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# The Role and Reference Grammar Analysis of Three–Place Predicates

This paper presents the Role and Reference Grammar [RRG] (Van Valin 2005) analysis of three–place predicates. RRG takes a primarily lexical approach to the analysis of three–place predicates and the coding alternations they enter into. There is an interesting range of typological variation with respect to how languages realize three–place predicates morphosyntactically, and this will be a major focus of this discussion. RRG is a monostratal theory, and therefore analyses involving underlying syntactic representations and movement rules are excluded in principle. Hence some of the phenomena associated with these predicates present an interesting challenge for monostratal theories like RRG. The languages to be discussed include English, Croatian, German, Indonesian, Kinyarwanda, Yaqui, Dyirbal, Saliba and Kayardild.

## 1.0 Introduction

Role and Reference Grammar [RRG] (Van Valin 2005) takes a primarily lexical approach to the analysis of three–place predicates and the coding alternations they enter into. In RRG's system of lexical decomposition, the general semantic representation for such a predicate would be as in (1).

(1) [**do' (x, Ø)**] CAUSE [BECOME **predicate'** (y, z)]

In this system, no abstract predicate can take more than two arguments, and consequently a three–argument verb must have a complex representation like (1). There is an interesting range of typological variation with respect to how languages realize three–place predicates morphosyntactically, and this will be a major focus of this discussion. RRG is a monostratal theory, and therefore analyses involving underlying syntactic representations and movement rules are excluded in principle. Hence some of the phenomena associated with these predicates present an interesting challenge for monostratal theories like RRG.

The discussion will proceed as follows. In the next section, the basics of RRG relevant to the analysis of three–place predicates will be presented. In

section 3, the RRG analysis of dative shift and the locative alternation in English and a number of other languages will be presented. In section 4, some of the more typologically intriguing ways of expressing these predicates will be analyzed, specifically symmetrical languages, e. g. Kinyarwanda, primary object languages (Dryer 1986), the Saliba directional strategy (Margetts 1999), the Dyirbal genitive construction (Dixon 1972), and the Kayardild proprietive strategy (Evans 2000).

## 2.0 Role and Reference Grammar

The general organization of RRG is presented in Figure 1. RRG posits a direct mapping between the semantic representation of a sentence and its syntactic representation; there are no intermediate levels of representation such as 'D–structure' or syntactic argument structure. It is a truly 'minimalist' theory. In what follows, the basics of the semantic and syntactic representations will be presented, along with the basic ideas of the theory of focus structure (represented as 'discourse–pragmatics' in Figure 1). For detailed presentations on all of these points, see Van Valin & LaPolla (1997) [VVLP], Van Valin (2005) [VV05].

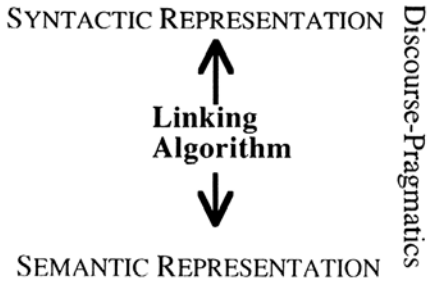


Figure 1: Organization of Role and Reference Grammar

### *2.1 The syntactic representation of sentences*

Clause structure is not represented in RRG in terms of X–bar syntax or even traditional immediate constituency structure; rather, it is captured in a semantically–based theory known as the 'layered structure of the clause'. The essential components of this model of the clause are (i) the NUCLEUS, which contains the predicate, (ii) the CORE, which contains the nucleus plus the arguments of the predicate in the nucleus, and (iii) a PERIPHERY, which contains the adjunct modifiers of the core. The structure of a simple English clause is given in Figure 2, and in Table 1 the semantic units underlying the layered structure of the clause are summarized.

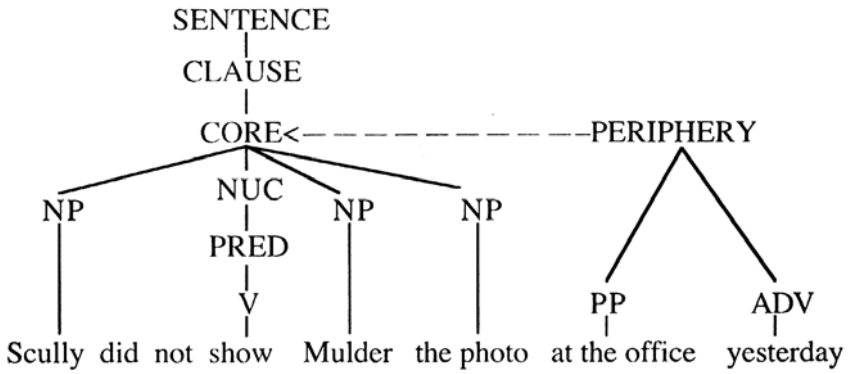


Figure 2: The layered structure of the clause in English

| Semantic Element(s) | Syntactic Unit |
|---|---|
| Predicate | Nucleus |
| Argument in semantic representation of predicate | Core argument |
| Non–arguments | Periphery |
| Predicate + Arguments | Core |
| Predicate + Arguments + Non–arguments | Clause (= Core + Periphery) |

Table 1: Semantic units underlying the syntactic units of the layered structure of the clause

Of particular relevance to the discussion of three–place predicates is that there is no VP in this structure, and both post–nuclear NPs are sisters to the verb. The binding facts that have motivated Larsen's (1988) VP–shell analysis of the ditransitive construction are not captured in syntactic terms in RRG; they will be analyzed in section 3.

A second important component of the RRG theory of clause structure is the theory of OPERATORS. Operators are closed–class grammatical categories like aspect, negation, tense, and, most important for this discussion, directionals, e. g. *He ran* ***in***/***out***/***up***. Operators are represented in a separate projection of the clause. This is exemplified in Figure 3.

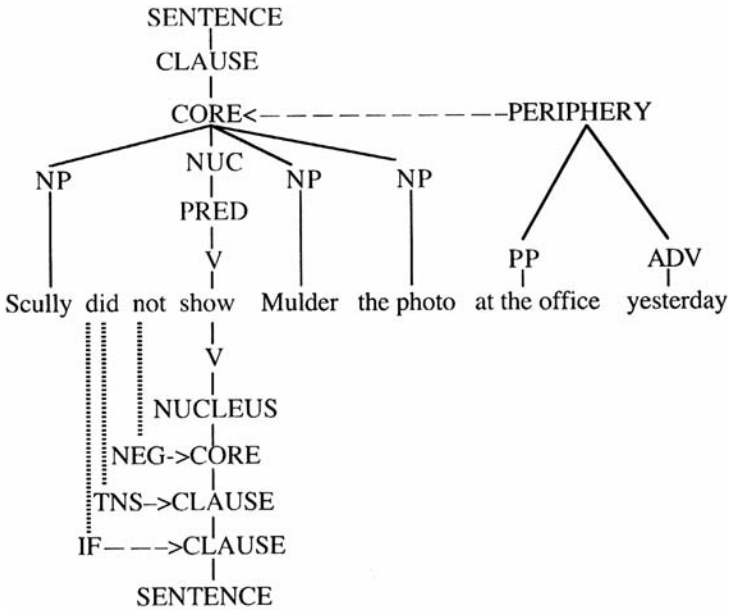


Figure 3: An English sentence with both constituent and operator projections

### *2.2 The semantic representation of sentence*

The semantic representation of a sentence is based on the lexical representation of the verb or other predicating element. It is a decompositional representation based on Vendler's (1967) theory of Aktionsart. The four basic classes (state, achievement, accomplishment and activity) are augmented by two additional classes, semelfactives (punctual events; Smith 1997) and active accomplishments (telic uses of activity verbs e. g. run to the store); in addition, there are causative versions of each. Examples of the six classes are given in (2), and sentences illustrating the classes plus their causative counterparts are given in (3).

(2) a. States: *be sick, be tall, be dead, love, know, believe, have*
b. Activities: *march, swim, walk* (– goal PP); *think, eat* (+ mass noun /bare plural NP)
c. Semelfactives: *flash, tap, burst* (the intransitive versions), *glimpse*
d. Achievements: *pop, explode, shatter* (all intransitive)
e. Accomplishments: *melt, freeze, dry* (the intransitive versions), *learn*
f. Active accomplishments: *walk* (+ goal PP), *eat* (+ quantified NP)

(3) a. State: The boy fears the dog.
a'. Causative state: The dog frightens/scares the boy.
b. Achievement: The balloon popped.
b'. Causative achievement: The cat popped the balloon.
c. Semelfactive The light flashed.
c'. Causative semelfactive The conductor flashed the light.

| | |
|---|---|
| d. Accomplishment: | The ice melted. |
| d'. Causative accomplishment: | The hot water melted the ice. |
| e. Activity: | The dog walked in the park. |
| e'. Causative activity: | The girl walked the dog in the park. |
| f. Active accomplishment | The dog walked to the park. |
| f'. Causative active accomplishment: | The girl walked the dog to the park. |

Syntactic and semantic tests determine the Aktionsart of a clause (see VVLP §3.2.1; VV05, §2.1.1). As the sentences in (3e–f') show, a single verb, e. g. *walk,* can have more than one Aktionsart interpretation. This verb would be listed in the lexicon as an activity verb, and lexical rules would derive the other uses from the basic activity use (see VVLP, §4.6; Van Valin, in press).

The system of lexical decomposition builds on the one proposed in Dowty (1979). Unlike Dowty's scheme, the RRG system treats both state and activity predicates as basic. The lexical representation of a verb or other predicate is termed its LOGICAL STRUCTURE [LS]. State predicates are represented simply as **predicate'**, while all activity predicates contain **do'**. Accomplishments, which are durative, are distinguished from achievements, which are punctual. Accomplishment LSs contain BECOME, while achievement LSs contain INGR, which is short for 'ingressive'. Semelfactives contain SEML. In addition, causation is treated as an independent parameter which crosscuts the five basic and derived Aktionsart classes, hence the ten classes in (3). It is represented by CAUSE in LSs. The lexical representations for each type of verb in (3) are given in Table 2.

| Verb Class | Logical Structure |
|---|---|
| STATE | **predicate'** (x) or (x, y) |
| ACTIVITY | **do'** (x, [**predicate**' (x) or (x, y)]) |
| ACHIEVEMENT | INGR **predicate'** (x) or (x, y), or |
| | INGR **do'** (x, [**predicate**' (x) or (x, y)]) |
| SEMELFACTIVE | SEML **predicate'** (x) or (x, y), or |
| | SEML **do'** (x, [**predicate**' (x) or (x, y)]) |
| ACCOMPLISHMENT | BECOME **predicate'** (x) or (x, y), or |
| | BECOME **do'** (x, [**predicate**' (x) or (x, y)]) |
| ACTIVE ACCOMPLISHMENT | **do'** (x, [**predicate**$_1$' (x, (y))]) & BECOME **predicate**$_2$' (z, x) or (y) |
| CAUSATIVE | $\alpha$ CAUSE $\beta$, where $\alpha$, $\beta$ are LSs of any type |

Table 2: Lexical representations for *Aktionsart* classes

Examples of simple English sentences with the LS of the predicate are presented in (4).

(4) a. STATES

| | |
|---|---|
| Leon is a fool. | **be'** (Leon, [**fool**']) |
| The window is shattered. | **shattered'** (window) |
| Fred is at the house. | **be–at'** (house, Fred) |
| John saw the picture. | **see'** (John, picture) |

b. ACTIVITIES

| | |
|---|---|
| The children cried. | **do'** (children, [**cry**' (children)]) |
| The wheel squeaks. | **do'** (wheel, [**squeak**' (wheel)]) |
| Carl ate snails. | **do'** (Carl, [**eat**' (Carl, snails)]) |

c. SEMELFACTIVES

| | |
|---|---|
| The light flashed. | SEML **do'** (light, [**flash**' (light)]) |
| John glimpsed Mary. | SEML **see'** (John, Mary) |

d. ACHIEVEMENTS

| | |
|---|---|
| The window shattered. | INGR **shattered'** (window) |
| The balloon popped. | INGR **popped'** (balloon) |
| John glimpsed the picture. | INGR **see'** (John, picture) |

e. ACCOMPLISHMENTS

| | |
|---|---|
| The snow melted. | BECOME **melted'** (snow) |
| The sky reddened. | BECOME **red'** (sky) |
| Mary learned French. | BECOME **know'** (Mary, French) |

f. ACTIVE ACCOMPLISHMENTS

| | |
|---|---|
| Carl ate the snail. | **do'** (Carl, [**eat**' (Carl, snail)]) & BECOME **eaten'** (snail) |
| Paul ran to the store. | **do'** (Paul, [**run'** (Paul)]) & BECOME **be–at'** (store, Paul) |

g. CAUSATIVES

| | |
|---|---|
| The dog scared the boy. | [**do'** (dog, Ø)] CAUSE [**feel'** (boy, [**afraid'**])] |
| Max broke the window. | [**do'** (Max, Ø)] CAUSE [BECOME **broken'** (window)] |
| The cat popped the balloon. | [**do'** (cat, Ø)] CAUSE [INGR **popped'** (balloon)] |
| Bill flashed the light. | [**do'** (Bill, Ø)] CAUSE [SEML **do'** (light, [**flash'** (light)])] |
| Felix bounced the ball. | [**do'** (Felix, Ø)] CAUSE [**do'** (ball, [**bounce'** (ball)])] |
| The girl walked the dog to the park. | [**do'** (girl, Ø)] CAUSE [**do'** (dog, [**walk'** (dog)]) & BECOME **be–at'** (park, dog)] |

Full semantic representations of sentences also contain lexical representations of the NPs, adjuncts, and grammatical operators like tense and aspect; see VVLP, §4.4, 4.7; VV05, §2.2–2.3.

### *2.2.1 Semantic macroroles and lexical entries for verbs*

The semantic interpretation of an argument is a function of its position in the LS of the predicate, and, as will be seen below, the linking system refers to an element's LS position. Thematic relations as such play no role in the theory; the traditional thematic role labels are used only as mnemonics for the LS argument positions, e. g. 'theme' is the mnemonic for the second position (y) in a two–place locational LS like **be–at'** (x, y). RRG posits two generalized semantic roles or SEMANTIC MACROROLES, which play a crucial role in the linking system. The two macroroles are ACTOR and UNDERGOER, and they are the two primary arguments of a transitive predication; the single argument of an intransitive predicate can be either an actor or an undergoer, depending upon the semantic properties of the predicate. The basic distinction is illustrated in the following German examples.

(5) a. Der Junge [SUBJ, ACTOR] hat den Kuchen [OBJ, UNDERGOER] aufgegessen.
'The boy ate the cake.'
b. Der Hund [SUBJ, ACTOR] ist um das Haus herumgelaufen.
'The dog [SUBJ, ACTOR] ran around the house.'
c. Der Hund [SUBJ, UNDERGOER] ist gestorben.
'The dog [SUBJ, UNDERGOER] died.
d. Der Kuchen [SUBJ, UNDERGOER] wurde vom Jungen [ACTOR] aufgegessen.
'The cake [SUBJ, UNDERGOER] was eaten by the boy [ACTOR].'

In (5a), *der Junge* 'the boy' is the actor and *den Kuchen* 'the cake' is the undergoer of the transitive verb *aufessen* 'eat up'; in the sentences with intransitive verbs, *Der Hund* is an actor with the activity verb *herumlaufen* 'run around' and an undergoer with the accomplishment verb *sterben* 'die'. Actor is not equivalent to syntactic subject, nor is undergoer equivalent to syntactic direct object, as the examples in (5c) and crucially (5d) show: in both of these sentences the syntactic subject is an undergoer, and in the passive sentence in (5d) the actor is an oblique adjunct. In an English clause with an active voice transitive verb, the actor is the initial NP (the traditional subject) and the undergoer, when it occurs, is always the direct NP immediately following the verb. In an English passive construction, the undergoer is the subject and the actor, if it occurs, is in an adjunct PP in the periphery.

Actor and undergoer are generalizations across specific semantic argument types, as defined by LS positions. This is illustrated in Figure 4.

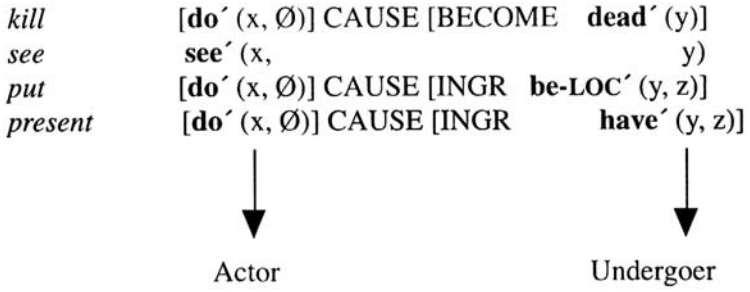


Figure 4: Macroroles as generalizations over specific thematic relations

The *x* argument of all of these verbs functions as the actor, regardless of whether it is the first argument of the generalized activity verb **do'** (conventionally labeled 'effector'), as with *kill, put* and *present,* or the first argument of a two–place state predicate, as with *see*. With two–place transitive verbs like *kill* and *see,* the *y* argument is the undergoer. With three–place verbs like *put* and *present* (as in *Bill presented Mary with the flowers*), on the other hand, the situation is potentially more complex, and this will be discussed in sections 3 and 4.

The relationship between LS argument positions and macroroles is captured in the Actor–Undergoer Hierarchy [AUH] in Figure 5. The basic idea of the AUH is that in a LS the leftmost argument in terms of the hierarchy will be the actor and the rightmost will be the undergoer. This was true for *kill, see* and *put* in Figure 2. It was not true for *present,* however, and this reflects a fundamental asymmetry in the AUH: the leftmost argument in a LS (in terms of the AUH) is always the actor, but the rightmost argument is only the default choice for undergoer. This possible variation in the selection of the undergoer is the basis of the RRG analysis of dative shift and related phenomena (see section 3).

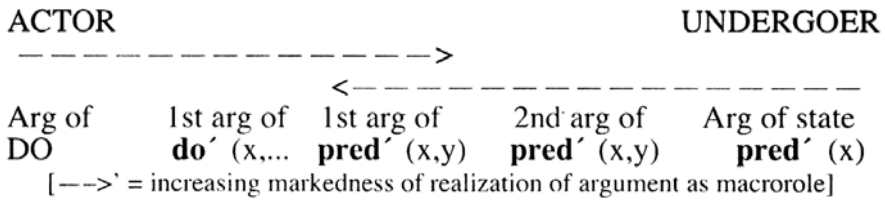


Figure 5: The Actor–Undergoer Hierarchy[1]

1 RRG treats the notion of 'agent' rather differently from other theories. The basic notion is 'effector', which is the first argument of do' and is unspecified for agentivity. With many verbs, a human effector may be interpreted as an agent in certain contexts. If the verb lexicalizes agentivity, as with murder, then the logical structure contains 'DO', which indicates that the argument must be interpreted as an agent. See Holisky (1987), Van Valin & Wilkins (1996), VVLP, §3.2.3.2, for detailed discussion.

Transitivity in RRG is defined semantically in terms of the number of macroroles a predicate takes. This is termed 'M–transitivity' in RRG, following Narasimhan (1998), in order to distinguish it from the number of syntactic arguments a predicate takes, its 'S–transitivity'. The three M–transitivity possibilities are: transitive (2 macroroles), intransitive (1 macrorole), and atransitive (0 macroroles). It is important to point out in the context of this discussion of three–place predicates that there is no third macrorole; there is nothing in RRG corresponding to Primus' (1999) notion of 'proto–recipient'. From theoretical and empirical perspectives, there are no grounds for positing a third macrorole; see Van Valin (2004), VV05: 64–66, for detailed discussion). The theoretical label for the third argument in a ditransitive predication, be it *the picture* in the English sentence *Sam showed Sally the picture* or the Croatian dative NP in (18a), is 'non–macrorole direct core argument'.

The principles determining the M–transitivity of verbs are given in (6).

(6) Default 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 predicates which have one macrorole,
    1. If the verb LS contains an activity predicate, the macrorole is actor.
    2. If the predicate has no activity predicate in its LS, it is undergoer.

If a verb is irregular and has exceptional transitivity, it will be indicated in its lexical entry by '[MR$\alpha$]', where '$\alpha$' is a variable for the number of macroroles. Examples of lexical entries for some English verbs are given in (7).

| | | |
|---|---|---|
| (7) a. | *kill* | [**do'** (x, Ø)] CAUSE [BECOME **dead'** (y)] |
| b. | *receive* | BECOME **have'** (x, y) |
| c. | *own* | **have'** (x, y) |
| d. | *belong (to)* | **have'** (x, y) [MR1] |
| e. | *see* | **see'** (x, y) |
| f. | *watch* | **do'** (x, [**see'** (x, y)]) |
| g. | *show* | [**do'** (w, Ø)] CAUSE [BECOME **see'** (x, y)] |
| h. | *run* | **do'** (x, [**run'** (x)]) |
| i. | *drink* | **do'** (x, [**drink'** (x, y)]) |

A major claim in RRG is that no syntactic subcategorization information of any kind is required in the lexical entries for verbs. For regular verbs, all that is required is the LS and nothing more, as in all except (7d). For most irregular verbs, only the macrorole number needs to be specified. The prepositions that mark oblique arguments with verbs like *show* are predictable from

general principles and need not be listed in the lexical entry (see below, also Jolly, 1993; VVLP, §7.3.2). All of the major morphosyntactic properties of verbs and other predicates follow from their LS together with the linking system.

### *2.2.2 Syntactic functions, case and preposition assignment*

The linking between semantics and syntax depicted in Figure 1 has two phases: first, the determination of semantic macroroles based on the LS of verb or predicate in the clause, and second, the mapping of the macroroles and other arguments into syntactic functions. The traditional grammatical relations have no theoretical status in RRG; rather, RRG posits a single, construction–specific grammatical relation, which is termed the PRIVILEGED SYNTACTIC ARGUMENT [PSA] of the construction. The non–PSA syntactic arguments in the clause are referred to as DIRECT or OBLIQUE CORE ARGUMENTS. The PSA for most (but not all) English constructions is the traditional subject. Languages have selection hierarchies to determine the PSA; the two main ones are given in (9).

(8) Privileged syntactic argument selection hierarchy:
Arg of DO > 1st arg of **do'** > 1st arg of **pred'** (x, y) > 2nd arg of **pred'** (x, y) > arg of **pred'** (x)

(9) Accessibility to Privileged Syntactic Argument Principles
   a. Accusative constructions: Highest ranking direct core argument in terms of (8) [default]
   b. Ergative constructions: Lowest ranking direct core argument in terms of (8) [default]
   c. Restrictions on PSA in terms of macrorole status:
      1. Languages in which only macrorole arguments can be PSA: German, Italian, Dyirbal, Jakaltek, Sama,...
      2. Languages in which non–macrorole direct core arguments can be PSA: Icelandic, Georgian, Japanese, Korean, Kinyarwanda,...

The PSA selection hierarchy in (8) is the actor part of the AUH. For a language like English, (9a) captures the fact that in an active voice clause with a transitive verb, the actor is the PSA, whereas for a language like Dyirbal (Dixon 1972), in an active voice clause with a transitive verb the undergoer is the PSA, following (9b). These are the default choices; it is possible for an undergoer to serve as PSA in a passive construction in an accusative language like English or German, and it is likewise possible for an actor to serve as PSA in an antipassive construction in syntactically ergative languages like Dyirbal and Sama (Philippines; Walton 1986). Languages also differ with respect to whether the PSA must be a macrorole: German, Italian, Dyirbal, Jakaltak (Mayan) and Sama restrict PSA selection to actors and undergoers only, while Icelandic, Georgian, Japanese, and Kinyarwanda allow non–macrorole direct core arguments to function as PSA (see VVLP, §7.3.1.1; VV05, §4.2). The linking system is summarized in Figure 6.

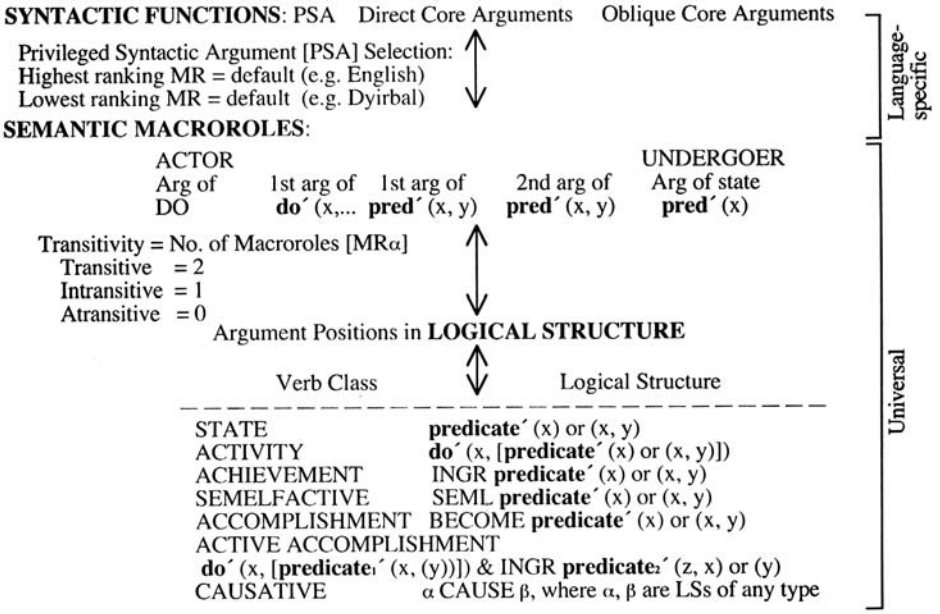


Figure 6: RRG system linking syntax and semantics

The technical details of the linking algorithm are developed in VV05: chapter 5 presents the linking algorithm for simple sentences, while chapter 7 presents the one for complex sentences. Both Figures 1 and 6 contain double–headed arrows; this means that the linking system not only maps semantic representations into syntactic representations, but it also maps syntactic representations into semantic representations. This is, after all, part of what language users must do when they are producing and comprehending speech. The emphasis in this paper is solely on the semantics–to–syntax mapping.

The linking between syntax and semantics is governed by a very general principle called the 'Completeness Constraint'; it states simply that all of the specified arguments in the semantic representation of a sentence must be realized in the syntax in some way, and conversely that all of the referring expressions in the syntax must be linked to something in the semantic representation of a sentence, in order to be interpreted.

Case assignment rules are formulated with reference to the linking system. The basic rules for direct core arguments in accusative languages are given in (10) and for ergative languages in (11).

(10) Case marking rules for accusative languages:
  a. Highest ranking core macrorole takes nominative case.
  b. Other core macrorole takes accusative case.

(11) Case marking rules for ergative languages:
  a. Lowest ranking core macrorole (in terms of (8)) takes absolutive case.
  b. Other core macrorole takes ergative case.

The rules for two other important core argument cases, instrumental and dative, are given in (12); these rules apply in both ergative and accusative systems.

(12) Non–macrorole case assignment rules
  a. Assign instrumental case to non–MR *b* argument if, given two arguments, *a* and *b*, in a logical structure, with (1) both as possible candidates for a particular macrorole and (2) *a* is equal or higher (to the left of *b*) on the AUH, *b* is not selected as that macrorole.
  b. Assign dative case to non–macrorole direct core arguments (default).

Dative case is assigned only when the rules for the other cases cannot apply. In a language like English without NP case marking, there are rules for preposition assignment. The rules for *to, from* and *with* are given in (13).

(13) Preposition assignment rules for English
  a. Assign *to* to non–MR *x* argument in LS segment: ... BECOME/INGR **pred'** (x, y)
  b. Assign *from* to non–MR *x* argument in LS segment: ...BECOME /INGR NOT **pred'** (x, y)
  c. Assign *with* to non–MR *y* argument if, given two arguments, *x* and *y*, in a logical structure, with *x* lower than or equal to *y* on the Actor–Undergoer Hierarchy, *y* is not selected as a macrorole.

The rules in (13b, c) do not cover all of the uses of *from* and *with,* but they do cover the uses relevant to the analysis of three–place predicates. The rule for *with* is basically the same as the instrumental case rule in (12a). They will be extensively exemplified in section 3.

### *2.3 Focus structure*

The morphosyntactic means for expressing the discourse–pragmatic status of elements in a sentence is called 'focus structure', and the approach to focus structure used in RRG is based on Lambrecht (1994). He proposes that there are recurring patterns of the organization of information across languages, which he calls 'focus types'. The three types relevant to this discussion are presented in (14), with data from English and Italian; focal stress is indicated by small caps.

(14) Focus structure in English and Italian (Lambrecht 1994)

| | |
|---|---|
| a. Q: What happened to your car? | **Predicate Focus** |
| A: i. My car/It broke DOWN. | English |
| ii. (La mia macchina) si è ROTTA. | Italian |
| b. Q: What happened? | **Sentence Focus** |
| A: i. My CAR broke down. | English |
| ii. Mi si è rotta la MACCHINA. | Italian |

| | |
|---|---|
| c. Q: I heard your motorcycle broke down. | **Narrow Focus** |
| A: i. My CAR broke down. | English |
| ii. Si è rotta la mia MACCHINA. / | Italian (Lit: 'broke down |
| È la mia MACCHINA che si è rotta. | my car'/'it's my car which broke down') |

Predicate focus corresponds to the traditional topic–comment distinction, with a topical subject NP and a focal predicate phrase which receives the focal stress. It is universally the least marked or default focus structure. In English, the subject would most likely be an unstressed pronoun, while in Italian it would most likely not occur at all; if it were overt, it would be preverbal in Italian. Sentence focus is a topicless construction in which the entire sentence is focal. In English, the subject receives the focal stress, while in Italian the subject appears postverbally and with focal stress. Narrow focus involves focus on a single constituent, in these examples, the subject. In English this is signaled by focal stress on the subject or by a cleft, e. g. *It was my* CAR *that broke down*. Italian likewise has two options: postposing the subject or a cleft.

There is an important distinction between unmarked and marked narrow focus. All languages have an unmarked focus position in the clause; in English it is the last constituent of the core, whereas in verb–final languages it is the position immediately before the verb. Consider the following English sentence with different focal stress options.

(15) a. Dana sent the package to LESLIE yesterday.
b. Dana sent the package to Leslie YESTERDAY.
c. Dana sent THE PACKAGE to Leslie yesterday.
d. Dana SENT the package to Leslie yesterday.
e. DANA sent the package to Leslie yesterday.

Focal stress on *Leslie* in (a) is a case of unmarked narrow focus, while focal stress on any other constituent of the clause, as in (b)–(e), yields marked narrow focus. The most marked narrow focus is on the subject, as in (e).

## 3.0 Three–place predicate constructions and their alternations: marked undergoer selection

As noted in the introduction, the abstract predicates in the system of lexical decomposition employed in RRG can have only zero, one or two arguments, and therefore three–place predicators must have complex LSs composed of at least two abstract predicates; the general semantic representation for such a predicator was given in (1), repeated in (16).

(16) [**do'** (x, Ø)] CAUSE [BECOME **predicate'** (y, z)]

| | | |
|---|---|---|
| e. g. | *give, present* | [**do'** (x, Ø)] CAUSE [BECOME **have'** (y, z)] |
| | *show* | [**do'** (x, Ø)] CAUSE [BECOME **see'** (y, z)] |
| | *teach* | [**do'** (x, Ø)] CAUSE [BECOME **know'** (y, z)] |

*load* [**do'** (x, Ø)] CAUSE [BECOME **be–on'** (y, z)]
*put* [**do'** (x, Ø)] CAUSE [BECOME **be–LOC'** (y, z)]

This naturally captures the observation made by Larsen (1988) and others that there seems to be an embedded predication in sentences involving verbs like these. It was mentioned in section 2.2.1 that with a LS like (16), the rightmost argument is only the default choice for undergoer, and this means that it is possible, in principle, for the *y* argument to be selected as undergoer. This is illustrated for *give* and *present* in (17) and (18); in these examples *Kim* is the *y* argument (recipient), and *book* is the *z* argument (theme). The alternation with verbs like *give* is traditionally termed 'dative shift', and the alternation with verbs like *present* may be termed the 'transfer alternation'.

(17) a. [**do'** (Pat, Ø)] CAUSE [BECOME **have'** (Kim, book)]
b. Pat [Actor] gave the book [Undergoer] to Kim. Unmarked choice
c. Pat [Actor] gave Kim [Undergoer] the book. Marked choice

(18) a. [**do'** (Pat, Ø)] CAUSE [BECOME **have'** (Kim, book)]
b. Pat [Actor] presented the book [Undergoer] to Kim.
Unmarked choice
c. Pat [Actor] presented Kim [Undergoer] with the book.
Marked choice

In (17b), the leftmost argument in the LS (*Pat*) is selected as actor and the rightmost argument as undergoer (*the book*), and because the sentence is active voice, the actor will appear in the core–initial PSA ('subject') position and the undergoer will occur in the immediately post–nuclear ('direct object') position. The third argument, *Kim,* is a non–macrorole argument, and therefore the preposition assignment rule in (13a) applies, assigning it *to*. Exactly the same analysis pertains to the default linking with *present* in (18b). The linking in (17b) is illustrated in Figure 7.

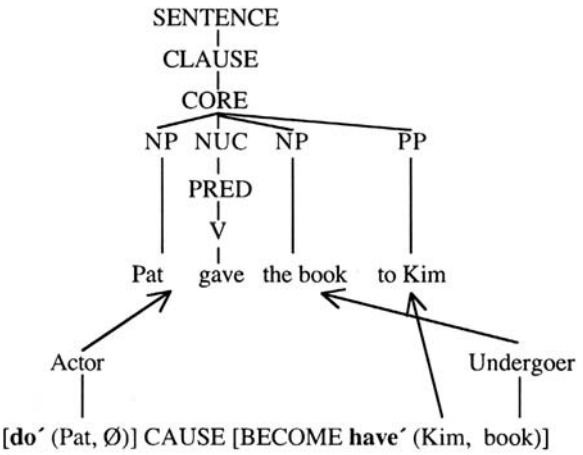


Figure 7: The semantics–to–syntax linking in (17a)

In (17c) and (18c), on the other hand, while the actor selection is the same, the undergoer selection is different: *Kim,* the *y* argument (recipient), is chosen as undergoer, leaving *the book* (theme) as a non–macrorole argument. Since this is an active construction, the actor occupies the core–initial PSA ('subject') position, and the undergoer appears in the immediately post–nuclear ('direct object') position.[2] What happens to the non–macrorole argument, *the book*? It is the default choice for undergoer, but it has been 'passed over' in favor of a lower ranking argument. This is exactly the environment in which the rule for *with* in (13c) applies, and as (18c) shows, *the book* would be marked by *with* if the verb were *present.* But for the small class of dative–shift verbs, the *with* rule does not apply, and the result is (17c). Sentences like (17c) are often referred to as the 'ditransitive construction.' The linking in (17c) is presented in Figure 8.

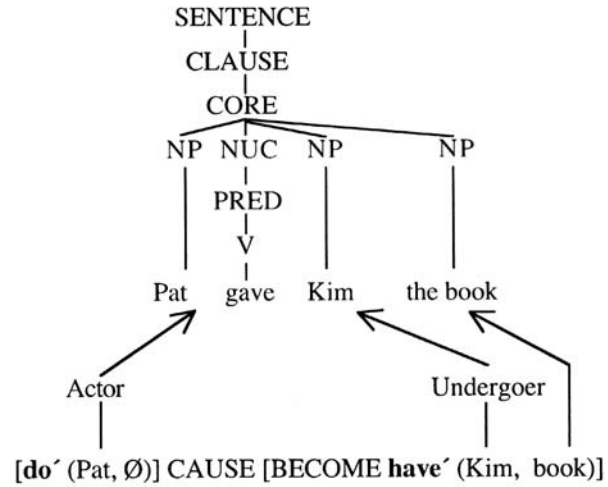


Figure 8: The semantics–to–syntax linking in (17c)

A much discussed alternation similar to (18) is the locative alternation; it is exemplified in (19) with *load.*

2 There is no small amount of controversy regarding which of the two postverbal direct NPs is the 'direct object' (undergoer) (Hudson 1992). Many linguists have maintained that the book is still the 'direct object' and Kim the 'indirect object' in (16c); this will be referred to as the 'traditional' analysis. In RRG terms, such an analysis would amount to the claim that the book is the undergoer in both (16b) and (c). This is untenable, for the following reason. The RRG analysis of passive is that the undergoer appears as the PSA ('subject') in languages like English. The RRG analysis predicts that the passive acceptable to all English speakers will be Kim was given the book by Pat, whereas the other analysis predicts that the universally acceptable passive form would be The book was given Kim by Pat. In all dialects of English the first, but not the second, is considered grammatical; many speakers of English, particularly in North America, find the second form ungrammatical. This is quite unexpected on the traditional analysis, and it supports the RRG analysis (which is close to the analysis of these forms given in Relational Grammar, e. g. Perlmutter 1980, mutatis mutandum).

(19) a. [**do'** (Pat, Ø)] CAUSE [BECOME **be–on'** (truck, hay)]
b. Pat [Actor] loaded the hay [Undergoer] on the truck.
Unmarked choice
c. Pat [Actor] loaded the truck [Undergoer] with the hay.
Marked choice

As with *present,* when the rightmost argument (the theme) is selected as undergoer in the unmarked linking, the non–macrorole argument is prepositionally marked, in this case by on. When the *y* argument (*truck* [location]) is chosen as undergoer, then the outranked *z* argument (*hay*) is marked by *with,* following (13c); the result is (19c). The basic linking pattern in the locative alternation is the same as in dative shift and the transfer alternation with *present*.

This kind of alternation in undergoer selection is also found in a few languages with extensive case systems; the following examples from Croatian (Zovko 2000, 2001) illustrate the alternation, which is possible with only a small number of pairs of verbs in the language, e. g. *darovati*/*darivati* 'give as a gift' and *ponuditi*/*nuditi* 'offer'.[3]

(20) *darovati* 'give as a gift' [**do'** (unuk–, Ø)] CAUSE [BECOME **have'** (bak–, cvijet–)]
a. Unuc–i su bak–i darova–l–i cvijeć–e.
grandson–MplNOM be.3pl grandmother–FsgDAT give–PAST–pl flower–MplACC
'The grandsons gave flowers to [their] grandmother.'
b. Unuc–i su bak–u darova–l–i cvijeć–em.
grandson–MplNOM be.3pl grandmother–FsgACC give–PAST–pl flower–MplINST
'The grandsons gave [their] grandmother flowers.'

The linking in (20a) is basically the same as in (17b) and (18b): the leftmost argument *unuk–* 'grandson' is selected as actor, and the rightmost argument *cvijet–* 'flower' is selected as undergoer, leaving *bak–* 'grandmother' as a non–macrorole core argument. The case rules in (10) and (12) assign nominative case to the actor, accusative case to the undergoer, and dative case to the non–macrorole core argument, yielding (20a). In (20b), on the other hand, undergoer selection is as in (17c) and (18c): the lower ranking argument (with respect to the undergoer part of the AUH), *bak–* is chosen as undergoer, leav-

3 Abbreviations used in the glosses: A 'actor', ABS 'absolutive', ACC 'accusative', ACT 'active', APPL 'applicative', CAUS 'causative', DAT 'dative', DET 'determiner', ERG 'ergative', F 'feminine', GEN 'genitive', IMP 'imperative', INST 'instrumental', LOC 'locative', M 'masculine', MLOC 'modal locative', NM 'noun marker', NOM 'nominative', PASS 'passive', PERF 'perfective', PRES 'present', PROP 'proprietive', PSTP 'past participle', TNS 'tense', U 'undergoer'. Numbers in the Kinyarwanda examples refer to noun classes.

ing *cvijet–* as a non–macrorole core argument. The default dative rule in (12b) cannot apply here, because this is not the default linking; rather, the rule for assigning instrumental case in (12a) applies, yielding (20b). Hence the case pattern in the alternation in (20) is basically the same as the prepositional pattern in (18), with *to* being the analog of the dative case and *with* the analog of the instrumental case.

The same pattern obtains with the verb *wugal* 'give' in Dyirbal, an ergative language. The alternation with *wugal* 'give' is exemplified in (21); it is the only verb in the language which enters into this alternation.[4]

(21) *wugal* 'give': [**do'** (dyugumbil, Ø)] CAUSE [BECOME **have'** (yaɽa, miraŋ)]
  a. Balam miraŋ–Ø baŋgun dyugumbi–ɽu wuga–n bagul yaɽa–gu.
     NM.ABS beans–ABS NM. ERG woman–ERG give–TNS NM.DAT man–DAT
     'The woman [Actor] gave beans [Undergoer] to the man.'
  b. Bayi yaɽa–Ø wuga–n baŋgun dyugumbi–ɽu baŋgum miraŋ–dyu.
     NM. ABS man–ABS give–TNS NM. ERG woman–ERG NM. INST beans–INST
     'The woman [Actor] gave the man [Undergoer] beans.'

The default undergoer selection is found in (21a), in which *balam miraŋ* 'beans' serves as undergoer and appears in the absolutive case. The third argument, *bayi yaɽa* 'man', is a non–macrorole argument and takes dative case. In (21b), the recipient *bayi yaɽa* 'man' is selected as undergoer, and this is a marked (non–default) choice, since it is not the lowest ranking argument in terms of the AUH. Accordingly, instrumental rather than dative case is assigned, following the conditions in (12a), yielding (21b). Thus in both Croatian and Dyirbal, the occurrence of the instrumental on the non–macrorole core argument signals a non–default undergoer choice, just as *with* does in English in (18c) and (19c).

There are three–place predicates of dispossession and removal which deserve mention, e. g. *take, drain*. Dispossession verbs like *take* and *steal* have the LS in (22), and they do not allow variable undergoer selection (but see below regarding *rob* vs. *steal*).

(22) a. [**do'** (x, Ø)] CAUSE [BECOME NOT **have'** (y, z) & BECOME **have'** (x, z)]
  b. Chris took the book from Dana.
  b'. [**do'** (Chris, Ø)] CAUSE [BECOME NOT **have'** (Dana, book) & BECOME **have'** (Chris, book)]

With *take*, only the default undergoer selection is possible, i. e. only *book* can be the undergoer, and because *Dana* is a non–macrorole argument, the

4 There is a third pattern possible with *wugal*; it will be discussed in section 4.3 below.

rule in (13b) applies, assigning *from.* Removal verbs like *drain* and *empty* do permit variable undergoer selection; this is exemplified in (23).

(23) a. [**do'** (Pat, Ø)] CAUSE [BECOME NOT **be–in'** (pool, water)]
b. Pat [Actor] drained the water [Undergoer] from the pool.
c. Pat [Actor] drained the pool [Undergoer] of its water.

As in (22b), the non–macrorole argument is assigned *from* by (13b) in the default linking. An interesting feature of removal verbs is that when the non–default undergoer selection is made, the theme is marked by *of* instead of *with*. This also holds for dispossession verbs which lexicalize the non–default linking, e. g. *rob* (see (25c) below). The conditions for the application of *of* are the same as for *with* with transfer and other verbs, and accordingly, *of* can be treated as the variant of *with* that marks the non–macrorole argument in a non–default linking from LSs containing '... BECOME NOT **pred'**...'.

It is possible to have a single LS for both transfer and dispossession verbs; it is given in (24).

(24) [**do'** (w, Ø)] CAUSE [BECOME NOT **have'** (x, y) & BECOME **have'** (z, y)]

If $w = x$, then the LS is transfer, in which the theme ($y$) goes from the possession of $w$ to the possession of $z$. This is the case in (17) and (18), for example. If, on the other hand, $w = z$, then the LS is dispossession, in which the theme ($y$) goes from the possession of $x$ to the possession of $w$. This is the case in (22), for example.

There are a number of general provisos that should be considered here. First, many languages do not permit this kind of variable undergoer choice with a given verb. Second, in languages that do allow it, it is very often restricted to a very limited number of verbs, Dyirbal illustrating the limiting case of just one verb. English is very unusual in allowing variable undergoer selection with a large number of three–place verbs; indeed, in English the question is usually put in terms of why certain verbs don't permit the alternation, e. g. *donate, put,* rather than the other way around.[5] Third, there are often pairs of verbs in a language, each one lexicalizing one of the possible undergoer choices, e. g. *rob* vs. *steal* in English, or their Italian counterparts, *svaliagiare* 'rob' vs. *rubare* 'steal'. The English pair is given in (25).

(25) a. [**do'** (Kim, Ø)] CAUSE [BECOME NOT **have'** (bank, $50,000) & BECOME **have'** (Kim, $50,000)]
b. Kim [Actor] stole $50,000 [Undergoer] from the bank.
c. Kim [Actor] robbed the bank [Undergoer] of $50,000.

5 See Pinker (1989) for a semantic analysis of the various classes in English; he attempts to provide a semantic characterization of each alternating class of verbs in order to explain why certain verbs do not fall into them.

Given the LS in (25a), each verb lexicalizes one of the possible undergoer choices: *steal* lexicalizes the default selection, in which the lowest ranking argument in terms of the AUH is the undergoer, while *rob* lexicalizes the non–default selection.[6] Fourth, it is somewhat unusual cross–linguistically for this alternation to be signaled solely by differences in case or prepositions. The more common pattern is one in which there is some kind of morpheme on the verb which signals the non–default undergoer selection in addition to the different case patterns. This is illustrated in the following alternations in German and Indonesian (Dardjowidjojo 1971).

(26) German *streichen*/*bestreichen* 'spread'
[**do'** (Max, [**spread'** (Max, Farbe)])] CAUSE [BECOME **be–on'** (Wand, Farbe)]
a. Max hat die Farbe an die Wand gestrichen.
have.3sgPRES the.FsgACC paint on the.FsgACC wall spread.PSTP
'Max [Actor] spread the paint [Undergoer] on the wall.'
b. Max hat die Wand mit der Farbe bestrichen.
have.3sgPRES the.FsgACC wall with the.FsgDAT paint spread.PSTP
'Max [Actor] spread the wall [Undergoer] with the paint.'

(27) Indonesian *–kan* applicative construction
a. Ali mem–beli ayam itu untuk Hasan.
ACT–buy chicken the for
'Ali [Actor] bought the chicken [Undergoer] for Hasan.'
b. Ali mem–beli–kan Hasan ayam itu.
ACT–buy–LOC chicken the
'Ali [Actor] bought Hasan [Undergoer] the chicken.'

Each pattern in the German examples is associated with distinct but related verb forms: the default linking with *streichen* and the non–default linking with *bestreichen,* both meaning 'spread'. The Indonesian examples illustrate a type of applicative construction, in which a non–argument, the beneficiary NP *Hasan,* is treated as an argument of the verb in (27b), yielding a derived three–place verb. The suffix *–kan* signals the non–default undergoer choice in this example. Evidence for the difference in undergoer choice comes from passive sentences, because in both German and Indonesian, only the undergoer may be the 'subject' in a passive construction. In the passive of (26a) *die Farbe* 'the paint' would be the 'subject', and in the passive 0f (26b) *die Wand* 'the wall' would be 'subject'. The passive of (27a) would have *ayam itu*

6 Interestingly, some younger speakers of English have extended the unmarked pattern to rob, yielding (*)Kim robbed $50,000 from the bank. Note that what they have done is take the verb which lexicalizes the marked pattern and use it to express the unmarked pattern, treating it as an alternating verb. However, no speakers permit *Kim stole the bank of $50,000, in which the use of verb lexicalizing the unmarked pattern is extended to include the marked pattern.

'the chicken' as 'subject', while the passive of (27b) would have *Hasan* as 'subject'. Many applicative constructions are of the type exemplified in (27), i. e. they involved a non–default undergoer choice; see Van Valin (1993b, 2005: 121–3), Roberts (1995) for a general discussion of applicative constructions in RRG.

The semantics of the these constructions has long been an issue, going back at least to Anderson (1971). Two observations stand out. First, there is a difference in which NP is interpreted as most affected. A classic case is (19): in (19a) all of the hay is loaded on the truck, which may or may not be full, whereas in (19b) the truck is completely filled with hay, without any implication as to whether all of the hay is loaded or not. Second, there is some sense that the recipient–as–undergoer forms are more telic than the theme–as–undergoer forms. Consider the contrast in (28).

(28) a. Dana taught French to the students for six months/in six months.
b. Dana taught the students French in six months/for six months.

While all of these possibilities are acceptable, the most natural combinations are the first ones, i. e. *for six months* in (28a) and *in six months* in (28b). This suggests that *teach the students French* implies that the process is completed, whereas *teach French to the students* carries no such implication. Moreover, this is related to the affectedness issue. This can be seen in (29).

(29) a. Dana taught French to the students, but they didn't learn anything.
b. ??Dana taught the students French, but they didn't learn anything.

The first sentence is fine, but the second one seems to be internally contradictory, and this is because having *the students* as undergoer signals that the students were affected by the action of teaching, i. e. they learned something; hence the second clause contradicts the first, resulting in the contradiction. Since the goal of teaching is to induce learning, indicating that the students are affected by the process implies that they have learned something, and thus it is possible to construe the process as completed. This is why *in six months* is more natural in (28b). Since there is no implication of learning in (29a), there is likewise no implication that the process has reached a possible completion point, and consequently *for six months* is more natural in (28a). Thus, in the ditransitive form there is an implication that a result state obtains, e. g. all the hay is on the truck, or the students know French.

The same implications (or lack thereof) can also be seen in some transfer alternations, as in (30).

(30) a. I sent the package to Mary, but she didn't get it.
b. ?I sent Mary the package, but she didn't get it.

The sense of contradiction is not as strong in (30b) as in (29b), but nevertheless (30b) is not as natural as (30a). By coding the recipient as undergoer in (30b) the speaker is implying that Mary is somehow affected by the transfer, and her actually receiving the package would be most plausible interpretation, hence the contradictory implication of the second clause. Note that *the*

*package,* the theme, is affected by being transferred, regardless of whether it reaches its destination or not, and that is why there is no implication of completion in (30a).

There are many instances of this kind of alternation which do not seem to differ significantly along either of these semantic parameters, and under these circumstances it has been argued, e. g. Erteschik–Shir (1979), Givón (1984), that discourse–pragmatics may play a role in determining which form occurs. In English, as in most languages, more topical material strongly tends to precede more focal material, and in English, unlike many other languages, e. g. German, Croatian, it is not possible to simply order the recipient and theme NPs in terms of their relative pragmatic salience. Rather, the more topical of the two arguments would be selected as undergoer, since the undergoer is the leftmost of the postnuclear constituents. This tendency can be seen in the following examples.

(31) a. Leslie gave a book to the girl.
a'. Leslie gave the girl a book.
b. Leslie gave the book to a girl.
b'. Leslie gave a girl the book.

In the default (unmarked) syntactic pattern, (31a, b) it does not seem to matter which NP is more salient (here indicated by definiteness, in a bit of an oversimplification), but in the marked pattern, (31a', b') it appears that the topicality based order is strongly preferred. One way of looking at the problem in (31b') is that it combines a non–default (marked) syntactic pattern with a marked pragmatic pattern (cf. (15)), yielding the same focus structure that would be found in the unmarked syntactic pattern combined with the unmarked pragmatic pattern, i. e. the NP *a girl* as the most focal NP in the clause as in (31b). This 'double markedness' of the form leads to its reduced acceptability, and this also explains the much discussed asymmetry in extraction possibilities between the two patterns.

| | |
|---|---|
| (32) a. Who did Leslie give the book to __? | [unmarked syntax, unmarked narrow focus] |
| a'. What did Leslie give __ to the girl? | [unmarked syntax, marked narrow focus] |
| b. What did Leslie give the girl __? | [marked syntax, unmarked narrow focus] |
| b'. *Who did Leslie give __ the book? | [marked syntax, marked narrow focus] |

Here again a doubly marked form, i. e. (32b'), is used to signal the same meaning as the maximally unmarked form, i. e. (32a), and the result is greatly reduced acceptability, if not outright ungrammaticality.

This brings up the issue of the syntactic properties of the ditransitive construction, which have been much discussed in the principles–and–parameters [P&P] literature, e. g. Barss & Lasnik (1986), Larsen (1988). Two will be ana-

lyzed here: quantifier scope and binding. The basic phenomena are presented in (33) and (34).

(33) a. The teacher assigned a homework problem to every student.
[ambiguous]
b. The teacher assigned a student every homework problem.
[*a* > *every*]

(34) a. I showed John to himself in the picture.
a'. *I showed himself to John in the picture.
b. I showed John himself in the picture.
b'. *I showed himself John in the picture.

Under P&P assumptions, a quantifier which takes wide scope must asymmetrically c–command the other quantifier, and likewise the antecedent of a reflexive anaphor must asymmetrically c–command the anaphor. The facts in (33) and (34), among others, led Larson (1988) to propose a 'VP–shell' analysis of the ditransitive construction, in which the first NP (recipient) asymmetrically c–commands the second NP (theme). This account also crucially involves the raising of the both the verb and the recipient NP. Such an analysis would be impossible in RRG, for two reasons. First, as Figure 2 shows, RRG treats the two NPs in the ditransitive construction as sisters to the nucleus, and therefore the undergoer is not higher in the tree than the non–macrorole NP. Second, since RRG is a monostratal theory, no transformational rules such as raising can be posited.

Neither the account of quantifier scope nor the account of reflexive binding in RRG refers to constituent structure, and therefore these facts are not a problem for the syntactic structure proposed in Figure 2. The RRG approach to quantifier scope is presented in VVLP, 5.5, and its essential features will be sketched here. Following the proposals of Sgall, et al. (1986) and Kuno (1991), the interpretation of quantifier scope is strongly influenced by focus structure, with the basic principle being that more topical quantified NPs have scope over less topical quantified NPs. It has already been established that in the ditransitive construction the theme NP occurs in a more topical position, and moreover that treating it as less topical than the following NP is strongly disfavored, as (31b') and (32b') clearly show. Hence this correctly predicts that *a student* in (33b) should have wide scope over *every homework problem.* Reflexive binding is treated at the semantic level, as a relationship among arguments in LS, following the general approach of Jackendoff (1972, 1992); the RRG analysis is presented in VVLP, 7.5. The part of the analysis that is relevant to this discussion is the Role Hierarchy Condition, which states that "the reflexive pronoun must not be higher on [(8)] (as applied to the selection of PSAs in the language) than its antecedent" (VVLP: 398). For English, the PSA selection principle is Actor > Undergoer > Other, and the facts in (34) follow from this, as illustrated in (35).

(35) a. I showed John [Undergoer] to himself [Other] in the picture.
Undergoer binds Other

a'. *I showed himself [Undergoer] to John [Other] in the picture.
*Other binds Undergoer

b. I showed John [Undergoer] himself [Other] in the picture.
Undergoer binds Other

b'. *I showed himself [Undergoer] John [Other] in the picture.
*Other binds Undergoer

Thus the binding facts, like the quantifier scope facts, fall out from the RRG analysis.

## 4.0 Typological variation in three–place predicate constructions

The patterns described in section 3 are found in many languages, but there are additional patterns which must be accounted for. Haspelmath (2005) claims that there are three major alignment types with respect to ditransitive constructions: direct–indirect object, primary–secondary object, and neutral. The discussion thus far has dealt only with the first of the three. In the following sections, the other two, along with some not mentioned by Haspelmath, will be analyzed. The challenge in this section is to see if the basic RRG approach outlined in section 3 can handle them.

### *4.1 Primary object languages*

Dryer (1986) first proposed the notion of 'primary object language', based on his observation that in some languages the only pattern that occurs with three–argument verbs corresponds to (17c). Lakhota provides a simple example of this.

(36) a. Mathó ki hená šų́ka eyá wičhá–kte–pi.
bear the those dog some 3plU–kill–3plA
'Those bears killed some dogs.'

b. Wį́yą ki mathó wą hokšíla ki hená wičhá–Ø–kipazo/*Ø–Ø–kipázo.
woman the bear a boy the those 3plU–3sgA–show/3sgU–3sgA–show
'The woman showed those boys a bear.'

c. *kipázo* 'show' [**do'(**wį́yą, Ø] CAUSE [BECOME **see'** (hokšíla [y], mathó [z])]

In (36a) with a transitive verb, the plural animate undergoer is coded by the prefix *wičha–* on the verb. With a three–argument verb like *kipázo* 'show', which of the non–actor arguments is coded as the undergoer? As (36b) clearly indicates, it is not the lowest ranking argument in the LS, as would be the case in a construction like (17a), but rather the higher ranking *y* argument in the LS that is selected as undergoer. Moreover, there is no construction in Lakhota with a three–argument verb in which the *z* argument would be the undergoer. Because this pattern differs from the traditional 'direct object'–'indirect object' pattern of (17a) and (20a), Dryer refers to it as the 'primary object'–'secondary object' pattern, with *hokšíla ki hená* 'those boys' as the pri-

mary object and *mathó wą* 'a bear' as the secondary object in (36b). In the English example in (17c), *Kim* would be the primary object and *the book* the secondary object.

In RRG terms, primary object languages permit only the marked linking possibility in terms of the AUH. How can this be explained? Guerrero & Van Valin (2004) propose that in such languages, undergoer selection is based on the principle 'select the second highest ranking argument in the LS as undergoer'. With a simple transitive verb, undergoer selection will work exactly the same way as in direct–indirect object languages, but when the verb has three arguments, this will always select the *y* argument as undergoer, never the *z* argument.

The application of this analysis beyond ditransitive verbs can be seen clearly in the analysis of causative constructions in primary object languages. Yaqui (Uto–Aztecan) is a primary object language (Felix 2000), and the following examples from Guerrero & Van Valin (2004) illustrate three–place verbs and causatives.

(37) a. Joan–Ø Peo–ta ʔuka vaci–ta miika–k.
Juan–NOM Pedro–ACC DET.ACC corn–ACC give–PERF
'Juan gave Pedro the corn.'

b. Peo–Ø ʔuka vaci–ta miik–wa–k.
Pedro–NOM DET.ACC corn–ACC give–PASS–PERF
'Pedro was given the corn.'

b'. *Uʔu vaci–Ø Peo–ta miik–wa–k.
DET.NOM corn–NOM Pedro give–PASS–PERF
'The corn was given Peter.'

In (37a) both non–PSA NPs are in the accusative case; which one is the undergoer and which one is the non–macrorole direct core argument? The answer is given by passive; in Yaqui only the undergoer can be PSA in a passive, and the actor is obligatorily omitted. Of the two logically possible passive versions of (37a), only (37b) with the recipient as PSA is grammatical. Hence the recipient *Peo* 'Pedro' is the undergoer in (37a). The facts in (37) could be accounted for by either of the analyses given above. A causative construction involving *miika– 'give'* presents an interesting problem, since there will be at least two non–PSA animate NPs; which one is the undergoer of the derived causative verb *miik–tua* 'cause to give'? Again, passive provides the crucial evidence.

(38) a. Uʔu maejto usi–ta mansana–ta yoem–ta miik–tua–k.
DET.NOM teacher child–ACC apple–ACC man–ACC
give–CAUS–PERF
'The teacher made the child give the man the apple.'

b. Uʔu usi–Ø mansana–ta yoem–ta miik–tua–wa–k.
DET.NOM child–NOM apple–ACC man–ACC
give–CAUS–PASS–PERF
'The child was made to give the man the apple.'

b'. *Yoem–Ø usi–ta mansana–ta miik–tua–wa–k.
man–NOM child–ACC apple–ACC give–CAUS–PASS–PERF
b''.*Mansana–Ø usi–ta yoem–ta miik–tua–wa–k.
apple–NOM child–ACC man–ACC give–CAUS–PASS–PERF
c. [**do'** (maejto, Ø)] CAUSE [[**do'** (usi, O)] CAUSE [BECOME **have'** (yoem, mansana)]]

The only grammatical version of (38a) is (38b) with the causee *usi* 'child' as PSA, and this shows that the undergoer in (38a) is *usi–ta* 'the child–ACC'. With respect to the LS of (38a) in (38c), the 'second highest argument in LS' principle for selecting the undergoer correctly identifies *usi* 'child' as the unique undergoer choice.

Yaqui presents a rather complex situation with respect to three–place predicates. There are three classes in the language, according to Guerrero & Van Valin (2004): a class which permits only the recipient or second highest ranking argument as undergoer, as illustrated in (37) and (38), a class which permits only the theme as undergoer (e. g. *nenka* 'sell'), and a class which permits both possibilities (e. g. *benta* 'spread'). This complexity led to the revision of the AUH presented in Figure 9.

| ACTOR | | | | UNDERGOER |
|---|---|---|---|---|
| Arg. of | 1st arg. of | 1st arg. of | 2nd arg. of | Arg. of state |
| DO | **do'** (x,… | **pred'** (x, y) | **pred'** (x, y) | **pred'** (x) |

Actor selection: Highest ranking argument in LS
Undergoer selection:
Principle A: Lowest ranking argument in LS
Principle B: Second highest ranking argument in LS
Principle C: Either Principle A or Principle B

Figure 9: Actor–Undergoer Hierarchy (revised)

Actor selection is unaffected. There are two principles of undergoer selection, Principle A, which yields the direct–indirect object pattern, and Principle B, which yields the primary–secondary object pattern. In addition, there is a third variable, Principle C, in which verbs permit both of the possibilities of Principles A and B. In terms of Yaqui, *nenka* 'sell' is a Principle A verb, *miika* 'give' is a Principle B verb, and *benta* 'spread' is a Principle C verb. English shows the same distinctions, although the number of verbs of each type is very different from Yaqui: *donate* and *put* are Principle A verbs, *envy* is a Principle B verb, and most three–place predicates follow Principle C. Thus while there are primary–object languages in which verbs seem to follow Principle B primarily or exclusively, e. g. Lakhota, Malagasy, there are others such as Yaqui, which have verbs of all three types.

### *4.2 Neutral alignment*

In both direct–indirect object and primary–secondary object languages there is an asymmetry with three–place predicates: one of the two non–actor core arguments has syntactic properties, e. g. the ability to become PSA in a passive construction, which the other one lacks. This was shown clearly for English and Yaqui above, and this is captured in RRG terms of undergoer selection. There are languages, however, which seem to lack any such asymmetry among the non–actor core arguments; in other words, in such languages any non–actor direct core argument can serve as the PSA in a passive construction. This is what Haspelmath refers to as 'neutral alignment'. Kinyarwanda (Kimenyi 1980) is the best known and most discussed example of such a language. In (39), the ditransitive verb *–hé–* 'give' occurs with the applicative suffix, yielding a clause with three non–actor direct core arguments, and as the examples in (b)–(d) show, any of these three can be selected to be the PSA in a passive construction.

(39) a. Umugóre a–rá–hé–er–a umugabo ímbwa ibíryo.
woman 1–PRES–give–APPL–MOOD man dog food
'The woman is giving food to the dog for the man.'

b. Ibíryo bi–rá–hé–er–w–a umugabo ímbwa n'ûmugóre.
food 8–PRES–give–APPL–PASS–MOOD man dog by woman
'The food is being given to the dog for the man by the woman.'

c. Imbwa i–rá–hé–er–w–a umugabo ibíryo n'ûmugóre.
dog 4–PRES–give–APPL–PASS–MOOD man food by woman
'The dog is being given food for the man by the woman.'

d. Umugabo a–rá–hé–er–w–a ímbwa ibíryo n'ûmugóre.
man 1–PRES–give–APPL–PASS–MOOD dog food by woman
'The man benefits from the woman giving food to the dog.'
[Lit: 'The man is being given food to the dog by the woman.']

The canonical passive construction cross–linguistically has the undergoer as the PSA, but as these examples make quite clear, the passive in Kinyarwanda is not so restricted. Since there cannot be multiple undergoers in a single core, the simplest analysis of the Kinyarwanda passive is that it allows non–macrorole direct core arguments to function as PSA (see (9c2)); in other words, passive is ~A = PSA, where '~A' includes all direct core arguments of the verb.

### *4.3 The Saliba directional strategy*

Saliba is a Western Oceanic language spoken in Papua New Guinea (Margetts 1999). While most of the three–argument verbs follow the primary object pattern illustrated by Lakhota and Yaqui above, there is one verb of giving, *le,* with unique properties: first, it is used to express first or second recipients only, and second, it takes only two arguments in the core it heads, not three. It is illustrated in (40).

(40) a. Bosa kasega ye le–ya–ma.
basket one 3sg give–3sgU–hither
'He gave me/us one basket.'
b. Bosa kasega ye le–ya–wa.
basket one 3sg give–3sgU–thither
'He gave you (sg/pl) one basket.'

It was claimed at the beginning of the paper that all three–place verbs have the LS in (1) (or some variant thereof), and yet the construction in (40) is a two–argument construction in which the recipient cannot be expressed as an argument at all. How can the properties of *le–* 'give' be accommodated within the framework sketched in section 2?

It was mentioned in section 2.1 that clause structure in RRG has two projections, a constituent projection and an operator projection. The operators in the operator projection are modifiers of the different layers of the clause, and they are represented in the semantic representation of the sentence (see VVLP, §4.4.2). One of the operators is directionals, and its place in the semantic representation of sentences like those in (40) is the key to their analysis. What is distinctive about *le–* is that it obligatorily takes a directional operator, and this operator is coindexed with an argument position in the LS which is obligatorily left lexically unfilled. The lexical entry for *le–* is given in (41).[7]

(41) <...< $\pm_{DIR}$ *TOWARDS SPEAKER*i <... [**do'** (x, Ø)] CAUSE [BECOME **have'** ($y_i$, z)] >...> *y* = lexically unfilled

If the value of the directional operator is *+TOWARDS SPEAKER*, then the speaker will be interpreted as the *y* argument, yielding sentences like (40a); If the value is *–TOWARDS SPEAKER*, then the addressee will be interpreted as the *y* argument, yielding sentences like (40b). Because the directional operator is specified in the lexical entry for *le–,* it is obligatory, and because the referential content of the *y* argument is deducible from the directional operator, the Completeness Constraint is satisfied. Thus, the interesting pattern in (40) can be readily accounted for within the RRG linking system.

### *4.4 The Dyirbal genitive construction*

It was mentioned that in addition to the patterns in (21) the Dyirbal verb *wugal* 'give' enters into a third pattern, which is exemplified in (42).

(42) Balam miraŋ–Ø baŋgun dyugumbi–ɽu wuga–n baŋul yaɽa–ŋu.
NM.ABS beans–ABS NM.ERG woman–ERG give–TNS NM.GEN man–GEN
'The woman [Actor] gave man's beans [Undergoer] (to him).'

7 It does not matter for this analysis if the directional operator is ±'TOWARD SPEAKER' or ±'TOWARD ADDRESSEE'.

In this pattern the theme is the undergoer in the absolutive case, and the recipient appears in the genitive case, which is the case of possessor NPs. The fact that the genitive NP occurs separated from the absolutive NP in (42) does not show that it is not an adnominal modifier, because Dyirbal freely allows discontinuous NPs. It appears, then, that, as in the Saliba directional construction, there are only two core arguments in this construction. Dixon notes that this is the most frequent pattern with *wugal,* and he goes on to make the following comment about the construction in (42):

> ... [understood: beans are given to person to whom they belong]. This kind of construction is consistent with the Dyirbalŋan's belief that something must belong 'by right'; there is very little spontaneous non–necessary giving, but a great deal of necessary giving, according to the people's habits of sharing most things with their relatives, etc. (1972: 237)

It is clear, then, that the possessor of the theme is also the recipient. This can be captured if we assume that the LS for *wugal* is as in (43).

(43) [**do'** (x, Ø)] CAUSE [BECOME **have'** ($y_i$, [**have'** (yi, z)])]
*y* may be lexically filled only once

Possessive NPs are represented in LS as '**have'** (x, y)', in which the possessor is the first argument of **have'** and the possessed N is the second argument; the head of the NP is underlined, e. g. *Dana's car is in the garage,* **be–in'** (garage, [**have'** (Dana, car)]) (see VVLP, §4.7.3). In (43) the recipient argument appears twice, once as the recipient of *wugal* 'give' and once as the possessor of the theme. It may be lexically instantiated in only one of these positions. If the argument position in the LS for *wugal* is filled, then the result is (44), which is the revised version of the LS in (21); both linking patterns are compatible with this LS.

(44) [**do'** (dyugumbil, O)] CAUSE [BECOME **have'** (yaɽa$_i$, [**have'** (**y**$_i$, miraŋ)])]

If the possessor argument within the LS of the NP is lexically filled, then the result is the LS in (45), which is linked to (42).

(45) [**do'** (dyugumbil, O)] CAUSE [BECOME **have'** ($y_i$, [**have'** (yaɽa$_i$, miraŋ)])]

As in the Saliba construction, the Completeness Constraint is satisfied, because the value of the *y* argument of *wugal* can be deduced via the coindexing with the possessor of *miraŋ* 'beans'. Thus, the three linking patterns of *wugal* 'give' in Dyirbal can be seen to follow from the LS in (43).

### *4.5 The Kayardild proprietive strategy*

Kayardild, an Australian language (Evans 2000), uses an interesting approach to expression possession which is also involved in the coding of three–place predicates. Kayardild uses the 'proprietive' case to expression possession, both in possessive predications and within NPs. This is illustrated in (46).

(46) a. Ngada kiyarrng–kuru maku–wuru.
1sgNOM two–PROP woman–PROP
'I have two wives.' [lit.: 'I am with two women.']
b. Niya karrngi–ja dun–kuru–ya maku–y.
3sgNOM keep–ACT husband–PROP–MLOC woman–MLOC
'He is living with a married woman.' [lit: 'he keeps a woman with a husband. ']

(46a) is a possessive predication which does not contain a possessive predicate overtly. The closest Indo–European analog to this would be the Russian possessive construction, e. g. *u menja kniga* [at me. GEN book. NOM] 'I have a book' [lit.: 'at me is a book']. But in the Russian construction, the possessed NP is the nominative 'subject', whereas in the Kayardild construction the possessor NP is the nominative 'subject'. Hence the linking in the two constructions is quite different; the two LSs are given in (47).

(47) a. Russian: **be–at'** (1sg, knig–)
b. Kayardild: **have'** (1sg, kiyarrng– maku–)

These are intransitive stative constructions, and following (6b2), their single macrorole would be an undergoer. In the Russian LS, *knig–* 'book' would be selected as undergoer and appear as the PSA in the nominative case, while the 1sg argument would appear as the object of the preposition *u* 'at', which assigns genitive case in this instance. If the same linking were to apply to the Kayardild LS, *kiyarrng– maku–* 'two women' would be the undergoer and appear in the nominative case (assuming the rules in (11)), and the 1sg argument would appear as a non–macrorole argument in the dative, yielding something like the German constructions with *gehören,* e. g. *Das Buch gehört mir* [the book. NOM belongs me. DAT] 'The book belongs to me'. But this is not what is found in the language at all. Rather, the first argument in the LS, the possessor, is selected as undergoer, which is a non–default selection in terms of the AUH. The second argument, *kiyarrng– maku–* 'two women', has been 'passed over' for undergoer selection, and in this situation a rule like (12a) comes into play. It appears that the proprietive in Kayardild is analogous to *with*/*of* in English and to the instrumental case in other languages in signaling a non–default undergoer selection in terms of Principle A of the AUH.

Similar considerations are relevant to the NP–internal use of the proprietive case. Consider the two possible realizations of the possessive NP LS **have'** (man, car) (see VVLP, §4.7.3). The default realization is that *car* is the

head of the possessive NP (analogous to undergoer selection in clausal structures), and if *car* is selected as head, then *man* appears in the genitive case, i. e. *the man's car*. It is also possible to select *car* as the head of the NP; this would be a non–default selection, and the passed over default choice for head would occur in a PP headed by *with,* i. e. *the man with the car*.[8] In Kayardild the equivalent of *car* in this NP would be in the proprietive case, which appears to be the only option in the language. Thus in both possessive predications like (46a) and possessive NPs like the one in (46b) Kayardild permits only what is considered the marked selection for undergoer or head from a cross–linguistic perspective, and like *with*/*of* in English and the instrumental case in other languages (e. g. Dyirbal, Croatian), the proprietive case marks what would be the default choice in terms of Principle A of the AUH.

Could one analyze Kayardild as a primary–object language, i. e. one that follows Principle B of the AUH? The proprietive case can also mark arguments of verbs of transfer and dispossession, and given its function in the constructions in (46), it may be predicted that it will be used to mark the lowest–ranking argument in the LS, which is not selected as undergoer. This is in fact the case, as the following examples attest.

(48) a. ... nguki–wuru wuu–ja dangka–y.
water–PROP give–ACT person–MLOC
'... [and I] will provide mankind with water.'
b. Marndi–ja dathin–a dangka–a wumburung–kur!
deprive–IMP that–NOM man–NOM spear–PROP
'Deprive that man of [his] spear! '

The LS in (48a) would be the basic transfer LS in (1), and the proprietive case marks the *z* argument, the lowest ranking one. In (48b), the LS would be like the one in (22), and again the proprietive marks the *z* argument. Thus, there seems to be a strong analogy between the use of the proprietive case in Kayardild and the use of *with*/*of* in English and the instrumental case in other languages with verbs of transfer and dispossession. And in terms of undergoer selection, at least in (48b), the language appears to follow Principle B of the AUH. However, Principle B does not explain the pattern in (46a); as noted above, this is a M–intransitive state predication, and the leftmost argument in the LS is selected as undergoer, and within the NP the leftmost argument is also selected as the head. A possible generalization across all of these forms is that when there is a two–place possessive state predication, be it in the clausal nucleus or within an NP, the leftmost argument is selected as the undergoer, and the non–macrorole (core) or non–head (NP) argument receives the proprietive case.

8 The technical formulation of the *with* assignment rule (VVLP: 381) covers both of the situations discussed in this section.

## 5.0 Conclusion

This paper has presented the Role and Reference Grammar approach to the analysis of three–place predicates, starting from English verbs of transfer, dispossession and removal and showing how it can apply to three–place predicates in a typologically wide range of languages, including constructions which do not superficially resemble canonical ditransitive constructions. The RRG linking system could handle all of the variations and still capture the typologically distinctive attributes of each of the constructions. This satisfies one of the main goals of RRG: to be a theory of universal grammar which can make strong cross–linguistic claims yet be flexible enough to capture and express the distinctive properties of different linguistic systems.

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# *Analiza tromjesnih predikata na temelju Gramatike uloga i referenci*

U ovome se radu predstavlja analiza tromjesnih predikata na temelju Gramatike uloga i referenci (engl. Role and Reference Grammar – RRG, Van Valin 2005). RRG ima leksički pristup analizi tromjesnih predikata i njihovih alternacija u kodiranju. Zanimljiv je raspon tipoloških varijacija s obzirom na to kako se tromjesni predikati u različitim jezicima morfosintaktički ostvaruju. To će biti u središtu zanimanja ove rasprave. RRG je jednorazinska teorija pa načelno isključuje analize koje uključuju dubinske sintaktičke prikaze i pravila pomicanja. Zato neki fenomeni vezani uz ove predikate predstavljaju zanimljiv izazov za jednorazinske teorije kao što je RRG.

U prvome su dijelu rada predstavljeni aspekti Gramatike uloga i referenci relevantni za analizu tromjesnih predikata. Među njima su teorija rečenične strukture poznata kao »slojevita rečenična struktura«, sustav leksičkoga razlaganja, teorija obavijesne strukture te teorija povezivanja semantike i sintakse. Drugi dio predstavlja analizu tromjesnih predikata u engleskome i jezicima istoga tipa. Dio su sustava povezivanja dvije semantičke makrouloge, Činitelj i Trpitelj, a za varijacije kao što su engleske alternacije tipa *John gave the book to Mary* i *John gave Mary the book* smatra se da odražavaju različit izbor Trpitelja u rečenici. Neobilježeni je Trpitelj u ovakvim jezicima stvar koja se daje, kao što je u prvoj rečenici, a obilježeni je Trpitelj primatelj, kao u drugoj rečenici. Ova analiza pokazuje koja su ključna obilježja te konstrukcije.

U završnome se dijelu rada proučava kako RRG analizira cijeli niz načina na koji se tromjesni predikati ostvaruju u različitim jezicima. Prvo je obrađen Kinyarwanda, u kojem bilo koji argument koji nije činitelj može postati subjekt pasivne rečenice. Nakon toga su obrađeni takozvani jezici s primarnim objektom, u kojima se tromjesni predikati ostvaruju tako da je neobilježeni Trpitelj primatelj. Treća je tema pomalo neobična strategija u oceanijskome jeziku Saliba. Glagoli u tome jeziku dopuštaju samo dva jezgrena argumenta, a primatelj se uvijek izražava direkcionalnim obilježivačem na glagolu. Četvrta je tema jedna konstrukcija u Dyirbalu, australskome aboridžinskom jeziku, u kojem je primatelj kodiran kao vlasnik stvari koja se daje. Na kraju je obrađen još jedan aboridžinski jezik, Kayardild, u kojem se posjedovanje i prijenos izražava »vlasničkim padežom« (engl. »proprietive case«). U njemu je vlasnik neobilježen, a to je suprotno indoeuropskim genitivnim konstrukcijama za izražavanje posjedovanja.

**Key words:** Role and Reference Grammar, three–place predicates, semantic representation, universal grammar

**Ključne riječi:** gramatika uloga i referenci, analiza predikata, semantička reprezentacija, univerzalna gramatika