbs which select *essere* are nonactivity verbs.[17]

Levin and Rappaport Hovav cite Everaert's (1992) example in Dutch as a counterexample to Van Valin's analysis. In (35), the auxiliary *hebben* is a Dutch counterpart of the English *have* and the Italian *avere*. According to Everaert, the following sentences make use of different auxiliaries although they are near paraphrased of each other.

(35) a. Het vliegtuig **heeft** een landing gemaakt.
         the plane   has   a   landing made
         'The plane has made a landing.'   (Everaert 1992:4, (12a))

     b. Het vliegtuig **is** geland.   (Everaert 1992:4 (11a))
         the plane   is landed
         'The plane has landed.'

Although Van Valin (1987; 1990) does not discuss this problem, a possible solution is to posit different LSs between (35a) and (35b). If we can prove that the predicate in (35a), *heeft een landing gemaakt* 'has made a landing,' shows an activity LS and that in (35b), *is geland* 'has landed,' contains a stative LS, Van Valin's explanation would be better than Burzio's explanation. Furthermore, it is possible to provide the same solution to Lonzi's claim which is addressed in Section 3.2. As shown in (14), the Italian verb *telefonare* 'telephone' can occur with the clitic *ne*. It can be assumed that the verb *telefonare* can appear with the clitic *ne* if the verb can have a state LS.

Hence, Van Valin's (1987; 1990) analysis can solve problems which cannot be treated by Burzio's analysis. It can be concluded that Van Valin's semantic explanation in RRG can provide a better solution to unaccusativity than Burzio's syntactic explanation in GB.

5. Conclusion

This paper has investigated whether or not some theories are providing satisfactory diagnoses for the unergative-unaccusative classification. This paper concludes that no diagnosis can define unaccusativity successfully. This paper has compared the explanation for unaccusativity offered by Government and Binding Theory, which takes a syntactic approach to unaccusativity, with that of Role and Reference Grammar, which takes a semantic approach to unaccusativity. This paper concludes that Van Valin's analysis in Role and Reference Grammar provides a more satisfactory account for unaccusativity than Burzio's analysis in the GB framework.

Notes

1. The following glosses are used throughout this paper: auxiliaries (Aux) and dummy elements (Dum).

2. Neither Perlmutter (1979) nor Perlmutter and Postal (1984) provides complete glosses for their data including the ones in Dutch in (1). The glosses in (1) are described based on their explanations but unfortunately they are incomplete.

3. Note that both Perlmutter (1979) and Perlmutter and Postal (1984) make use of the above semantic implications to explain different behaviors among verbs. According to them, *zwemmen* 'swim' denotes a willed activity therefore it is compatible with impersonal passives. On the other hand, *vernken* 'drown' does not denote a willed activity, so it cannot occur in an impersonal passive form in Dutch. Thus, Perlmutter claims that the semantic difference causes the syntactic difference.

4. Levin and Rappaport Hovav (1995) call this generalization the Direct Object Restriction.

5. According to Levin and Rappaport Hovav (1995), sentences with a transitive verb, such as in (2), may have a depictive interpretation. Depictive interpretation is a term originally due to Halliday (1967), and in this interpretation, subjects of transitive verbs are associated with resultative phrases. For instance, Levin and Rappaport Hovav (1995:35) point out that the sentence in *Julia burned the cookies dirty* can mean that Julia burned the cookies when she was dirty but cannot mean that Julia

got dirty as a result of burning cookies. However, this paper does not consider depictive interpretations.

6. Also, a resultative phrase can be associated with the subject of a passive verb:

(i)   a.   **The cake** was burned **black**.   (O'Grady 1999:14, (23))

      b.   **The table** was sponged **clean**.

7. Regarding this association between resultative phrases and certain NPs, Government and Binding Theory assumes that there are two levels of representation, deep structure and surface structure. In this theory, subjects of passive forms and those of unaccusative verbs are objects in their deep structures and their subjects move to their subject position in their surface structures (Haegeman 1991). It explains why resultative phrases with passives and unaccusatives can be associated with their surface subjects. The generalization here predicts that if a verb has no underlying object, then it cannot occur with a resultative phrase. This discussion will be continued in Section 4.

8. The subject of a passive verb also undergoes *ne*-cliticization:

(i)   **Ne**   saranno invitati molti   (Burzio 1996:23, (8c))
      of.them   will.be invited many
      'Many of them were invited.'

9. His data also predicts that the subject of an unaccusative verb is underlyingly a direct object.

10. Although the data has glosses, it does not provide an English translation for this sentence, and the translation in (14) is based on the glosses and the explanation in Levin and Rappaport Hovav (1995).

11. In addition to the diagnoses illustrated above, other researchers have demonstrated another diagnosis to define the unergative-unaccusative split. With regard to Japanese, for example, Kishimoto (1996) proposes an analysis with deverbal nominalization.

12. The data showing underlying forms has been slightly modified.

13. Due to the space limitation, this paper cannot provide a full account of Case theory and Theta theory in GB Theory. See Haegeman (1991) for complete details.

14. Regarding this point, Burzio (1986) states the following generalization regarding the relationship between theta-role assignment and Case assignment:

    (1)   A verb which lacks an external argument fails to assign ACCUSATIVE Case   (Burzio, 1986:178-9; Haegeman 1991:321).

    (2)   A verb which fails to assign ACCUSATIVE Case fails to theta-mark an external argument (Burzio 1986:184; Haegeman 1991:321).

See Burzio (1986) and Haegeman (1991) for details.

15. Levin and Rappaport Hovav (1995) list verbs in Italian which take both *essere* 'be' and *avere* 'have'. Some of these are *correre* 'to run', *saltare* 'to jump, *volare* 'to fly', and *vivere* 'to live'.

16. States consist of stative predicates only. Achievements are derived from states adding the operator BECOME. Activities consist of activity predicates alone, or the operator DO is combined optionally when a verb specifies agentiveness (or volitionality). In addition, accomplishments are composed of activity and achievement predicates connected with CAUSE.

Regarding the relation among the three classes, state, achievement, and accomplishment, Van Valin argues that the relation can be found in many sets of verbs. For instance, Y [be] cool (state), Y cool (achievement), and X cool Y (accomplishment). English examples with their decomposition representations are given below (Van Valin 1987:644):

(i) a. **States**

The clock is broken.   **broken'** (clock)

The book is on the table.   **be-on'** (book, table)

  b. **Achievements**

The clock broke.   BECOME **broken'** (clock)

Fred arrived at the house.   BECOME **be-at'** (Fred, house)

  c. **Activities**

The children cried.   **cry'** (children)

Fred ran.   DO (Fred, [**run'** (Fred)])

  d. **Accomplishments**

The child broke the clock [accidentally].
[**do'** (child)] CAUSE [BECOME **broken'** (clock)]

Fred ran to the house.
[DO (Fred, [**run'** (Fred)])] CAUSE [BECOME **be-at'** (Fred, house)]

17. In addition, although the semantic basis between the split intransitive in Italian is activity or nonactivity, the basis for this in other languages could be different. For instance, Kishimoto (1996) argues that the semantic basis for the intransitive split in Japanese is agentive or non-agentive.

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