Semantic Parameters of Split Intransitivity

Robert D. van Valin, Jr.

Language, Vol. 66, No. 2 (Jun., 1990), 221-260.

SEMANTIC PARAMETERS OF SPLIT INTRANSITIVITY

ROBERT D. VAN VALIN, JR.

University of California, Davis

Split intransitivity has been an important issue in syntactic theory since the postulation of the Unaccusative Hypothesis in Relational Grammar in Perlmutter 1978; it was adapted into Government-Binding theory in Burzio 1981. In both theories, a purely syntactic approach to split intransitivity is taken. This paper argues that split-intransitive phenomena are better explained in semantic terms. The semantic analysis will be carried out in Role and Reference Grammar, which assumes the theory of verb classification proposed in Dowty 1979. The analysis will focus on Italian, Georgian, and Acehnese, languages which have been cited as providing support for the UH. It will be shown that two semantic parameters, inherent lexical aspect (Aktionsart) and agentivity, underlie split intransitivity crosslinguistically.*

1. INTRODUCTION. The purpose of this paper is to argue that the phenomena which the Unaccusative Hypothesis (UH) strives to explain in syntactic terms are better explained in semantic terms. It will be shown that a semantic analysis in Role and Reference Grammar (RRG; Foley & Van Valin 1984, Van Valin 1991b) provides an explanatory account of unaccusative phenomena in particular languages and of the variation in these phenomena across languages. The UH was initially proposed in Relational Grammar (RelG) in Perlmutter 1978, and it was adapted into Government-Binding theory (GB) in Burzio's work on Italian (1981, 1983, 1986). According to the UH there are two types of intransitive verbs, and in both theories the differences between them are characterized in purely syntactic terms: in one type the surface subject is also the underlying subject, and in the other the surface subject is the underlying direct object. This is expressed differently in the two theories. In RelG, unaccusative verbs are analyzed as having an initial 2 (direct object) but no 1 (subject), as in 1a, as opposed to unergative verbs, which have an initial 1 but no 2, as in 1b; in GB, unaccusative verbs ('ergative' in Burzio's terminology) occur in the D-structure as in 1a', while other intransitive verbs appear in the D-structure as in 1b', the configurational equivalents of the RelG initial strata.

(1)   Unaccusative   Unergative
      a.   Initial: V 2   b.   Initial: V 1
      a'. [s[NP e][VP V NP]]   b'. [s NP [VP V]]

While Perlmutter 1978 initially suggested that there is a semantic basis for the

unaccusative-unergative distinction, subsequent discussions, especially Harris 1982 and Rosen 1984, have concluded that there is no consistent, universally characterizable semantic basis for it.

The discussion will proceed as follows. Section 2 presents a synopsis of the RRG theory of semantic roles and grammatical relations and summarizes the system of verbal classification and semantic representation proposed in Dowty 1979. Section 3 deals with a number of issues in Italian syntax related to the UH; §4 looks at arguments advanced in support of the UH based on data from Georgian, and §5 concerns the intransitive split in Acehnese. Conclusions are presented in §6.

The verb classes in question are referred to differently in RelG and GB: RelG 'unaccusative' = GB 'ergative', and RelG 'unergative' = GB 'intransitive'. The RelG terms are not perspicuous, and the GB term 'ergative' is misleading, since the pattern in question corresponds to the one coded by the ABSOLUTIVE case (not the ergative case) in morphologically ergative languages, and the use of the term 'intransitive' to refer to a subset of the class denoted by the traditional use of the term is likewise misleading. I will therefore avoid these terms, except in citations from authors who employ them, and use the terms 'class-S_A'—where 'S_A' means that the subject of the intransitive verb ('S') receives the same morphosyntactic treatment as the subject of a transitive verb ('A')— to refer to the class of 'unergatives/intransitives' and 'class-S_O'—where 'S_O' means that the subject of the intransitive verb receives the same morphosyntactic treatment as the object of a transitive verb ('O')—to denote the class of 'unaccusatives/ergatives'.

2. A SYNOPSIS OF THE ROLE AND REFERENCE GRAMMAR THEORY OF SEMANTIC ROLES, GRAMMATICAL RELATIONS, AND VOICE. RRG differs from the generative theories under consideration in numerous ways, perhaps the most fundamental being that it posits only a single level of syntactic representation. There are no abstract syntactic representations akin to the underlying levels/strata of GB and RelG. There is a direct mapping or linking between the semantic and syntactic representations.[1] The semantic representation in RRG is founded on the theory of verb semantics and lexical representation presented in Dowty 1979. Dowty's lexical semantic theory of verb classification is based on Vendler's 1967 classification of verbs into states, achievements, activities, and accomplishments. Examples of members of each class are given in 2, and the syntactic and semantic tests for class membership are given in Table 1.

(2) a. STATES: *know, be broken, have, believe, like*
    b. ACHIEVEMENTS: *learn, break* (intr.), *die, arrive, notice*
    c. ACCOMPLISHMENTS: *teach, break* (tr.), *kill, eat a piece of pizza, make a chair*
    d. ACTIVITIES: *run, dance, swim, eat pizza, squeak*

---

[1] The RRG theory of clause structure is not presented here due to space limitations; see Van Valin 1991a, for detailed explication.

CRITERION	STATES	ACTIVITIES	ACCOMPLISHMENTS	ACHIEVEMENTS
(1) meets non-stative tests	no	yes	yes	?
(2) has habitual interpretation in simple present tense	no	yes	yes	yes
(3) φ for an hour/spend an hour φing	OK	OK	OK	bad
(4) φ in an hour/take an hour to φ	bad	bad	OK	OK
(5) φ for an hour entails φ at all times in the hour	yes	yes	no	d.n.a.
(6) x is φing entails x has φed	d.n.a.	yes	no	d.n.a.[2]
(7) complement of stop	OK	OK	OK	bad
(8) complement of finish	bad	bad	OK	bad
(9) ambiguity with almost	no	no	yes	no
(10) x φed in an hour entails x was φing during that hour	d.n.a.	d.n.a.	yes	no
(11) occurs with studiously, attentively, carefully, etc.	bad	OK	OK	bad

OK = The sentence is grammatical, semantically normal.
bad = The sentence is grammatical, semantically anomalous.
d.n.a. = The test does not apply to this class of verbs.

TABLE 1. Dowty's (1979:60) syntactic and semantic tests for verb class membership.

Dowty proposes an explanation for the organization of verbs into these classes:

'The idea is that the different aspectual properties of the various kinds of verbs can be explained by postulating a single homogeneous class of predicates—STATIVE PREDICATES—plus three or four sentential operators and connectives. English stative verbs are supposed to correspond directly to these stative predicates in logical structure, while verbs of other categories have logical structures that consist of one or more stative predicates embedded in complex sentences formed with the 'aspectual' connectives and operators' (1979:71).

Each verb class is given a formal representation called its LOGICAL STRUCTURE (LS). The operators and connectives used are BECOME, which signals inchoativeness; DO, from Ross 1972, an optional operator which codes agentiveness; and CAUSE, which indicates a causal relation between two events. Dowty proposes that all of the classes have some members which may take agentive subjects and some which may not (cf. 1979:184). The formal representations for the four classes are presented in Table 2.

Achievement verbs are derived from state verbs by means of the operator BECOME; the argument structure of the predicate is unchanged. Achievement LSs are a component of accomplishment verb LSs. This derivational relation-

[2] Achievement verbs may be both punctual and nonpunctual (e.g. melt, freeze, dry), and accordingly they will behave rather differently with respect to some of the tests; for example, Dowty specifies that test 6 does not apply to achievement verbs, but this is true only with respect to punctual achievements. Test 6 does apply to nonpunctual achievements and can be used to distinguish activity verbs, for which 6 is true, from process or nonpunctual achievement verbs, for which it is false; thus, for instance, the ice is melting does not entail the ice has melted.

VERB CLASS	LOGICAL STRUCTURE
STATE	**predicate'** (x) or (x,y)
ACHIEVEMENT	BECOME **predicate'** (x) or (x,y)
ACTIVITY (±Agentive)	(DO (x)) [**predicate'** (x) or (x,y)])
ACCOMPLISHMENT	φ CAUSE ψ, where φ is normally an activity predicate and ψ an achievement predicate.

TABLE 2.

ship among the three classes is realized in many set of verbs; in some cases the relationship among the verbs is morphologically transparent, e.g. *Y [be] cool* (state), *Y cool* (achievement), and *X cool Y* (accomplishment), and in others it is not, e.g. *see* (state), *notice* (achievement), and *show* (accomplishment). For the most part, activity verbs are not derived from stative predicates but are represented as primitive predicates in their own right. DO codes agentiveness only with verbs in which it is lexicalized, e.g. *murder*. Most verbs that have agentive interpretations can equally easily have nonagentive ones, e.g. *Fred (accidentally/intentionally) broke the expensive vase*, and in such cases agentiveness is not part of the lexical meaning of the verb and hence is not represented in its LS; it is, instead, an implicature based on the animacy of the actor and lexical properties of the verb.[3] Examples of English verbs of all four types and their LSs are given in 3.

(3) a. STATES:

The book is heavy.	**be'** (book, [**heavy'**])
The watch is broken.	**broken'** (watch)
The lamp is on the table.	**be-on'** (table, lamp)
Susan is at the house.	**be-at'** (house, Susan)
John saw the magazine.	**see'** (John, magazine)

b. ACHIEVEMENTS:

The watch broke.	BECOME **broken'** (watch)
Susan arrived at the house.	BECOME **be-at'** (house, Susan)
The lamp fell on the floor.	BECOME **be-on'** (floor, lamp)
John noticed the magazine.	BECOME **see'** (John, magazine)

c. ACTIVITIES:

The children shouted.	**shout'** (children)
Susan ran.	**run'** (Susan)
The wheel squeaks.	**squeak'** (wheel)
Max did something.	**do'** (Max)
John ate fish.	**eat'** (John, fish)

d. ACCOMPLISHMENTS:

Linda threw the hat on the table.
   [**throw'** (Linda, hat)] CAUSE [BECOME **be-on'** (table, hat)]
Susan ran to the house.
   [**run'** (Susan)])] CAUSE [BECOME **be-at'** (house, Susan)]
The child broke the watch.
   [**do'** (child)] CAUSE [BECOME **broken'** (watch)]
Mary showed the book to John.
   [**do'** (Mary)] CAUSE [BECOME **see'** (John, book)]

---

[3] Holisky 1987 develops a pragmatic implicature theory of agentivity within RRG to handle cases such as these.

Do′ is a generalized activity verb much like English *do*; it is found primarily in accomplishment LSs when the nature of the causing activity is not specified. It is not a part of the verb schemas in Dowty 1979 and was introduced in Foley & Van Valin 1984.

One derivational relation between classes is of particular importance for this discussion: the relationship between activities and accomplishments (3c,d). This derivational pattern relates activity verbs of MOTION (e.g. *run*), CONSUMP-TION (e.g. *eat*), and CREATION (e.g. *paint, carve*) to the corresponding accomplishment verbs, as shown in 4 and 5 (cf. Dowty 1979:60–63).

(4) a. *John walked in the park.* (Activity)
   b. *John walked to the park.* (Accomplishment)
(5) a. *John ate spaghetti.* (Activity)
   b. *John ate the spaghetti.* (Accomplishment)[4]

Application of the tests in Table 1 confirms these interpretations. There is no need to list *eat*, for example, in the lexicon twice, once as an activity and once as an accomplishment. Rather, the following lexical rule derives the accomplishment forms:

(6) Activity [motion, creation, consumption] → Accomplishment: given an activity LS [$_\phi$... **predicate′** ...], add CAUSE [$_\psi$ BECOME **predicate′** ...] to form a ϕ CAUSE ψ accomplishment LS.

The nature of the predicate added in ψ depends on the type of activity. Motion activity verbs take a locative predicate of the form BECOME (NOT) **be-at′** (y,z), as with *run* in 3c,d. With consumption verbs, it is usually BECOME NOT **exist′** (y), and with creation verbs, BECOME **exist′** (y). A generic result is added, and the primary semantic content of these verbs resides in the nature of the causing activity, not the result.

LSs like those in ex. 3 are the core of the lexical entry for a verb. These representations are the basis for the RRG theory of semantic roles, which postulates two tiers of semantic roles—one corresponding to the thematic relations of other theories and another one which has no exact analog in other theories. Following Jackendoff 1976, thematic relations are defined in terms of argument positions in decomposed predicate representations, the LSs in Table 2 and ex. 3. The definitions are summarized in Table 3.

---

[4] It should be noted that this contrast CANNOT be reduced to the presence or absence of articles, because it occurs in languages which do not have articles, e.g. Georgian and Japanese. This contrast revolves around whether the direct object is a specified entity or quantity, in which case it delimits the action and supplies a temporal boundary for it, or whether it is unspecified and therefore does not serve to delimit the action. Cf. Dowty's discussion (1979:60ff.) for a detailed explication of the semantic basis of these contrasts. These examples bring up an important point about the Dowty system. Even though this discussion is phrased in terms of verb classes, it includes both the lexical meaning of verbs and their use in the context of the whole clause. Hence in some languages, e.g. English, the status of the direct object or other core argument is relevant to determining the use of a verb in a particular clause but not its basic lexical classification, as illustrated in the pairs of sentences in 5. In German and Hungarian, however, the system of verb prefixation signals the contrast.

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)

TABLE 3. Definitions of thematic relations for state and activity verbs.

The derivation of thematic relations from argument positions in LSs has a very important consequence: because there are syntactic and semantic criteria for determining the class of a verb, and because a verb's thematic relations are to a large extent attributable to its class and hence to its LS, the assignment of thematic relations to verbs in RRG is independently motivated.

The second tier of semantic roles consists of the two macroroles ACTOR and UNDERGOER.[5] These are the two primary arguments of a transitive predication, either one of which may be the single argument of an intransitive verb. They are called 'macroroles' because each subsumes a number of specific thematic relations, and the relationship between the two tiers is captured in the Actor-Undergoer Hierarchy in Figure 1. The prototypical actor is an agent and the prototypical undergoer a patient, but effectors and experiencers with verbs of cognition and perception can also be actor, and locatives and themes can also be undergoer; this depends on the LS of the particular verb, as shown in Table 3. Thus the actor of *see* is an experiencer, that of *show* an effector, and by implicature an agent (cf. 3d), and that of *squeak* an effector (cf. 3c); similarly, the undergoer with *break* is a patient, while that of *throw* is a theme (cf. 3d).[6]

ACTOR   UNDERGOER
————————————————————————————→
                    ←————————————
Agent Effector Experiencer Locative Theme Patient
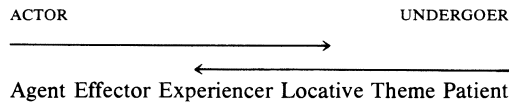
FIGURE 1. Actor-Undergoer Hierarchy.
['→' = increasing markedness of realization of thematic relation as macrorole.]

[5] The 'protoroles' proposed in Dowty 1987 are similar but not identical to macroroles. While both macroroles and protoroles are more general than the specific thematic relations of agent and patient, Dowty claims that they are the only semantic roles and that there are no thematic relations in the sense discussed here and assumed by most theories. The relation of particular protoroles to particular verbs is left unexplained. Hence their place in a grammar is very different from that of macroroles. Jackendoff (1987) proposes multiple tiers in his thematic relations theory, but the agent-patient action tier is quite different from the RRG macrorole tier.

[6] The label 'undergoer' should not be taken literally, just as 'actor' should not. The actor of *see* does not do anything but is nevertheless an actor in the sense intended here; similarly, the undergoer of *see* does not undergo anything, unlike the undergoer of, e.g., *kill*, but it is still the undergoer of the verb. The specific semantic content of the macrorole with a particular verb is supplied by the thematic relation the argument bears.

The number of macroroles that a verb takes can normally be predicted from its LS; the only possibilities are 0, 1, and 2. If there are two or more arguments in the LS of a verb, e.g. [**do'** (x)] CAUSE [BECOME **be-at'** (y,z)] or **hear'** (x,y), then the verb takes two macroroles in the default situation. If a verb has only one argument in its LS, e.g. **walk'** (x) or BECOME **shattered'** (y), then the default is for it to have only one macrorole. Verbs with no arguments, e.g. **snow'**, have no macroroles. The nature of the macroroles is also derived from the verb's LS. If there are two, then they must be actor and undergoer. For verbs which take a single macrorole, the default assignment follows directly from the verb's LS: if the verb has an activity predicate in its LS (i.e., it is an activity or accomplishment verb), the macrorole will be actor; otherwise it will be undergoer. Most verbs in English follow these defaults; the exceptional verbs are intransitives with two arguments, e.g. *lie* as in *The map is lying on the table* (cf. 3a) or motion accomplishment verbs such as *walk* in *Mary walked to the park* (cf. 3d), which have only a single macrorole, an undergoer with *lie* and an actor with *walk*. There are also verbs like *seem* which have an experiencer and a propositional argument in their LS but contribute no macrorole arguments to the clause. Since the number of macroroles cannot be predicted from the number of arguments with these verbs, it must be specified in the lexical entry, e.g. 1 for *sit* and 0 for *seem*. It is never necessary to indicate that a verb takes two macroroles. Since the only contrast that would ever need to be stated in a lexical entry is binary, 0 or 1, it could be formalized in terms of a simple feature such as $[\pm MR]$, with $[+MR] = 1$ and $[-MR] = 0$. This feature in the lexical entry of a verb indicates that the default principles are overridden. The identity of the macrorole would not need to be stipulated, however, since it follows from the general principle given above. The macrorole assignment principles summarized in 7 apply unless there are lexical specifications to the contrary.

(7) GENERAL MACROROLE ASSIGNMENT PRINCIPLES:
    a. Number: the number of macroroles a 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.

One class of verbs is a universal exception to the default generalization regarding macrorole number: activity verbs. Multiple-argument activity verbs NEVER have an undergoer macrorole, for the following reason. Actor and undergoer have agent and patient as their respective prototypes, and in order for a class of verbs to have one of these macroroles, at least some of the members of the class (state, activity, achievement, or accomplishment) must take either

agent or patient arguments. All thematic relations are defined in terms of argument positions in state and activity verbs, as shown in Table 3. Single-argument state verbs have a patient as their thematic relation; patient can be defined as the participant in a state or condition. Although it is unusual, there are state verbs with agentive arguments; Dowty 1979 gives the human subjects of verbs like *sit, stand* and *lie* as examples, and volitional perception verbs like *watch* fall into this class as well. Activity verbs, on the other hand, readily take agent arguments, but since they code inherently unbounded dynamic states of affairs, they cannot code a state or condition. Hence they cannot BY DEFINITION have a patient argument. From this it follows that activity verbs can have only ACTOR macroroles, never undergoer, because the prototypical thematic relation for undergoer, patient, never occurs with activity verbs. In an example like *John ate pizza for/*in an hour, eat* is an activity verb, and it therefore cannot take an undergoer macrorole.

The number of macroroles that a verb takes parallels closely the specification of the verb in terms of the traditional notion of transitivity: single-macrorole verbs are intransitive, two-macrorole verbs are transitive.[7] The traditional notion refers to the number of arguments that appear in the syntax, and this corresponds to the number of direct core arguments, in RRG terms. The number of direct core arguments need not be the same as that of macroroles; there are never more than two macroroles, but in a sentence like *Mary showed Paul the picture* there are three direct core arguments. Similarly, two-argument activity verbs have two direct core arguments, as in *Bill drank beer*, but only one macrorole (actor). From this perspective, the number of direct core arguments a verb takes says less about its syntactic behavior than its macrorole number; accordingly, transitivity in RRG is defined in terms of the number of macroroles a verb takes: 2 = transitive, 1 = intransitive, and 0 = atransitive.

Sample partial lexical entries for several English verbs are given in 8.

(8) a. *present:* $[\mathbf{do'}(x)]$ CAUSE [BECOME $\mathbf{have'}(y,z)$]
    b. *take:* $[\mathbf{do'}(x)]$ CAUSE [BECOME NOT $\mathbf{have'}(y,z)$], U = z
    c. *run:* $\mathbf{run'}(x)$
    d. *see:* $\mathbf{see'}(x,y)$
    e. *arrive:*   BECOME $\mathbf{be\text{-}at'}(x,y)$ [+MR]
    f. *appear:* $\mathbf{appear'}(x,y)$ [−MR]

No list or other explicit statement of the thematic relations associated with a verb need be stated, since they are derived from the LS, and, for reasons detailed above, nothing more than the LS alone or the LS plus the [±MR] feature is necessary for indicating transitivity and macrorole choice. Lexical idiosyncrasies are to be specified in the lexical entry. For example, *present* allows either its theme or a locative argument to be undergoer, whereas *take* does not; hence it is necessary to specify that the z argument, the theme, is the only possible choice for undergoer with that particular verb. It should be

---

[7] The nontraditional conception of transitivity proposed by Hopper & Thompson 1980 can be derived from the Dowty-Vendler theory of verb classification. The 'high transitivity' attributes discussed by Hopper & Thompson correlate directly with the features of accomplishment and achievement verbs, as opposed to state and activity verbs. See Foley & Van Valin 1984:60, 368–73, 378 for detailed discussion.

noted that the prepositions which mark the oblique core arguments of *present* and *take* are not stipulated in the lexical entries; since they can be predicted by a general rule, they need not be listed (see Foley & Van Valin 1984, §3.3.1, and Jolly 1987 for detailed discussion).

Actor and undergoer act as the interface between thematic and grammatical relations. In a 'monostratal' theory like RRG, they play both semantic and syntactic roles: they are a function of the lexical semantic properties of verbs, and they are what formulations of syntactic constructions, e.g. passive in 10, make reference to. Just as actor is not equivalent to agent, it is likewise not equivalent to syntactic subject; nor is undergoer equivalent to syntactic direct object. This can be seen clearly in 9.

>   (9)   a. *Bill* [SUBJ, ACTOR] *ate the bagel* [D.OBJ, UNDERGOER].
>   b. *The bagel* [SUBJ, UNDERGOER] *was eaten by Bill* [ACTOR].
>   c. *Bill* [SUBJ, ACTOR] *ate pasta* [D.OBJ].
>   d. *The girl* [SUBJ, ACTOR] *ran down the stairs*
>   e. *The girl* [SUBJ, UNDERGOER] *got sick.*

In 9c *pasta* is direct object but not undergoer, because *eat* here functions as an activity verb (*Bill ate pasta for/*in ten minutes*), and it was pointed out above that activity verbs as a class do not take undergoers.

The RRG linking algorithm associates arguments bearing particular thematic relations in a LS to the grammatical functions in a clause.[8] This takes place in two steps, and the mapping is governed by the following COMPLETENESS CONSTRAINT: all of the arguments explicitly specified in the LS of a verb must be realized syntactically in any sentence containing that verb, and vice versa (Foley & Van Valin 1984:183). The first step assigns thematic relations and macrorole status to arguments, following the Actor-Undergoer hierarchy in Fig. 1. For example, given the LS for *throw* in 3d, *Linda*, the first argument of **throw'**, is an effector which would normally be interpreted as agentive, *hat* is a theme, and *table* is a locative, following the thematic relations definitions in Table 3. In terms of Fig. 1, the effector argument is the leftmost or highest ranking and will therefore be the actor. Of the two remaining arguments, the theme is the rightmost or lowest ranking and hence will be the undergoer. It must be emphasized that this assignment to macrorolehood does not constitute a distinct level of representation in the linking; rather, it is like assigning a second role label to an argument in a LS. In the case of *throw* above, the first argument of **throw'** is assigned the statuses of effector and actor as part of the process of interpreting the LS; there is no intermediate level of representation, syntactic or semantic. The second step involves mapping the macroroles and the remaining arguments into the morphosyntactic statuses in the clause. The mapping between thematic relations and macroroles is governed by the universal hierarchy in Fig. 1, whereas the mapping between macroroles and grammatical relations varies crosslinguistically. In English, the unmarked linking is for the actor of a transitive verb to be subject, but a marked linking of the undergoer to subject is also possible; this yields a passive construction. The

[8] For a detailed explication of the linking algorithm, see Foley & Van Valin 1984:183–86, 312–19, Van Valin 1991a, §6.

universal characterization of passive from Foley & Van Valin 1984 is given in 10.[9] Passive in English follows the universal prototype closely.

(10) a. ~A = Subject (a non-Actor [the universal default = Undergoer] is linked to Subject)

  b. A = X (the Actor is linked to a peripheral status or is omitted)

The RRG linking schema is summarized in Figure 2.

GRAMMATICAL RELATIONS: Subject   Other Arguments

‘Subject’ Hierarchy: [Language-Specific]
Actor > Undergoer (e.g. English)
Undergoer > Actor (e.g. Dyirbal)

SEMANTIC MACROROLES: Actor   Undergoer

Transitivity = No. of Macroroles
 Transitive = 2
 Intransitive = 1 ([+MR])
 Atransitive = 0 ([−MR])

A-U Hierarchy in Fig. 1 [Universal]
Actor   Undergoer

Ag   Eff   Exp   Loc   Th   Pat

THEMATIC RELATIONS: Agent   Effector Experiencer Locative Theme Patient

I. State Verbs
  A. Locational   x = loc, y = theme
  B. Non-locational
    1. State or condition   x = patient
    2. Perception   x = exp, y = theme
    3. Cognition   x = exp, y = theme
    4. Possession   x = loc, y = theme
    5. Attrib/Identific   x = loc, y = theme
II. Activity Verbs
  A. Uncontrolled   x = eff   (y = loc)
  B. Controlled   x = agent (y = loc)

Argument Positions in LOGICAL STRUCTURE

VERB CLASS   LOGICAL STRUCTURE

STATE   predicate′ (x) or (x,y)
ACHIEVEMENT   BECOME predicate′ (x) or (x,y)
ACTIVITY (±Agentive) (DO (x,)) [predicate (x) or (x,y)]
ACCOMPLISHMENT   φ CAUSE ψ, where φ is normally an activity predicate
                 and ψ an achievement predicate

FIGURE 2. The Role and Reference Grammar linking schema.

[9] RRG does not posit grammatical relations like ‘subject’ and ‘direct object’ as theoretical constructs; rather, it takes a very different approach to grammatical relations than other theories, particularly RelG; see Foley & Van Valin 1984, Van Valin 1991a. However, since the nature of grammatical relations is not a central issue in this discussion, I will employ the traditional terms for them.

3. SPLIT INTRANSITIVITY IN ITALIAN. Italian has figured prominently in discussions of split intransitivity. Of particular concern are the distribution of the clitic *ne* and the selection of auxiliary verbs in the perfect tenses. *Ne* is a clitic which realizes quantified NPs under certain circumstances; Burzio (1986:30) states that '*Ne*-cliticization is possible with respect to all and only direct objects.' The objects replaced by *ne* must be quantified, as in the following examples. (Unless otherwise noted, all Italian examples are taken from Centineo 1986.)

(11) a. *Maria ha comprato due chili di frutta.*
     has bought two kilos of fruit
    'Maria bought two kilos of fruit.'

 b. *Maria ne ha comprati due.*
   'Maria bought two of them.'

 c. *Simonetta ha bevuto molto vino.*
      has drunk much wine
   'Simonetta drank a lot of wine.'

 d. *Simonetta ne ha bevuto molto.*
   'Simonetta drank a lot of it.'

Since *ne* can replace only (quantified) direct objects, Burzio uses the possibility of subject *ne*-cliticization as a test for class-S_O verbs.

(12) a. *Molti esperti arriveranno.*
   many experts arrive.FUT.3pl
    'Many experts will arrive.'

 b. *Arriveranno   molti esperti.*
   arrive.FUT.3pl many experts
    'Many experts will arrive.'

 c. *Ne arriveranno   molti.*
    arrive.FUT.3pl many
    'Many of them will arrive.'

(13) a. *Molti esperti telefoneranno.*
   many experts telephone.FUT.3pl
    'Many experts will telephone.'

 b. *Telefoneranno   molti esperti.*
   telephone.FUT.3pl many experts
    'Many experts will telephone.'

 c. **Ne telefoneranno   molti.*
    telephone.FUT.3pl many
    'Many of them will telephone.'

The grammaticality of 12c, Burzio argues, shows that *molti esperti* 'many experts' must be a direct object in D-structure, while the ungrammaticality of 13c indicates that it is not a D-structure direct object but rather a subject. In RelG terms, *ne*-cliticization applies only to initial direct objects (2s). Hence *arrivare* 'arrive' in 12 is class-S_O and *telefonare* 'telephone' in 13 is class-S_A.

 The second phenomenon relevant to split intransitivity is auxiliary selection. Italian intransitive verbs fall into three classes according to which auxiliary

verb they take in the perfect tenses: *avere* 'have', *essere* 'be', or both.[10] Ex-
amples are given in 14.

(14) a. Verbs that take *avere* ('A-verbs'): *parlare* 'talk'; *piangere* 'cry';
ballare 'dance'; *singhiozzare* 'sob'; *camminare* 'walk'; *viaggiare*
'travel'.

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

c. Verbs that take either *avere* or *essere* ('A/E-verbs'): *correre* 'run';
saltare 'jump'; *volare* 'fly'; *fiorire* 'bloom'.

In both RelG and GB, the explanation for the selection of an auxiliary by a
particular verb is based on the UH. The subject of a class-S_O verb is a D-
structure object, and the movement of the D-structure object to subject position
creates a binding relation around the verb. Burzio's claim regarding auxiliary
selection is that 'the auxiliary will be realized as *essere* whenever a "BINDING
RELATION" exists between the subject and a "nominal contiguous to the verb"'
(1986:55). Passives, too, involve movement from D-structure object position
to S-structure subject position, creating the same binding relation, and the
auxiliary in passive constructions is *essere*. In RelG *essere* is selected when a
clause 'contains a 1-arc and an object arc with the same head' (Rosen 1984:46).
In both approaches, *ne*-cliticization is taken to be a reliable correlate of aux-
iliary selection and hence of class-S_O verbs. The crucial claim is that class-S_O
verbs select *essere*, while class-S_A verbs select *avere*.

The RRG analysis of these phenomena starts from the Dowty/Vendler clas-
sification of verbs.[11] In the lexical semantic theory verbs are classified on the
basis of their inherent ASPECTUAL properties (Aktionsart), and in these terms
the A-verbs in 14a are all activity verbs and the E-verbs in 14b are all state,
achievement, or accomplishment verbs. *Piacere* 'like', *sembrare* 'seem', and
rimanere 'remain' are stative; *arrivare* 'arrive', *affondare* 'sink', *annegare*
'drown', and *morire* 'die' are all achievements; and *andare* 'go' is an accom-
plishment, since it necessarily entails motion to a definite goal (cf. the example
with *run* in 3d). The verbs in 14a occur with the time adverbial *per X* 'for [some
period of time]' (test 3 in Table 1), as in 15a, while the achievement verbs do
not, as in 15b.

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

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

---

[10] The distribution of *essere* as the perfect auxiliary extends beyond unaccusative verbs; derived
verb forms with *si* always take *essere*. See the Appendix for discussion of auxiliary selection in
si-constructions.

[11] Centineo 1986 presents a RRG analysis of auxiliary selection in Italian, and the following
discussion is based in part on her account.

The achievement verbs of 14b and 15b are compatible with the *in X* 'in [some period of time]' temporal adverbial expression but not with *per X*, following tests 3 and 4 in Table 1. Logical structures for some of the verbs in 14a,b are given in 16.

(16) a. *stare* 'stay'   **be-at′** (x,y)   State
      b. *morire* 'die'   BECOME **dead′** (x)   Achievement
      c. *arrivare* 'arrive'   BECOME **be-at′** (x,y)   Achievement
      d. *andare* 'go'   [**do′** (x)] CAUSE   Accomplishment
                                  [BECOME **be-at′** (y,x)]
      e. *singhiozzare* 'sob'   **sob′** (x)   Activity
      f. *ballare* 'dance'   **dance′** (x)   Activity
      g. *camminare* 'walk'   **walk′** (x)   Activity

Dowty's classification schema provides the basis for a lexical semantic account of the verb class distinctions in 14a and 14b.

The RRG characterization of the two classes of intransitive verbs in Italian is that intransitive activity verbs are class-S_A, while all other classes are class-S_O. The fundamental distinction, then, is one of Aktionsart rather than thematic relations or underlying syntactic form: all class-S_O verbs have a state predicate in their LS, whereas class-S_A verbs do not, as represented in Table 4.

Class-S_A:	ACTIVITY($\pm$ Agentive)	(DO (x,)) [**predicate′** (x) or (x,y)])
Class-S_O:	STATE	**predicate′** (x) or (x,y)
	ACHIEVEMENT	BECOME **predicate′** (x) or (x,y)
	ACCOMPLISHMENT	ϕ CAUSE ψ, where ϕ is normally an activity predicate and ψ an achievement predicate.

TABLE 4. Logical structures of class-S_A and class-S_O intransitive verbs in Italian.

This allows the formulation of the following rule of auxiliary selection for intransitive verbs.

(17) AUXILIARY SELECTION WITH INTRANSITIVE VERBS: Select *essere* if the LS of the verb contains a state predicate.

The formulation of the *ne*-cliticization rule is given in 18.

(18) NE-CLITICIZATION: *Ne* realizes the lowest-ranking argument on the Actor-Undergoer hierarchy in the state predicate in the LS of the predicate in the clause.[12]

The connection between *essere* selection and *ne*-cliticization is found in the common requirement in 17 and 18 that the verb have a state predicate in its LS.

There is an important case in which *ne*-cliticization fails to correlate with

---

[12] Principle 18 is not the whole story with respect to *ne*-cliticization, since with intransitive verbs it is possible only from inverted constructions like 12b and not from forms like 12a, as (i) indicates.

    (i) **Molti ne arriveranno.*

This follows from some general features of the interaction of clause structure and information structure in Italian. See Lambrecht 1986, 1987 for an analysis of this interaction and Van Valin 1991a, §6.4.1.2, for a detailed account of the syntax and pragmatics of this construction.

auxiliary selection, namely the verb *essere* itself. As Schwartz 1991 shows, attributive constructions with *essere* do not allow *ne*-cliticization, and yet the auxiliary selected in the perfect tenses is *essere*. (Levin & Rappaport 1989 claims that 'there is a complete correlation between the verbs which select the auxiliary *essere* 'be' and those which allow *ne*-cliticization' [4].)

(19) a.　*Molti esperti sono buon-i.*
　　　　　many experts are   good-pl
　　　　　'Many experts are good.'
　　 b.　**Ne sono buon-i   molti/sono molti buoni.*
　　　　　　are   good-pl many/are   many good
　　　　　'Many of them are good.'
　　 c.　*Molti esperti sono stat-i　　　　　　buon-i.*
　　　　　many experts are   be.PAST.PART-pl good-pl
　　　　　'Many experts were good.'

The RRG analysis correctly predicts that the auxiliary for *essere* should be *essere*, since it is a stative verb. In order to understand why *ne*-cliticization fails in this construction, it is necessary to look at the LS of sentences like 19a. Schwartz argues that identificational and attributive constructions are two-place stative predicates which, like all two-place stative predicates, have theme and locative arguments (see ex. 3a and Table 3). The theme argument is the attribute, and the locative argument is the bearer of the attribute. Hence the LS for 19a would be **be'** (*molti esperti,* [**good'**]). Since *essere* is intransitive and stative, its single macrorole would be an undergoer by the principle 7b. By the Actor-Undergoer hierarchy in Fig. 1, it is expected that the theme argument would be the undergoer and subject, but that is not what happens in this construction. In stative attributive constructions like this, the theme is incorporated into the predicate, yielding what in English or Italian would be a predicate adjective. The second argument in this LS, the attribute, is never realized syntactically as an argument in this construction in these languages. This is captured in the derivational rule in 20, which creates a predicate composed of the verb instantiating **be'** plus the theme attribute. (If a language lacks a copula, then the theme alone functions predicatively and constitutes the predicate; this rule is not dependent upon the existence of an overt copula in a language.)

(20) ATTRIBUTIVE/IDENTIFICATIONAL PREDICATE CREATION:
　　　　be' + theme → predicate

The result of this is that there is only one argument which can be the undergoer subject of the clause, the locative argument, and it appears as such. This is an example of a marked linking in terms of the hierarchy in Fig. 1. (See Foley & Van Valin 1984:55–63 for detailed discussion of marked undergoer linkings.) The rule in 18 states that *ne* realizes the lowest-ranking argument in the state predicate in the LS, and in a sentence like 19a the undergoer is NOT the lowest-ranking argument; the theme argument, the attribute, is the lowest-ranking argument in the LS, but it is incorporated into the predicate by 20 and is therefore not available as a syntactic argument in the clause. Hence 18 correctly

predicts that *ne* should be impossible in a sentence like 19a. No reference is made to macroroles or syntactic status; it applies regardless of whether the argument in question is undergoer or not, or whether it is subject or nonsubject. It applies to the actor of motion accomplishment verbs, e.g. *andare* 'go' and *correre* 'run', because it is linked to both agent and theme, the lowest-ranking argument in the LS. The reason that *ne*-cliticization and selection of *essere* as auxiliary appear to correlate directly is that, with transitive verbs, the undergoer (the 'direct object' in the active form and the subject in a passive) is the lowest-ranking argument in the state predicate in the LS of the verb in terms of Fig. 1, and with class-S_O verbs the lowest-ranking argument in the state predicate in the verb's LS is the subject.

The verbs in 14c provide a set of interesting problems which illustrate a major difference between the lexical semantic and syntactic proposals. Examples of these verbs are given in 21–24.

> (21) a. *Luisa ha corso (di proposito) nel   parco.*
>   has run   on purpose   in.the park
>   'Luisa ran in the park (on purpose).'
>
>   b. *Luisa è corsa (di proposito) a casa.*
>   is run   on purpose   to home
>   'Luisa ran home (on purpose).'
>
> (22) a. *L'uccello ha volato (di proposito) solo*
>   the.bird has flown on purpose   only
>   *per qualche minuto.*
>   for some   minute
>   'The bird flew just for a few minutes (on purpose).'
>
>   b. *L'uccello è volato via   (di proposito).*
>   the.bird   is flown away on purpose
>   'The bird flew away (on purpose).'
>
> (23) a. *Ida ha saltato (di proposito) sul   letto.*
>   *has* jumped on purpose   on.the bed
>   'Ida jumped [up and down] on the bed (on purpose).'
>
>   b. *Ida è saltata (di proposito) dalla   finestra.*
>   is jumped on purpose   from.the window
>   'Ida jumped out of the window (on purpose).'
>
> (24) a. *Ieri   ha nevicato per un' ora.*
>   yesterday has snowed for an hour
>   'Yesterday it snowed for an hour.'
>
>   b. *Ieri   è nevicato (*per un' ora).*
>   yesterday is snowed   for an hour
>   'Yesterday it snowed (*for an hour).'

Furthermore, the class-S_O verbs in 21–24 allow *ne*-cliticization of their inverted quantified subjects:

> (25) a. *Ne sono corsi tre   (di proposito) a casa.*
>   are   run three on purpose   to home
>   'Three of them ran home (on purpose).'

   b. *Ne sono volati via   due (di proposito).*
         are   flown away two on purpose
         'Two of them flew away on purpose.'
   c. *Ne sono saltati   molti (di proposito) dalla   finestra.*
         are jumped many on purpose   from.the window
         'Many of them jumped from the window (on purpose).'

With respect to verbs that take either *avere* or *essere* (A/E-verbs), the only analysis possible in purely syntactic terms is to claim that there are simply two verbs *correre* 'run', *saltare* 'jump', *volare* 'fly', etc., one being class-S_O and the other class-S_A. This is the position of Burzio 1981, 1986.[13] Rosen (1984) discusses pairs of sentences like 21a,b, calling the A/E-verbs 'a small, idiosyncratic group', but she does not say explicitly that they would be treated as distinct verbs in the lexicon; however, on the assumption that verbs are listed in the lexicon with information about their initial grammatical relations, no other option is open. The examples in 24 require an empty dummy argument in the appropriate position in D-structure/initial stratum.

The analysis of the A/E-verbs in RRG is very different. As pointed out in §2, one of the many alternations across classes discussed in Dowty 1979 (cf. pp. 60–63) involves activity and accomplishment verbs, as in e.g. *John ate spaghetti* (activity) vs. *John ate the spaghetti/a plate of spaghetti* (accomplishment). (Cf. also n. 4.) With intransitive verbs of motion the same alternation is found; in this case the contrast concerns whether the motion is bounded by a determinate starting or ending point. This was illustrated above in 4; compare now 26 and 27.

(26) a. *John walked in the park.*   (Activity)
     b. *John walked in the park for an hour.*
     c. *John spent an hour walking in the park.*
     d. **John walked in the park in an hour.*
(27) a. *John walked to the park.*   (Accomplishment)
     b. *John walked to the park in an hour.*
     c. *It took John an hour to walk to the park.*
     d. **John walked to the park for an hour. [≠ iterative]*

Tests 3 and 4 from Table 1 show that when a motion verb like *walk* is used without a goal adverbial, as in 26, it is an activity verb, and that when it occurs with a definite goal, as in 27, it is an accomplishment verb. The LSs for these two uses of *walk* are the same as those for the verb *run* in 3c and 3d, the accomplishment LS being derived by the lexical rule in 6. The activity LS of the motion verb functions as the φ activity LS in the accomplishment φ CAUSE ψ LS. The ψ LS, BECOME **be-at′** (Susan, house) in 3d, is the same as the LS

---

[13] It has been suggested that, if a verb takes both possibilities, only one lexical entry with no specification of class is required, since the verb is grammatical in either D-structure/initial stratum in 1. Such a solution is acceptable only if a theory is striving for mere observational adequacy: it correctly states that the verbs in question, e.g. *correre* 'run', can head a grammatical sentence of Italian in either configuration, but it in no way accounts for the semantic and syntactic differences between the two possibilities, something which is essential for analyses aiming at descriptive and explanatory adequacy.

for *arrive* in 3b. Thus motion-to-a-goal accomplishment verbs have a LS consisting of a motion activity LS and the achievement LS of *arrive*.

The A/E-verbs in Italian fall into several groups, the primary concern here being the motion verbs.[14] The A/E-motion verbs behave just like their English counterparts in 4, 26, and 27 in exhibiting an alternation between activity and accomplishment semantics. This is illustrated in 28 and 29 with *correre* 'run'.

(28) a. *Luisa ha corso nel parco per/*in un' ora.*
has run in.the park for/in an hour
'Luisa ran in the park for/*in an hour.'
b. **run'** (Luisa)

(29) a. *Luisa è corsa a casa in/per un' ora.*
is run to house in/for an hour
'Luisa ran home in/for an hour.' [with *per* = 'at home for an hour', not 'running for an hour']
b. [**run'** (Luisa)] CAUSE [BECOME **be-at'** (house, Luisa)]

As with the verbs in 14a, *avere* correlates with an activity verb interpretation. Since the activity LS **run'** (Luisa) is common to both 28 and 29, it is obviously not a factor in auxiliary selection in 29. Rather, it is the presence of the achievement LS BECOME **be-at'** (house, Luisa) in 29 which determines the choice of the auxiliary. This is the same LS as that for *arrivare* 'arrive', an E-verb (cf. 16c). Thus, with the A/E-motion verbs, the choice of auxiliary is a direct function of whether the verb has activity or accomplishment semantics; the accomplishment forms have a state predicate in their LS, and therefore they select *essere* and permit *ne*-cliticization of their lowest-ranking argument. This, contra Rosen, is not an idiosyncratic alternation, because (1) the activity/accomplishment alternation is very general and extensively attested crosslinguistically, and (2) the specific bounded vs. unbounded motion contrast correlating with accomplishment vs. activity semantics is likewise general and well-attested. Multiple lexical entries for each verb need not be posited, as the lexical rule in 6 derives the accomplishment LS from the basic activity LS. In the RRG theory of lexical representation, these correlations follow directly from the theories of verb classification and semantic roles.

Passive constructions behave like class-S_O verbs in that they have *essere* as their auxiliary and allow *ne*-cliticization of their subject. This is illustrated in 30.

(30) a. *Molti mafiosi sono stati arrestati dalla polizia.*
many are been arrested by.the police
'Many mafiosi were arrested by the police.'
b. *Ne sono stati arrestati molti dalla polizia.*
'Many of them were arrested by the police.'

The subject of a passive is a D-structure direct object (GB)/initial 2 (RelG), and consequently these facts are predicted by the syntactic analyses. The RRG account not only predicts these facts as well, but also makes an interesting

---

[14] See Centineo 1986 for discussion of the other groups of A/E verbs; the analysis proposed here holds for them as well.

prediction which does not appear to follow from the syntactic accounts. In the
RRG analysis the class-S_O verbs in Italian are the nonactivity verbs, i.e. states,
achievements, and accomplishments; and, as Table 4 shows, the one thing these
three classes have in common is a state predicate in their LS. This led to the
formulation of the rule of auxiliary selection in 17, according to which it is the
presence of the state predicate in the LS which triggers *essere*-selection. Since
passive verbs take *essere* as their auxiliary, it follows that they must have a
state predicate in their LS. As ex. 3 shows, multiple-argument verbs occur in
all four major classes, and the RRG analysis predicts that MULTIPLE-ARGUMENT
ACTIVITY VERBS SHOULD NOT PASSIVIZE, because their LS does not contain a
state predicate (cf. e.g. the LS of *eat* in 3c). This claim is reinforced by the
facts that activity verbs cannot take an undergoer, for the reasons presented
in §2, and that in Italian only an undergoer may appear as subject in a passive
(Duranti & Ochs 1979). Hence the Italian version of 10a is 'U = subject'. The
contrast between multiple-argument activity and transitive accomplishment
verbs in Italian is parallel to that in English (cf. 5) and is illustrated in 31 and
32.

(31) a. *Anna ha mangiato spaghetti per/*in cinque minuti.*
              has eaten   for/in   five   minutes
          'Anna ate spaghetti for five minutes.'
     b. **eat'** (Anna, spaghetti)
(32) a. *Anna ha mangiato gli spaghetti *per/in cinque minuti.*
              has eaten   the   for/in five   minutes
          'Anna ate the spaghetti in five minutes.'
     b. [**eat'**(Anna, spaghetti)] CAUSE [BECOME NOT **exist'** (spaghetti)]

By the 'for/in' time adverbial test, 31a is clearly an activity verb and 32a an
accomplishment verb. In 31b *spaghetti* is the second argument of the activity
predicate **eat'**, there being no state predicate in the LS, whereas in 32b it is
also the single argument of the state predicate **exist'**. Since passive verbs take
essere as their auxiliary (and only undergoers can appear as subject in a pas-
sive), only 32a but not 31a should be able to be passivized, and this is the case,
as 33 shows.

(33) a. *Gli spaghetti sono stati mangiati da Anna in cinque minuti.*
              the   are been eaten   by   in five   minutes
          'The spaghetti was eaten by Anna in five minutes.'
     b. **Spaghetti sono stati mangiati da Anna per cinque minuti.*
                           are   been eaten   by   for five   minutes
          'Spaghetti was eaten by Anna for five minutes.'

It might be suggested that the problem with 33b has nothing to do with Ak-
tionsart or passivization, but that it follows instead from a general constraint
against indefinite NPs in preverbal position in Italian. Such an analysis predicts
that the inverted form of 33b should be just as grammatical as 33a, and this is
incorrect:

(34) **Sono stati mangiati spaghetti da Anna per cinque minuti.*

It is difficult to see how this contrast could be predicted on purely syntactic

grounds. In RelG terms, *spaghetti* is the initial 2 in 31a and *gli spaghetti* is the initial 2 in 32a, and yet the RelG passive rule of 2 → 1 applies to 32a yielding 33a, but not to 31a, as 33b attests. Whether or not the subject is inverted is irrelevant to the ungrammaticality of 33b. Similarly, in GB terms *spaghetti* is the internal argument of the passive participle *mangiato* in the D-structure of 31a, and *gli spaghetti* is the internal argument of the same verb in the D-structure of 32a; in both the participle does not assign Case to its object, but the necessary application of Move α results in a grammatical sentence only with respect to 32a. There is no reason to expect, on a purely syntactic account, that 32b, the passive of 31a, should be ungrammatical, but this is in fact predicted by the RRG account.[15]

Passive is not the only construction which distinguishes between the objects of multiple-argument activity and accomplishment verbs. Rosen (1984) discusses another construction with a purported split-intransitive pattern, participial absolutes. Only intransitive verbs which take *essere* as their auxiliary can enter into this construction; intransitive activity verbs cannot appear in it. Since the crucial feature differentiating *essere*-taking verbs from the *avere*-taking verbs is the presence of a state predicate in LS, we may predict that the same restriction holds with respect to multiple-argument verbs: accomplishment verbs (which have a state predicate in their LS) should be possible in this construction, but activity verbs should not. This is the case, as 35 shows.

(35) a. *Mangiati gli spaghetti, uscirono.*
       eaten   the   went.out.3pl
       'Having eaten the spaghetti, they went out.'
   b. **Mangiati spaghetti, uscirono.*
       'Having eaten spaghetti, they went out.'

The ungrammaticality of 35b, like that of 33b, is completely unexpected in terms of the syntactic analyses, but it is readily explicable in RRG terms; it parallels the passive facts. Note that the ungrammaticality of 35b cannot be attributed to a constraint against indefinite subjects, since the NP in question is postverbal. Thus the RRG lexical semantic analysis of split intransitivity in Italian not only accounts for the basic facts involving auxiliary selection and *ne*-cliticization, like the syntactic accounts, but it also make correct predictions regarding restrictions on passivization and participial absolute formation, pre-

---

[15] It is crucial in this context to distinguish between true activity verbs and iterative accomplishment verbs, which behave like activity verbs with respect to the *for/in X* adverbial tests and which are possible in the passive. This is illustrated in (i).

   (i) a. *The group sang the song in five minutes.*
      b. *The group sang (the) songs for an hour.*

Ex. (i)a is a straightforward accomplishment, and the situation in (i)b is one of multiple instances of (i)a. One way to distinguish iterative accomplishments from true activities is that they are grammatical in the passive with or without a definite subject, whereas true activity verbs are unacceptable in the passive, as 33b shows, and are even worse with a definite subject, as in (ii)b. This is true in both English and Italian.

   (ii) a. *(The) Songs were sung for an hour.*
      b. **(The) Pizza was eaten for an hour.*

dictions which do not appear to follow in any obvious way from purely syntactic analyses.

4. SPLIT INTRANSITIVITY IN GEORGIAN. Georgian is another language which has been cited as providing strong support for the UH (Harris 1981, 1982; see Hewitt 1983, 1987 for a strongly dissenting view.) Harris 1982 presents two types of argument in support of a syntactic analysis based on the UH: rules that crucially refer to initial 2s and rules that apply to initial 1s only. It will be shown in this section, however, that the range of phenomena which Harris' RelG rules are intended to account for can also be accounted for in the RRG lexical semantic analysis.

Before examining Harris' arguments, it is necessary to sketch the basic facts pertaining to Georgian case marking and verb agreement. Georgian has four verb classes and three tense series, with case-marking variation across both classes and tense series. Holisky (1979, 1981a,b) has shown that the four classes correspond with remarkable accuracy to the four basic Vendler-Dowty classes:[16] class 1 = accomplishments, class 2 = achievements and some states, class 3 = activities, and class 4 = states; see Harris (1981:260) and Holisky (1979:390) for the morphological criteria distinguishing the classes. The three tense series are present, aorist, and perfect. There are two major sets of person-agreement (crossreferencing) affixes, which, following Tuite 1987, will be labelled V and M, after the morphemes indicating first person in each set; number agreement is a separate issue which will be discussed below. The twelve categories of class and series are given in Table 5 with the case-marking and agreement patterns found in each.

TENSE SERIES:	PRESENT	AORIST	PERFECT
Class 1: Accomplishment	NOM-DAT V M	ERG-NOM V M	DAT-NOM M V
Class 2: Achievement, State	NOM-(DAT) V M	NOM-(DAT) V M	NOM-(DAT) V M
Class 3: Activity	NOM-(DAT) V M	ERG-(NOM) V M	DAT-(NOM) M V
Class 4: State	DAT-(NOM) M V	DAT-(NOM) M V	DAT-(NOM) M V

TABLE 5. Georgian case marking and agreement.

Case marking and person agreement have distinct patterns. In morphological terms, the V-pattern crossreferences the nominative argument of verbs of all classes in the present and perfect series, as well as class 2 and 4 verbs in the aorist; it crossreferences the ergative argument of class 1 and 3 verbs in the aorist. The M-pattern, on the other hand, crossreferences the nominative argument of class 1 and 3 verbs in the aorist and the dative argument everywhere

---

[16] Remarkable accuracy, but not perfect accuracy. As is to be expected, there is a small number of verbs in each class which bear the morphological trappings of the class but whose semantics do not fit the prototype for the class; see the references from Harris and Holisky for detailed discussion. These spots where the grammar of Georgian leaks do not invalidate the generalizations.

else. In terms of arguments, the highest-ranking macrorole is crossreferenced by the V-form, with actor > undergoer; the M-forms crossreference the remaining direct core arguments. The relationship between case and agreement may be summarized as in Figure 3, which is due to David Wilkins (personal communication, 1989).

$$\text{ERGATIVE} > \text{NOMINATIVE} > \text{DATIVE}$$
$$\text{V} \longleftarrow\!\!\!\!\!\longrightarrow \text{M}$$
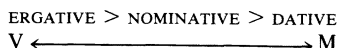
FIGURE 3. The relationship between case and agreement in Georgian.

Split intransitivity is manifested in all three tense series, but it is indicated by case marking only in the aorist. In the aorist, the subject of an intransitive verb of class 2 is nominative, the same case as the object of class 1 and class 3 multiple-argument verbs; the subject of an intransitive verb of class 3 is ergative, the same case as the subject of class 1 transitive verbs. Harris' analysis is carried out within RelG, and consequently she claims that class 2 intransitive verbs have an initial 2 and class 3 intransitives an initial 1. For Harris, case marking in the aorist thus provides support for the UH because it crucially refers to initial 2s, coding the two kinds of arguments posited to be initial 2s in the same way.

The RRG account of case marking in Georgian relies on the two universal default case-marking principles given in 36.

(36) a. If a clause contains a single macrorole argument, it is NOMINATIVE.
b. The default case for direct core arguments which are not assigned macrorole status is DATIVE.[17]

These are supplemented by the following Georgian-specific case-marking principle:

(37) The actor macrorole of a verb of class 1 or 3 is ERGATIVE in the aorist.

In the aorist, after the actor has been assigned ergative case under the appropriate circumstances, principle 36a takes over to mark the remaining macrorole nominative. These three principles account for the case-marking pattern summarized in Table 5, on the assumptions that class 1 and 3 verbs take one macrorole in the present series and two (if they are multiple-argument verbs) in the aorist, and that class 2 and 4 verbs never have more than one macrorole. Thus verbs of class 1 and 3 are treated AS IF they are all intransitive in the present and transitive in the aorist, regardless of how many arguments they actually have.

---

[17] This principle derives from Silverstein 1980 and operates in addition to semantically and lexically motivated case-assignment rules for nonmacrorole core arguments. See Van Valin 1989 for exemplification of the application of this principle in Icelandic and Michaelis 1991 for a discussion of Latin case marking. Direct core arguments are those which are not adpositionally marked or coded with an oblique case; see Van Valin 1991a for detailed discussion. In Georgian no core arguments are coded with an adposition, but instrumental case, an oblique case, can appear on core arguments with certain verbs.

The following examples illustrate a class 1 verb in the present and the aorist (all examples from Harris 1981).

(38) a. *nino-∅   ačvenebs surat-eb-s   gia-s.*
  Nino-NOM 3.shows.3 pictures-PL-DAT Gia-DAT
  'Nino is showing pictures to Gia.'

 b. *nino-m   ačvena   surat-eb-i   gia-s.*
  Nino-ERG 3.showèd.3 pictures-PL-NOM Gia-DAT
  'Nino showed the pictures to Gia.'

In 38a the verb is in the present series and is treated as if it were intransitive, i.e. having only one macrorole, in this case actor, since it is an accomplishment verb; 36a specifies that the actor should be nominative, and 36b determines that the other arguments should be dative. In 38b the verb is in the aorist and is treated as if it were transitive; accordingly, by 37, the actor is ergative, the undergoer nominative, and the remaining core argument is dative, by 36b.[18]

Harris discusses a number of other phenomena besides case marking which, she argues, refer to initial 2s. One involves the suppletion of certain verbs for the number of one of their arguments. Harris argues (1982:294–5) that the Georgian verb for 'die' suppletes for the number of its subject, while the apparently morphologically related verb for 'kill' suppletes for the number of its object, as in 39.

(39) a. *mgel-i   mok'vda*   a'. *mgel-i   movk'ali*
   wolf-NOM 3.died   wolf-NOM 1.killed.3
   'The wolf died.'   'I killed the wolf.'

 b. *mgl-eb-i   daixoca*   b'. *mgl-eb-i   davxoce*
   wolf-PL-NOM 3.died   wolf-PL-NOM 1.killed.3
   'The wolves died.'   'I killed the wolves.'

This suppletion can be accounted for in terms of a single rule if the subjects of 39a,b are initial 2s like their counterparts in 39a',b'. Her other arguments regarding preverb alternation (1982:295) and *-en* agreement (1982:296–7) have the same form.

Although there is, as far as I know, no GB analysis of these Georgian phenomena,[19] extrapolation from the discussion of Italian yields plausible accounts. Since D-structure internal argument (direct object) is equivalent to RelG initial 2 in the analysis of class-S$_O$ verbs, it would be fair to assume that the verbs which Harris analyzes as having only an initial 2 would have only an internal argument in D-structure, and the generalizations regarding transitive objects and subjects of class-S$_O$ verbs would follow.

The number of Georgian verbs exhibiting genuine suppletion relating to the number of their arguments is very small (see Aronson 1982:406–7), and such

---

[18] Evidence will be presented below that this verb does in fact have an undergoer as far as the syntax is concerned in both series; see n. 25. The fact that actors of both class 1 and class 3 verbs are nominative in the present series and ergative in the aorist precludes the possibility of the Georgian equivalent of the contrast in 21–24 in Italian being reflected in case marking.

[19] Levin 1983 and Marantz 1984 discuss ergativity from a general GB perspective, but they do not present explicit analyses of these phenomena.

alternations are directly accounted for in the RRG analysis, relying as it does on fully explicit lexical representations for verbs. The two forms in synchronically productive alternations are derivationally related, and the LSs for 39 are given in 40.

(40) a. 'die' = BECOME **dead'** (y)

b. 'kill' = [**do'** (x)] CAUSE [BECOME **dead'** (y)]

Ex. 40a is an achievement LS and 40b an accomplishment, and the LS in 40a is a subpart of the LS in 40b. Accordingly, only a single suppletion rule is needed to account for alternations like 39, given the LSs in 40, because in both the intransitive and transitive clauses y (*wolf*/*wolves*) is in precisely the same relation to the same predicate 'die'. Thus the RRG lexical representation captures the LEXICAL SEMANTIC basis for equating the subject argument of 39a,b with the object argument in 39a',b' in alternations of this type.

The second type of argument which Harris advances from Georgian involves rules which refer only to initial 1s. She argues that the RelG rule of inversion (which takes an initial 1 and makes it a final 3), as it applies in Georgian, is such a rule. If one compares the case marking and agreement in the present and aorist series in Table 5 with that in the perfect, the 'inversion' of case marking and agreement can be seen. This is illustrated in 41.

(41) a. *rezo-∅*   *samajur-s*   *∅-ačukeb-s*   *deda-s.*

Rezo-NOM$_1$ bracelet-DAT$_2$ 3M$_2$-give-3V$_1$ mother-DAT   (Present)

'Rezo is giving mother a bracelet.'

b. *turme*   *rezo-s*   *samajur-i*

apparently Rezo-DAT$_1$ bracelet-NOM$_2$

u-čukebi-a   *ded-is-tvis.*

3M$_1$-give-3V$_2$ mother-GEN-for   (Perfect)

'Apparently Rezo gave a bracelet to his mother.'

In the present (41a) the 'giver' is in the nominative case with V-agreement, and the 'given' and the recipient are in the dative; in the perfect (41b), by contrast, the 'giver' is in the dative with M-agreement, the 'given' is in the nominative with V-agreement, and the recipient is the object of the postposition *tvis* 'for'. Harris assumes that these two sentences have the same initial stratum and that the RelG inversion rule applies in the derivation of 41b to yield the surface case and agreement patterns. Class 4 verbs in Table 5 have inverse forms in all tense series; the verbs *qvar* 'love' and *ši* 'be hungry' are illustrated in 42.

(42) a. *gela-s*   *u-qvar-s*   *nino-∅*

Gela-DAT$_1$ 3M$_1$-love-3V$_2$ Nino-NOM$_2$

'Gela loves Nino.'

b. *bavšv-s*   *∅-ši-a.*

child-DAT$_1$ 3M$_1$-be.hungry-3V

'The child is hungry.'

Note that the apparently intransitive verb 'be hungry' takes TWO agreement affixes, just like transitive 'love'. Harris argues that the same inversion rule applies in these instances as well, although it applies in all tense series; tran-

sitive verbs like 'love' have the same initial stratum as class 1 transitives like 'give', and intransitive ones like 'be hungry' have the same initial stratum as class 3 intransitives like *t'ir* 'cry'—that is, both *ši* 'be hungry' and *t'ir* 'cry' are class-S_A in the RelG analysis.

The problem which Harris tries to explain is the nonoccurrence of inversion with class 2 verbs in the perfect (cf. Table 5). Since she claims that class 2 verbs have no initial 1 but class 1, 3, and 4 verbs do, the failure of inversion to apply to class 2 verbs follows automatically from the unaccusative analysis. The inversion rule applies only to initial 1s and never to initial 2s, and therefore this is evidence, she argues, for the UH. In GB terms, the restriction on inversion could be stated in terms of its applying to D-structure external arguments only.

Inverse constructions raise a host of interesting questions for grammatical theory, and the analysis of inversion in RRG is rather different from that in the other theories. Universally, inversion involves an INTRANSITIVE state or achievement verb, i.e. one which has only a single macrorole argument (cf. §2), and the case marking is a function of the two universal default case-marking principles in 36. The RRG analysis of inversion may be illustrated with the Georgian class 4 verb *qvar* 'love' presented in 42a; 43 is its lexical entry.

> (43) *qvar* **love'** (x,y) [+MR]

By Table 3, the first argument is an experiencer and the second a theme (the thing experienced). The verb is intransitive, i.e., it has only a single macrorole argument, as indicated by [+MR]; and, since it is a state predicate, the macrorole must be undergoer (cf. 7). By the Actor-Undergoer Hierarchy in Fig. 1, theme outranks experiencer for undergoerhood, and consequently the *y* argument (in 42a, *Nino*) will be undergoer. By 36a it will be in the nominative case. The experiencer argument, *Gela*, does not acquire macrorole status and therefore is a nonmacrorole core argument; by 36b, it bears dative case. No special rule of inversion or the like needs to be invoked, and the linking is the unmarked one in terms of the hierarchy in Fig. 1; moreover, the case-marking principles which apply to verbs of the other classes handle the multiple-argument class 4 inverse verbs as well.

The apparently intransitive class 4 verbs, e.g. *-civ-* 'be cold', pose an interesting complication. Verbs like 'be cold' have the following LS (cf. 3a, 20): **be'** (x, [**predicate'**]), *-civ-* **be'** (x, [**cold'**]). In this LS, the 'experiencer' is the first argument, and the second argument (theme) is the predicate coding the condition in question. The lexical rule in 20 will merge **be'** + **cold'** [*-civ-*] to yield the stative predicate; the *-a* V-agreement suffix in 42b is a reduced form of *aris*, the third person singular present form of *qopna* 'be' (Aronson 1982: 268). Because this is an intransitive stative, by principle 7b the single macrorole must be undergoer, and by the hierarchy of Fig. 1 the theme argument will be the undergoer. But the theme argument has been incorporated into the predicate by rule 20, and consequently there is no theme argument to function as undergoer. Georgian, unlike languages such as English, does not permit any marked linkings (in terms of Fig. 1) between thematic relations and macroroles, and therefore the locative argument cannot assume undergoerhood. The result

is that there is third singular V-agreement for the unrealized undergoer argument, and the 'experiencer' argument, as with *-qvar-* 'love', is realized as a dative NP with M-agreement on the verb. The linking works in precisely the same way for multiple-argument class 4 verbs (such as *qvar* 'love') as it does for single-argument class 4 verbs (such as *šia* 'be hungry'), except that for the latter the argument that would be undergoer is only realized through the third-person V-suffix on the verb.

These constructions present a number of challenges syntactically. A major issue concerns the syntactic status of the nominative argument: is it a subject or not? The nominative argument gets the same verb agreement (V) as the nominative argument of class 1 and 3 verbs in the present and the ergative argument of verbs of these same classes in the aorist. By all standard criteria for subjecthood, these arguments are the subject of their clause in the present and aorist. However, in the inverse construction of the perfect series for these verbs, the CORRESPONDING argument is in the dative case, rather than in the nominative, and is crossreferenced by the M-agreement pattern and not the V-pattern, as Table 5 shows. Thus additional tests for determining the subject which make no reference to case or agreement are necessary.

The major tests for what Tuite (1987) calls the 'real subject' are control of reflexivization and triggering number agreement (for third person arguments only). The dative argument in this construction is the controller of reflexivization, as 44 illustrates.

(44) a. *gela-∅   irc'munebs   tav-is   tav-s.*
Gela-NOM 3.convinces.3 self-GEN self-DAT
'Gela is convincing himself.'

b. *gela-s   turme   daurc'munebia tav-is-i   tav-i.*
Gela-DAT apparently 3.convinced.3 self-GEN-NOM self-NOM
'Gela has apparently convinced himself.'

Harris takes this as evidence that the surface dative in 44b is an initial subject, since, in her analysis, only subjects can be reflexive controllers. Since RRG is a 'monostratal' theory, no such analysis in terms of underlying grammatical relations is possible. Instead, RRG posits that in such constructions the default controller is universally the highest-ranking direct core argument in terms of the hierarchy in Fig. 1; a similar analysis is proposed for Georgian in Tuite 1987 and for Russian in Schwartz 1988. In 44 *Gela* is an agent and *tavisi tavi* 'self's self' is a theme, and by Fig. 1 the agent argument is the highest-ranking argument and hence is the controller.[20]

A similar analysis accounts for number agreement when a verb has only third-person plural arguments. In noninverse constructions, the nominative (present series) or ergative (aorist) triggers it with multiargument verbs, while in the perfect and with all class 4 verbs it is the DATIVE argument, not the

---

[20] This is a standard RelG argument for multiple levels/strata of syntactic representation, and the 'surface indirect object' as controller of reflexivization is the norm in inversion and causative constructions crosslinguistically. The RRG analysis in terms of a semantic role hierarchy makes the correct predictions for all of these cases, as it does in Georgian, and consequently facts such as these provide no evidence against monostratal theories like RRG.

nominative, which triggers it. In all of these instances, the plural argument that is crossreferenced is the highest-ranking one on the hierarchy in Fig. 1, regardless of case or of whether it has the V- or M-agreement pattern. In Harris' analysis, the notion of subject in an underlying representation is crucially involved; the trigger 'is the first subject of that verb [i.e. the derived causative verb—RVV] that is a final term' (1981:219).[21]

The distribution of inverse forms in the perfect series can now be explained. In the perfect series all verbs are treated as intransitive, and they highlight the consequences of, or the state resulting from, some action or event.[22] There is therefore a single macrorole argument, an undergoer (by 7b), and no verb in this series allows more than two core arguments. With respect to 41, the case marking in 41a is the same as in 38a. In 41b there are two core arguments but only one macrorole, undergoer. The LS for 'give' in Georgian would be the same as for English *present*, given in 8a, and *Rezo* is an agent, *samajur* 'bracelet' a theme, and *deda* 'mother' a locative. By the Actor-Undergoer Hierarchy in Fig. 1, the theme *samajur* outranks the other two arguments for undergoerhood, and by 36a it will be nominative. Of the two other arguments, the higher-ranking one remains a core argument—in this instance *Rezo*, an agent—and the final argument is coded as a peripheral element with the appropriate postposition. The linking is the same as with a multiple-argument class 4 verb, and the case-marking principles are those in 36. The reason the class 2 verbs cited by Harris do not have inverse forms is that they are intransitive achievement verbs whose single macrorole is undergoer; the only verbs with DISTINCTIVE perfect series forms are those which have an activity predicate as a major component of their LS and therewith an actor macrorole, i.e. class 1 and 3 verbs, and it is the loss of the actor macrorole which leads to the linking de-

---

[21] There is an interesting set of cases in which both of these formulations fail to make the correct prediction, namely the 'indirect transitives' discussed in Tuite 1987. These are causative verbs which obligatorily take an inanimate causer argument and an animate causee, as in *daaint'eresebs* 'something makes somebody interested in something', *daapikrianebs* 'something makes somebody pensive', and *aacaxcaxebs* 'something makes somebody tremble'. The interesting thing about these forms is that it is the animate causee (grammatically the 'direct object') and NOT the inanimate causer (surface 'subject' in terms of both case and agreement in the present and aorist) that is what Tuite calls the 'real subject', i.e. the controller of reflexivization and trigger for number agreement. Normally in causative constructions either the causer or the causee can be a reflexive controller, but only the causer can trigger number agreement. As Tuite shows, the analysis in terms of highest-ranking argument on a role hierarchy can be naturally extended to cover these cases by adding the qualification that the 'real subject' is the highest ranking ANIMATE core argument in these constructions. It is not clear how Harris' account could be extended in a natural way to cover these cases, since the number agreement rule as formulated refers, with respect to causatives, to the derived causative verb, and the argument in question is not a subject of that verb at any level of representation. Hence it is not possible simply to add the qualification 'animate' to her formulation.

[22] This 'highlighting the consequences or resulting state' of an action or event underlies the evidential use of the perfect: the focus is on consequences and results, and the antecedent action or event is inferred from them. Tschenkéli characterizes the semantics of the perfect as follows: 'Die Schlussfolgerung aus [einer] Handlung wird gerade IM AUGENBLICK DES ERZÄHLERS gezogen, und zwar auf Grund der Spuren, welche die in der Vergangenheit geschehene Handlung hinterlassen hat' (1958:493; emphasis in original).

scribed for 41b. If a verb already has an undergoer and no actor, then its unmarked linking will correspond to the marked linking in inverse forms for verbs with actor arguments.[23] This also explains why passive verbs, which are derived class 2 verbs, do not undergo inversion. The various facts which Harris cites to show that the final 1 is an initial 2 are essentially the same as those discussed with respect to 39 and can be handled in the same way in terms of common representations in LSs.

The crucial assumption underlying this discussion of inversion is that class 2 verbs never undergo inversion; this is stated explicitly by Harris (1981:247), and the UH is invoked to explain this restriction. There are, however, class 2 verbs which DO have inverse forms, e.g. *še-m-civ-d-eb-a* (preverb-1sgM-be.cold-INCEP-P/FUT-3sgV) 'I will become cold' (Aronson 1982:344; see also Holisky 1981c). Forms such as this are derived class 2 inceptive forms from class 4 inverse verbs, e.g. *m-civ-a* (1sgM-be.cold-3sgV) 'I am cold', and, as the *m-* first person M-agreement prefix in *šemcivdeba* shows, this is an inverse form, just like the related class 4 form. This group of forms is problematic for Harris' RelG account, and they are not discussed in Harris 1981. These forms present no difficulties for the RRG analysis. The derivation of class 2 verbs from class 4 involves, at the semantic level, the addition of the operator BECOME to the LS of the class 4 verb, yielding BECOME be' (x, [cold']) as the LS for 'become cold' *-civ-d*. As stated in §2, the addition of this operator does not affect the argument structure of the LS, so the linking properties of the predicate are not affected either. The class 2 form of a class 4 verb is therefore predicted to be inverse as well. Thus the lack of inverse forms for some class 2 verbs, as well as the obligatory inverse forms (in all tense series) for others, follows directly from the lexical semantic account.

The RRG analysis is thus able to handle the Georgian split-intransitive phenomena in a straightforward manner. The class-S_O verbs of class 2 are achievements and states, while the class-S_A verbs of class 3 are all activities. This is basically the same situation as in Italian (cf. Table 4). The various facts cited by Harris in support of the UH follow directly from the proposed lexical representations and linking rules. This analysis is also able to handle facts which are problematic for the RelG analysis, such as the existence of class 2 inverse forms. The two approaches make different predictions regarding restrictions on the Georgian (analytic) passive. An interesting fact about Georgian transitive verbs is that not all of them undergo passivization. 'Transitive', in RelG, means that a verb has an initial 1 and an initial 2. Harris (1981:181–2) discusses verbs which take an obligatory initial 2, e.g. *dac'era* 'write', *datesva* 'sow', and *gašroba* 'dry', and those which take an optional initial 2, e.g. *tamaši* 'play', *lap'arak'i* 'talk', and *cek'va* 'dance', which, she concludes, are true transitives. Given the RelG passive rule, (initial) 2 → 1, it is expected that it should apply to any initial 2 in a transitive structure, and yet *tamaši* 'play', *lap'arak'i* 'talk',

---

[23] Harris discusses a small group of verbs which have class 1 semantics but class 2 morphology (1981:268–73); cf. n. 16. With respect to inversion they follow their morphology rather than their semantics, and hence are exceptions to this analysis. They are also exceptions to Harris' RelG account.

and *cek'va* 'dance' have no passive equivalents for their active transitive forms. This failure of passive to apply is not predicted by the RelG account, and an ad hoc stipulation excluding this group of verbs would most likely have to be added to the statement of the rule for Georgian.

The picture is rather different in RRG. All of the transitive verbs which do not passivize are ACTIVITY verbs, members of class 3; the transitive verbs which do passivize are ACCOMPLISHMENT verbs, members of class 1.[24] This is exactly parallel to the situation in Italian discussed in §3 (cf. 31–34). The explanation is that multiple-argument activity verbs cannot have an undergoer macrorole and hence are always intransitive in RRG terms. Passive in Italian and Georgian, as in English, involves both the omission or coding of the actor as a peripheral argument and the coding of the undergoer as subject, as in 10; only an undergoer may appear as the subject of a passive in Georgian, as in Italian. Since activity verbs do not have an undergoer, passive is not possible. That the same restriction is found in both languages argues strongly against any analysis which states the restriction as independent ad-hoc stipulations in the two languages. It is important to note that in Georgian the restriction is not based on verb class per se or on verbal morphology: there is a small group of verbs with class 3 morphology which have ACCOMPLISHMENT semantics, and these verbs do passivize, just as the lexical semantic analysis predicts (Harris 1981:189–90).[25] Here again RRG makes a correct empirical prediction which does not follow in any obvious way from the syntactic analyses, and it is particularly striking that the same restriction on passivization is found in two unrelated, typologically very different languages.

5. SPLIT INTRANSITIVITY IN ACEHNESE. In both Italian and Georgian split intransitivity has been shown to be related to the inherent lexical aspect (Aktionsart) of the verbs in question. It is not the case, however, that all languages which exhibit split intransitive subject marking and related phenomena base the split on the lexical-aspect properties of verbs. Tsova-Tush (better known as Bats or Batsbi), a Caucasian language (Holisky 1987), and Acehnese, an Austronesian language, case-mark intransitive subjects in two ways, analogous to Georgian in the aorist, but the semantic basis of the distinction is completely different from that of Italian and Georgian. Moreover, this case-marking contrast parallels the differential syntactic behavior of the two types of intransitive subjects. The inherent lexical aspect of verbs plays no direct role in the split

---

[24] There is no explicit statement in Harris 1981 to this effect, but there are no examples of passives of class 3 verbs in her grammar. Moreover, an anonymous referee commented that, while s/he was aware of two potential exceptions (one was a case of an iterative accomplishment verb [cf. n. 15] and the other was *cixe naq'araulebi ig'o* 'the fortress was guarded', a genuine example of a passive of a class 3 activity verb), these seem to be exceptions to an otherwise valid generalization about the language. It should be noted that there are some class 2 verbs which passivize, e.g. *mouqva* 'he told it to him' (Harris 1981:268), but they are rare, because the vast majority of class 2 verbs are intransitive. The main thrust of the claim here is that multiple-argument activity verbs do not passivize, despite being transitive in RelG terms.

[25] The fact that class 1 verbs have passive forms in the present tense-aspect series shows that they do in fact have both actor and undergoer macroroles (that is, they are transitive) as far as the syntax is concerned, even though the case-marking system treats them as intransitives in this series.

in these two languages; rather, the distinction is grounded entirely in the agentiveness or volitionality of the intransitive subject.

Acehnese will be taken as the representative of languages of this type. According to Durie (1985a,b, 1987), Acehnese intransitive verbs can be divided into two classes, depending upon the type of subject crossreference they take. This contrast is exemplified in 45, from Durie (1987:366–9).

(45) a. *gopnyan geu-mat lôn*
    (s)he   3-hold   1sg
    '(S)he holds me.'

   b. *lôn lôn-mat-geuh.*
    1sg 1sg-hold-3
    'I hold him/her.'

   c. *geu-jak gopnyan*
    3-go   (s)he
    '(S)he goes.'

   d. *lôn rhët(-lôn)*
    1sg fall(-1sg)
    'I fall.'

   e. *gopnyan rhët(-geuh)*
    (s)he   fall(-3)
    '(S)he falls.'

   f. *lôn lôn-jak*
    1sg 1-go
    'I am going.'

   g. **lôn lôn-rhët*
    1sg 1-fall

   h. **gopnyan geu-rhët*
    (s)he   3-fall

Transitive and volitional intransitive subjects, i.e. actors, are crossreferenced on the verbs by a particular set of proclitics, *geu-* for third person and *lôn-* for first person, as in 45a,b,c,f. Verbs with nonagentive, or undergoer, subjects do not take these clitics, as 45d,e,g,h show; they optionally take the corresponding enclitics, which are the same as the markers for undergoers with transitive verbs, as in 45b. The criterion determining which coding an intransitive subject will have is agentiveness, not verb class, as Durie's analysis reveals. Intransitive state, achievement, and activity verbs appear with both agentive and nonagentive subjects, and many verbs can occur with both (cf. Durie 1985a:62–94).

Perlmutter 1982 argues that Acehnese case marking reflects the unaccusative-unergative contrast. Durie 1987 shows that there are syntactic correlates to the case-marking differential. The actors of class-S_A verbs, like those of transitive verbs, can be the controller and the missing argument in the complements of verbs like *tém* 'want' and *ci* 'try'; class-S_O verbs cannot occur as the complement of these verbs. With undergoer control verbs like *yue* 'order', class-S_O verbs can occur as the complement, but their undergoer enclitic cannot be omitted, unlike the actor proclitic, which is obligatorily absent in both constructions. This is illustrated in 46 and 47.

(46) a. *gopnyan geu-tém* [(**geu-*) *jak*]
        3sg   3-want   go
        '(S)he wants to go.'

    b. *geu-tém* [(**geu-*) *taguen bu*]
        3-want   cook rice
        'She wants to cook rice.'

    c. **gopnyan geu-tém* [*rhët*]
        3sg   3-want   fall
        '(S)he wants to fall.'

    d. **aneuk agam nyan ji-tém*   [*geu-peuréksa lé dokto*][26]
        child male that 3sg-want 3sg-examine by doctor
        'That child wants to be examined by the doctor.'

(47) a. *geu-yue-neuh* [(**neu-*)*jak keunoe*]
        3-order-2sg   (2sg-)go to.here
        '(S)he ordered you to come here.'

    b. *geu-yue lôn* [(**lôn-*)*peugöt kuwéh*]
        3-order 1sg (1sg-)make cake
        '(S)he ordered me to make a cake.'

    c. *lôn-yue* [*piyôh-geuh*]
        1sg-order stop-3
        'I told him/her to stop.'

The significant examples in 46 are c and d. In 46c the occurrence of a class-S_O verb is ungrammatical, and 46d shows that no control relation is possible between a matrix clause actor and a dependent clause undergoer with a transitive verb. With an 'object control' verb like *yue* 'order', a class-S_O verb is possible in the complement, as 47c shows, but the undergoer enclitic is obligatory, unlike 47a and 47b, in which the actor proclitic is obligatorily omitted.

   A similar situation obtains in inchoative verb serialization, as illustrated in 48; direct imperatives can be formed only if the verb has an actor argument, as in 49a.

(48) a. *gopnyan geu-jak*(**geu-*)*pula pisang*
        3sg   3-go   plant banana
        '(S)he went planting bananas.'

    b. **jih ji-jak geu-peuréksa lé dokto*
        3sg 3sg-go 3sg-examine by doctor
        '(S)he went to be examined by the doctor.'

    c. **gopnyan geu-jak teungeut*(*-geuh*)
        3sg   3-go   sleep(-3)
        '(S)he went to sleep.'

(49) a. (*neu-*)*jak keudéh!*
        (2sg-)go to.there
        'Go there!'

    b. **teungeut*(*-neuh*)!
        sleep(-2sg)
        'Sleep!'

---

[26] Both *ji-* and *geu-* are third person actor proclitics, and they differ in politeness, with *ji-* being used for familiar third persons and *geu-* for higher-status third persons.

By contrast, possessor ascension is possible only if the possessed argument is an undergoer; it is impossible with actors (50). In addition, control in resultative verb serialization is restricted to undergoers (51).

(50) a. *seunang até lôn*
    happy   liver 1sg
    'I am happy.' (Lit. 'My liver is happy.')

    b. *lôn seunang-até*
      1sg happy-liver
      'I am happy.'

    c. *ka lôn-tët   rumoh gopnyan.*
      IN 1sg-burn house 3sg
      'I burned her house.'

    d. *gopnyan ka lôn-tët-rumoh*
      3sg   IN 1sg-burn-house
      'I burned her house,' or 'She had her house burned by me.'

    e. **gopnyan ka aneuk-woe*
      3sg   IN child-return
      'His/her child returned.'

(51) a. *awak   nyan ka ku-poh(*-jih) maté(-jih)*
    person that IN 1sg-strike(-3) dead(-3)
    'I struck that person dead.'

    b. **ji-meulhö maté(-jih)*
      3-fight   die(-3)
      'They fought to the death.'

The possessed arguments in 50a and 50c are undergoers, and possessor ascension is possible, as shown in 50b and 50d. In 50e, however, the possessed argument, *aneuk* 'child', is the actor of *woe* 'return', and consequently the sentence is ungrammatical. In the resultative constructions in 51, the undergoer of the first verb must be the same as the undergoer of the second; it is not possible to have the actor of the first be the same as the undergoer of the second, as 51b shows. Thus, not only are actors and undergoers of intransitive verbs case-marked differently, but they also exhibit different syntactic properties.

The intransitive split in Acehnese can be readily described by all of the theories under consideration. Durie's analysis is carried out using the RRG notions of actor and undergoer; in GB and RelG terms, the correlation between transitive object and class-S_O subject is straightforward. It must be emphasized again that this split is based on agentivity and not on Aktionsart. For example, the contrast between 'run in the park' and 'run to the park' is irrelevant for the coding of intransitive subjects.

(52)   *ji-jak   lam gampông.*
      3sg-go LOC village

This sentence can mean either 'he went/walked TO the village' or 'he went/walked IN the village', and there is no change in the coding of the argument depending upon the interpretation of the verb as activity or accomplishment.

6. CONCLUSION. This study has identified inherent lexical aspect (Aktions-

art) and agentiveness as the primary semantic parameters governing split intransitivity, and languages vary with respect to which parameter governs the split. For instance, in Italian and Georgian the relevant contrast is between classes of verbs with different inherent lexical aspect properties, whereas in Acehnese and Tsova-Tush the contrast turns crucially on agentiveness. Thus *andare* 'go' is class-S_O in Italian, even though it is normally interpreted as agentive with a human subject, while *jak* 'go' is class-S_A in Acehnese, regardless of whether it involves motion to a goal or not. Despite this variation, one significant crosslinguistic generalization about intransitive splits can be made: on the basis of the Georgian, Italian, and Acehnese data it is possible to predict that in all languages agentive activity verbs will be class-S_A.

Some languages may have some constructions that are sensitive to one parameter and others that are sensitive to the other. The analysis of Dutch presented in Zaenen 1988 shows that split-intransitive phenomena within a single language may be divided between these two parameters: impersonal passivization is sensitive to the agentive/nonagentive contrast, while auxiliary selection is based on Aktionsart distinctions. Moreover, the relevant distinction for auxiliary selection is not the same as that for Italian: in Dutch the fundamental contrast is telic/atelic, which groups together states and activities (atelic), which take *hebben* 'have', in opposition to achievements and accomplishments (telic), which take *zijn* 'be'. This semantic variation might be construed as evidence against the RRG semantic analysis, but in fact it is just the opposite: these two parameters are precisely the ones Dowty uses in setting up his classification. Dowty's classification employs the inherent lexical aspect distinctions which underlie the basic four-way division into states, achievements, activities, and accomplishments, and he also proposes a bifurcation of all of the classes on the basis of a nonagentive/agentive contrast (cf. 1979:184). Thus the RRG analysis sets up these two semantic parameters as defining the domain of possible variation in split intransitivity.

Split-intransitive phenomena have figured prominently in discussions of a number of important theoretical issues, perhaps the most significant one being the question of the justification of postulating underlying levels of syntactic representation. If these phenomena cannot be accounted for in semantic terms, then they provide evidence for an underlying level of syntactic representation in which the surface subject of a class-S_O verb is represented as a direct object. Harris (1982:299) puts the point succinctly in her discussion of Georgian: 'Can case-marking, as well as other processes which refer to direct objects and unaccusative nominals, be stated in semantic terms? If semantic conditions on these rules were possible, it would be unnecessary to analyze the unaccusative nominal as an initial direct object.' This paper has provided an affirmative answer to Harris' question.

Two general arguments have been advanced against a semantic analysis of split intransitivity: (1) there is no consistent semantic basis for the split, but the UH provides a consistent syntactic characterization; and (2) there are syntactic phenomena which admit of no semantic account but which can be given a motivated syntactic treatment based on the UH. Each of these will be addressed in turn.

It has already been shown that there is semantic variation in split intransitivity, but the variation is highly constrained, and the parameters that define it are just those which underlie the RRG theory of lexical semantics. When semantic theories of split intransitivity are discussed by proponents of the UH, they are normally characterized as simplistic thematic-relations-based accounts, e.g., the subject of class-S_A verbs is always an agent, while that of class-S_O verbs is always a theme/patient. The semantic variation in the split intransitivity argues strongly against any theory of these phenomena based entirely on thematic relations, since, for example, some of the subjects of class-S_O verbs in Italian are clearly agentive—e.g. those of *correre* 'run', as in *Carlo è corso di proposito a casa* 'Carlo ran home on purpose'—while none of the class-S_O subjects in Acehnese are. This is a significant point, because the arguments in Rosen 1984 regarding the impossibility of an adequate semantic characterization of split intransitivity are directed against a very simplistic thematic-relations analysis; her arguments show that that type of analysis is inadequate, but they carry no weight against the kind of semantic analysis proposed here.

Rosen's article is significant, because it is often cited as proving that a semantic account is impossible. One of her most widely-cited arguments concerns the classification of the verb 'die' crosslinguistically. She classifies 'die' in Choctaw as unergative solely on the basis of the fact that its subject agreement is the same as that of transitive verbs; this, she argues, shows that there is no consistent semantic basis for the intransitive verb class distinctions, for 'die' in Choctaw surely means the same thing as the verbs for 'die' in Dakota, Italian, Georgian, etc. Although this argument has been widely accepted and this particular example has appeared frequently in the literature on the UH, the argument is seriously flawed and the example misleading. Merlan 1985 surveys split-intransitive case marking in a wide range of languages and shows that the case-marking splits are not related in any direct way either to the semantic role of the intransitive subjects or to notions like voluntary vs. involuntary subject or stative vs. active verb. Rather, she finds that in most of the languages there is a large unmarked class of verbs and a small marked class characterized primarily by a restriction that their single argument be animate or human. In Lakhota the marked class is subjectively inflecting, while in Tunica it is objectively inflecting. The crucial relevance of Merlan's analysis for this discussion is that no valid crosslinguistic generalizations regarding the semantic role or morphosyntactic behavior of the subject or the class of the verb can be made based solely on the inflection used for case marking the intransitive subject in languages exhibiting split intransitivity. It is in this context that Rosen's Choctaw example is significant. While the verb 'die' takes the same subject agreement affix as (most) transitive subjects, it suppletes for the number of the subject, a property not of unergative verbs but of the semantically relatively homogeneous class of verbs which normally take transitive object agreement for their theme/patient single argument (Jack Martin, personal communication, 1986). Thus with respect to another grammatical criterion 'die' behaves as expected, and Martin 1987 (who discusses the closely-related language Creek, in which the agreement facts are parallel) suggests that the subject affix used

with this verb and several other Choctaw/Creek verbs is simply irregular. Hence Rosen's argument regarding the semantic class of this verb, which is based solely on the inflectional case marking of its subject, is highly questionable.

The second type of argument is syntactic and underlies Harris' question. The discussion in §§3–4 above showed how *ne*-cliticization and auxiliary selection in Italian and case marking and the distribution of inversion in Georgian can be handled in terms of a single level of syntactic representation together with a rich and independently motivated theory of semantic roles and lexical semantics. Levin & Rappaport 1989 and Rappaport & Levin 1989 provide what they consider to be two strong arguments in favor of syntactic accounts of split intransitivity. The first concerns the relationship between passivization and split intransitivity:

> '[T]he existence of syntactic and morphological phenomena that class unaccusative verbs and passive verbs together provides strong support for the syntactic approach, since, by hypothesis, unaccusative verbs and passive verbs appear in the same syntactic configurations. But it is difficult to find a semantic property shared by all passive and unaccusative verbs' (Levin & Rappaport 1989:3).

However, the similarities between class-S_O verbs and passive verbs follow naturally from the RRG analysis, as the discussions of Italian and Georgian showed; in addition, this analysis made correct predictions about the failure of multiple-argument activity verbs to passivize in both Italian and Georgian— predictions that do not follow from the syntactic approaches in any obvious way. Hence the facts alluded to by Levin & Rappaport are not evidence against the lexical semantic approach. Their second argument concerns resultative constructions in English; they state that '[r]esultative constructions provide the most convincing evidence that the unaccusative/unergative distinction is syntactically coded in English' (9). The crucial facts are summarized in 53.

(53) a. *Terry wiped the table clean.*
     b. **Terry wiped the table exhausted.*
     c. *The river froze solid.*
     d. **He talked hoarse.*
     e. *He talked himself hoarse.*

The evidence for syntactic approaches to split intransitivity comes from the contrast between 53c and 53d. In the construction in 53a, *clean* is predicated of the direct object *the table* and not of the subject *Terry*; in 53c the resultative phrase is predicated of the surface subject, but in 53d it cannot be so interpreted. They argue that, if the surface subject of 53c is an initial direct object, as the UH claims, then the grammaticality of 53c and the ungrammaticality of 53d follow from the mutual c-command condition on predication. They maintain further that the reflexive is added in 53e solely 'to fulfill the syntactic need for the resultative phrase to be predicated of an object' (9). There is a straightforward explanation for these facts in RRG terms. The argument of which the resultative phrase is predicated is an undergoer in every case. The 'direct object restriction' proposed by Levin & Rappaport is captured in RRG in terms of a restriction to undergoers. This correlates naturally with the Aktionsart of the

construction, since the constructions allowing resultative phrases are either accomplishments (53a,e) or achievements (53c), all of which code a result state as part of their inherent meaning. Activity verbs, which are inherently atelic and therefore cannot in principle code a result state or have an undergoer argument, do not take resultative phrases. This follows directly from the semantic characterizations of these verb classes, and it correctly predicts the facts in 53. As in Italian and Georgian, achievement verbs in English are class-S_O. Since 53a is an accomplishment (cf. *Terry wiped the table clean in/*for five minutes*), it would have the LS given in 54.

> (54)   [**wipe'** (Terry)] CAUSE [BECOME **clean'** (the table)]

Clean is predicated of *the table* (the undergoer in 53a), as represented in the achievement part of the LS; and, since *freeze* is an achievement verb in 53c, exactly the same relations obtain as in the achievement part of 54. With *talk* in 53d, however, the situation is very different. It is an activity verb (cf. *he talked for/*in ten minutes*), and therefore its LS does not code a result state—hence the ungrammaticality of 53d. However, 53e is not an activity but rather an accomplishment (cf. *he talked himself hoarse in/for ten minutes*, where *for ten minutes* is the duration of the state of being hoarse, not the duration of the talking, as in *he talked for ten minutes* [cf. 28–29]), and consequently the resultative phrase is possible. The LSs for 53d,e are given in 55.

> (55) a.   **talk'** (x)
>   b.   [**talk'** (x)] CAUSE [BECOME **hoarse'** (x)]

It is clear that the reflexive pronoun in 53e is not simply there to fulfill a hypothetical c-command requirement; the verb in that construction is an accomplishment, *himself* is the undergoer, and it is this change in the Aktionsart interpretation of the verb that makes the resultative phrase possible. Thus resultative constructions provide no evidence for the superiority of syntactic approaches.

No syntactic phenomena have been found that cannot be accounted for within the RRG analysis. This is very significant, for it shows that split-intransitive phenomena provide no evidence against monostratal theories of syntax like RRG which make use of a rich theory of lexical semantics and semantic roles. It might be argued (as one anonymous reviewer did) that the arguments made in favor of the RRG lexical semantic analysis are in no way arguments against syntactic approaches such as GB and RelG, because those theories could simply adopt the Dowty-style system of lexical representation; there is no inherent incompatibility between it and them. This is correct; indeed, it was pointed out in Van Valin 1987. However, three important points must be emphasized. First, GB and RelG theorists have not worked out a system of lexical representation comparable to that proposed by Dowty and employed in RRG, and they have not applied it to the analysis of split intransitivity. It is therefore inappropriate to dismiss lexical semantic arguments by saying, 'We could do that too, if we wanted to; we just choose not to.' Second, there are syntactic phenomena which the syntactic theories can handle only in an ad-hoc manner, if at all, whereas these same phenomena follow directly from the lexical se-

mantic account. There is thus empirical evidence supporting the semantic approach. Third, the consequences of incorporating a substantive theory of lexical representation into a theory like GB or RelG could potentially be very great; it is not obvious, for example, that the kinds of syntactic analyses currently proposed would be necessary if such a system of lexical representation were adopted. One of the goals of this paper has in fact been to show that, given a theory of semantic roles and lexical semantics like that of RRG, split-intransitive phenomena provide no evidence for analyzing the subject of class-S_O verbs as underlying syntactic objects.

APPENDIX: AUXILIARY SELECTION WITH REFLEXIVE VERBS IN ITALIAN

As I observed in n. 10, the issue of auxiliary selection in Italian extends beyond the question of split intransitivity, for all verbs which take the reflexive *si* take *essere* as their auxiliary, regardless of their lexical class. This is illustrated in A1.

(A1) a. *Marta si   è   arrabbiata.*   Achievement
            REFL is become.angry
         'Marta got angry.'
      b. *Giovanni si   sbaglia.*   State
            REFL mistakes
         'Giovanni is mistaken.'
      c. *Maria si   è   tagliata.*   Accomplishment
            REFL is cut
         'Maria cut herself.'
      d. *Maria si   è   guardata.*   Activity
            REFL is watched
         'Maria watched herself.'
      e. *Maria si   è   comprata un libro.*   Accomplishment
            REFL is bought   a   book
         'Maria bought herself a book.'

Since *si* forms always take *essere*, it has been assumed in many accounts that the rule which accounts for *essere* selection with unaccusatives should also handle the reflexive cases as well. In one sense, this can be done trivially, for the following reason. If one were to list all of the major construction types in Italian along the parameters of transitivity and basic vs. derived status, taking passive and *si* constructions to be derived, the following pattern emerges:

    Avere: Underived transitive constructions
             Intransitive activity verbs
    Essere: All others

In markedness terms, *avere* is the distributionally limited or marked auxiliary, and *essere* is the distributionally more general or unmarked auxiliary; it is the elsewhere case. (This is exactly the opposite of the situation in French, for example.) In order to correctly predict auxiliary choice in Italian, it is necessary only to provide a rule covering the marked case, *avere*; it is stated in A2.

   (A2) AUXILIARY SELECTION FOR ITALIAN VERBS: Select *avere* if the subject is an unmarked
        actor (with respect to the Actor-Undergoer Hierarchy in Fig. 1), otherwise *essere*.

'Unmarked' here means that the actor is the highest-ranking argument in terms of Fig. 1 and nothing else; this excludes the motion accomplishment verbs (like *andare* 'go') whose actor is both agent and theme.

However, it would be interesting to see if there is a generalization covering class-S_O verbs, passives, personal *si*-constructions, and impersonal *si*-constructions. The state and achievement examples in A1a,b fall under the generalization in 17, whereas the accomplishment and activity verbs in A1c–e are not intransitive (and hence irrelevant to the issue of split intransitivity) and do not fall under 17. These are the examples which must be explained. Italian has two reflexive constructions, and they contrast with respect to auxiliary selection. The *se stesso* construction is exemplified in A3.

(A3) a. *Maria ha tagliato se stessa.*
          has cut   [her]self
      'Maria cut herself.' (cf. A1c)
   b. *Maria ha guardato se stessa.*
          has watched [her]self
      'Maria watched herself.' (cf. A1d)
   c. *Maria ha comprato un libro per se (stessa).*
          has bought   a book for [her]self
      'Maria bought a book for herself.' (cf. A1e)

In this construction the reflexive element *se stesso* appears in direct object position and the verb selects *avere* as its auxiliary, in contrast to the sentences in A1. An anonymous reviewer suggests that these examples prove that a purely semantic account of auxiliary selection is impossible, because there is no semantic distinction between A1c and A3a, A1d and A3b, and A1e and A3c. A crucial assumption underlying this argument and the standard syntactic analyses of reflexive constructions in Italian is that these two constructions are essentially identical in terms of thematic relations and differ only in the placement of the reflexive element. That is, both *si* and *se stesso* are generated in the D-structure object position and receive the appropriate θ-role for that position; then *si*, but not *se stesso*, is moved to the preverbal clitic position. This assumes further that the subject is the antecedent of *si/se stesso*. On this kind of analysis there is no semantic difference between the two constructions (where 'semantic difference' refers primarily to thematic relations), and consequently the explanation for the difference in auxiliary selection must be syntactic.

The analysis of these two forms in RRG is rather different. The RRG treatment of the *se stesso* reflexive would be similar to that of GB/RelG. The reflexive element is the direct object of the clause, the subject is its antecedent, and each has distinct semantic roles; in A3a, for example, *Maria* is the actor and an effector, and *se stessa* is the undergoer and a patient. The verb is transitive, with the unmarked choice for subject, and therefore it selects *avere* as its auxiliary. In other words, such constructions are treated like any other transitive construction, and the fact that the direct object is bound by the subject is of no consequence for auxiliary selection. The RRG analysis of *si*-constructions, however, contrasts sharply with that of *se stesso. Si*, both personal and impersonal, signals suppression of the argument that would be the unmarked subject choice; personal *si* suppresses the argument that would be actor in the LS, yielding an actorless clause, while impersonal *si* eliminates the human subject—i.e. the human actor of a transitive or an intransitive verb or the human undergoer of a passive or a nonactivity intransitive verb—yielding an actorless clause with active verbs and an undergoerless clause with intransitive and passive verbs. With the actor eliminated, the undergoer links to subject with personal *si*; with impersonal *si*, nothing need appear in subject position, although with active verbs the undergoer may appear in preverbal position and trigger verb agreement. Thus on this analysis, the subject is not the antecedent of *si*, because *si* is not an anaphoric element of any kind; there is no coreference relation between the subject and *si*, as there is between the subject and *se stesso*. In RRG terms, the linking in the *si*-construction is radically different from that in the *se stesso* form, and it is this contrast in linking relations that forms the basis for the explanation of the divergent auxiliary choices in the two constructions.

Burzio 1986 argues that in many cases the function of *si* is to absorb the θ-role of the subject, and this is essentially the GB way of putting what is being proposed here. The primary problem in maintaining that this is true in ALL cases, as the RRG analysis does, is accounting for the reflexive interpretation in sentences like A1c–d.[27] The reflexive interpretation is a function of the animacy of the subject, the active form of the verb, and the suppression of the actor that (personal) *si* signals. The verb is in its active form, and this is normally construed to mean that the subject is an actor; the passive form, by contrast, codes that the subject is an undergoer in Italian. The appearance of *si*, however, signals that the actor argument has been suppressed; by the linking rules for Italian,

---

[27] It should be noted that in many languages reflexive constructions do not involve an independent reflexive anaphoric element but rather only a valence-reducing derivational affix on the verb; hence the problem of accounting for the reflexive interpretation in constructions without an overt reflexive anaphor is much more general than these Italian forms.

the undergoer would have to be the subject. But the fact that the undergoer is subject as marked by *si* clashes with the active form of the verb, which indicates that the subject is an actor. The resolution to this conflict is a reflexive reading in which the subject is interpreted as both actor and undergoer simultaneously. This is the same meaning coded by the *se stesso* construction directly, with actor and undergoer arguments both overtly realized in the sentence and the special form of the undergoer indicating that it is referentially the same as the subject.

A full defense of this analysis is beyond the scope of this appendix, but one piece of evidence can be cited: the *si* and *se stesso* constructions are NOT equivalent semantically.[28] There is a strong sense that the action of the subject is intentional in the *se stesso* form, and this sense is absent in the *si* construction. Evidence for this comes from the fact that the normal interpretation of a sentence like A1c is that it was an accident, while some speakers report that A3a strongly implicates that Maria cut herself on purpose. Adding an adverbial like *per sbaglio* 'by mistake' is fine with A1c but is considered to generate a contradiction with A3a. This semantic contrast is to be expected if the subject is an undergoer in A1c but an actor in A3a, just as the RRG analysis claims. Since the standard syntactic analyses claim that the only difference between the two forms is the position of the reflexive element, it is difficult to see why this semantic contrast should exist.

Assuming the linking analysis of *si*-reflexive forms given above, we may now explain the differential auxiliary choices in the two reflexive forms. Centineo 1986 argues that auxiliary selection is a function of the markedness of the subject choice in a particular clause. The least marked choice is the actor of an activity predicate, which could be either a transitive accomplishment verb or an activity verb (*avere* is used), and the most marked is no subject at all in the impersonal construction (*essere* is chosen). With a transitive state verb such as *vedere* 'see', the linking in the active voice is unmarked, with the subject being the actor, which is an experiencer, the highest-ranking argument in the LS in terms of the hierarchy in Fig. 1; following the rule in A2, the auxiliary will be *avere*. A two-argument state verb like *piacere* 'like', by contrast, is intransitive, and therefore by the principles in 7 its single macrorole will be an undergoer, leading to a marked subject linking and *essere*. (Cf. the discussion of *qvar* 'love' in Georgian in §4.) In the *se stesso* construction, the subject is an actor, just as in nonreflexive transitive clauses, and consequently the auxiliary is *avere*, following the rule in A2. In the (personal) *si* construction, the subject is an undergoer, the actor having been suppressed, and this is a highly marked subject choice, especially with an active verb form; hence the auxiliary is *essere*. The same considerations apply to impersonal *si*, in which the subject is missing altogether, leading to the selection of *essere*. This generalization naturally subsumes the one in 17, which applies to intransitive verbs only. If the LS of an intransitive verb contains a state predicate, then the subject of that verb is linked to an argument position in that state predicate, even if it is also linked to an argument position with an agentive activity verb, as with telic verbs of motion like *andare* 'go' and *correre* 'run'. This contrasts with the subject of an intransitive activity verb, which is linked only to an argument position in the activity predicate in the LS. Hence subject choice with intransitive state, achievement, and accomplishment verbs represents a marked linking, as opposed to intransitive activity verbs and transitive verbs.

Thus on a continuum of markedness of subject choice, *essere* correlates with marked choices and *avere* with the unmarked choice. This captures the intuition expressed by many native speakers that the subjects of *essere* verbs are in some way 'more affected' than those of *avere* verbs.

REFERENCES

ARONSON, HOWARD I. 1982. Georgian: A reading grammar. Columbus, OH: Slavica.
BURZIO, LUIGI. 1981. Intransitive verbs and Italian auxiliaries. Cambridge, MA: MIT dissertation.
——. 1983. Conditions on representation and Romance syntax. Linguistic Inquiry 14.193–221.
——. 1986. Italian syntax. Dordrecht: Reidel.
CENTINEO, GIULIA. 1986. A lexical theory of auxiliary selection in Italian. Davis Working Papers in Linguistics 1.1–35.

---

[28] I am grateful to David Wilkins for bringing this point to my attention and to Barbara Villanova-Wilkins for sharing her native-speaker intuitions with me.

DOWTY, DAVID. 1979. Word meaning and Montague Grammar. Dordrecht: Reidel.
——. 1987. Thematic proto-roles, subject selection, and lexical semantic defaults. Paper presented at the 1987 LSA Annual Meeting.
DURANTI, ALESSANDRO, and ELINOR OCHS. 1979. Left-dislocation in Italian. Syntax & semantics 12: Discourse and syntax, ed. by T. Givón, 377–416. New York: Academic Press.
DURIE, MARK. 1985a. A grammar of Acehnese. Dordrecht: Foris.
——. 1985b. Control and decontrol in Acehnese. Australian Journal of Linguistics 5.43–54.
——. 1987. Grammatical relations in Acehnese. Studies in Language 11.365–99.
FOLEY, WILLIAM A., and ROBERT D. VAN VALIN, JR. 1984. Functional syntax and universal grammar. Cambridge: Cambridge University Press.
HARRIS, ALICE. 1981. Georgian syntax. Cambridge: Cambridge University Press.
——. 1982. Georgian and the unaccusative hypothesis. Lg. 58.290–306.
HEWITT, B. G. 1983. Review of Harris 1981. Lingua 59.247–74.
——. 1987. Georgian: Ergative or active? Lingua 71.319–40.
HOLISKY, D. A. 1979. On lexical aspect and verb classes in Georgian. Chicago Linguistic Society Parasession on the Elements/Non-Slavic Languages of the USSR, 390–401. Chicago: Chicago Linguistic Society.
——. 1981a. Aspect and Georgian medial verbs. New York: Caravan.
——. 1981b. Aspect theory and Georgian aspect. Tense and aspect (Syntax & Semantics 14), ed. by P. Tedeschi & A. Zaenen, 127–44. New York: Academic Press.
——. 1981c. On derived inceptives in Georgian. Studies of the languages of the USSR, ed. by Bernard Comrie, 148–71. Edmonton: Linguistic Research.
——. 1987. The case of the intransitive subject in Tsova-Tush (Batsbi). Lingua 71.103–32.
HOPPER, PAUL, and SANDRA THOMPSON. 1980. Transitivity in grammar and discourse. Lg. 56.251–99.
JACKENDOFF, RAY S. 1976. Toward an explanatory semantic representation. Linguistic Inquiry 7.89–150.
——. 1987. The status of thematic relations in linguistic theory. Linguistic Inquiry 18.369–411.
JOLLY, JULIA A. 1987. An analysis of selected English prepositions within the framework of Role and Reference Grammar. Davis Working Papers in Linguistics 2.60–114.
LAMBRECHT, KNUD. 1986. Topic, focus, and the grammar of spoken French. Berkeley: University of California dissertation.
——. 1987. Sentence focus, information structure, and the thetic-categorical distinction. Berkeley Linguistics Society 13.319–39.
LEVIN, BETH C. 1983. On the nature of ergativity. Cambridge, MA: MIT dissertation.
——, and MALKA RAPPAPORT. 1989. An approach to unaccusative mismatches. North Eastern Linguistic Society 19, to appear.
MARANTZ, ALEC. 1984. On the nature of grammatical relations. Cambridge, MA: MIT Press.
MARTIN, JACK. 1987. Agreement in Creek and the theory of inflection. North Eastern Linguistic Society 17.443–65.
MERLAN, FRANCESCA. 1985. Split-intransitivity: Functional oppositions in intransitive inflection. Grammar inside and outside the clause, ed. by Johanna Nichols & Anthony Woodbury, 324–62. Cambridge: Cambridge University Press.
MICHAELIS, LAURA. 1991. On deviant case marking in Latin. To appear in Van Valin (ed.) 1991b.
PERLMUTTER, DAVID. 1978. Impersonal passives and the unaccusative hypothesis. Berkeley Linguistics Society 4.157–89.
——. 1982. Syntactic representation, syntactic levels, and the notion of subject. The nature of syntactic representation, ed. by Pauline Jacobson & Geoffrey K. Pullum. 283–340. Dordrecht: Reidel.

RAPPAPORT, MALKA, and BETH LEVIN. 1989. Is there evidence for deep unaccusativity in English? An analysis of resultative constructions. Northwestern University, MS.

ROSEN, CAROL. 1984. The interface between semantic roles and initial grammatical relations. Studies in Relational Grammar 2, ed. by David Perlmutter & Carol Rosen, 38–77. Chicago: University of Chicago Press.

ROSS, JOHN R. 1972. Act. Semantics of natural language, ed. by Donald Davidson & Gilbert Harmon, 70–126. Dordrecht: Reidel.

SCHWARTZ, LINDA. 1988. Thematic relations and case linking in Russian. Syntax and semantics 21: Thematic Relations, ed. by Windy Wilkins, 167–89. New York: Academic Press.

——. 1991. On the syntactic and semantic alignment of attributive and identificational constructions. To appear in Van Valin (ed.), 1991b.

SILVERSTEIN, MICHAEL. 1980. Of nominatives and datives: Universal grammar from the bottom up. University of Chicago, MS.

TSCHENKÉLI, KITA. 1958. Einführung in die georgische Sprache, I–II. Zürich: Amirani.

TUITE, KEVIN. 1987. Indirect transitives in Georgian. Berkeley Linguistics Society 13.296–309.

VAN VALIN, ROBERT D., JR. 1987. The Unaccusative Hypothesis vs. lexical semantics: Syntactic vs. semantic approaches to verb classification. North Eastern Linguistic Society 17.641–61.

——. 1989. Another look at Icelandic case marking and grammatical relations. University of California, Davis, MS.

——. 1991a. A synopsis of Role and Reference Grammar. To appear in Van Valin (ed.) 1991b.

—— (ed.) 1991b. Advances in Role and Reference Grammar. Amsterdam: John Benjamins, to appear.

VENDLER, ZENO. 1967. Linguistics in philosophy. Ithaca: Cornell University Press.

ZAENEN, ANNIE. 1988. Unaccusative verbs in Dutch and the syntax-semantics interface. (Report no. CSLI-88-123.) Stanford: Stanford University, CSLI.

Linguistics Program
University of California
Davis, CA 95616