

Chapter 5

Semantic Constraints on Argument Structure of Compound Verb

5.0. Introduction

In the previous two chapters I attempted to postulate the meaning component of the constituent members of CV sequences: V1s and V2s. A V1 unifies with only semantically compatible V2s (see chapter 3, section 3.2 for illustrations). The unification between V1 and V2 is therefore constrained at the level of semantics. Chapter 6 will formally define the *semantic constraint on periphrastic compounding*. The present chapter examines the argument structure of CV constructions. Argument structure¹ (henceforth A-St) is taken to be a list of arguments that are syntactically realized in the presence of the verb in a sentence. Although the A-St of a CV generally appears to be identical with that of its V1 associate, this chapter focuses on those instances in which this is not the case. No earlier work related to Indo-Aryan CV constructions has systematically addressed this issue. I argue that A-St modification under consideration is driven by the semantics of the resultant CV sequence. Scholars including Pinker (1989), Levin and Rappaport (1988) and Levin (1993) advocate the view that operations on semantic structure alone account for the majority of subcategorization alternation². These scholars have mainly worked on the English language

¹ This list serves two purposes in constraint-based lexicalist grammar. First the *binding theory* makes reference to *o-command* and *local o-command*, both defined in terms of obliqueness ordering on A-St list (see Pollard and Sag (1994) and (Sag and Wasow (1999)) for a detailed discussion on rank-based *binding theory*). Second, the *linking theory* imposes mapping constraints between the value of participant roles specified in the predicator's semantic structure and its arguments in A-St list (Davis (2001) formulated a comprehensive linking theory in HPSG framework).

² For instance, English verbs 'load' and 'spray' are well-known examples that exhibit *locative alternation*. The sentences in (1a) and (2a) exemplify the theme-object alternant and those in (1b) and (2b) the location-object alternant:

- 1a. Bob sprayed paints onto the wall
- b. Bob sprayed the wall (with paint)

in which the alternation that a verb undergoes does not display overt morphological marking. As far as the A-St alternation of Indo-Aryan CV sequences is concerned, I will identify a concrete factor responsible for the alternation in V1 semantics, which in certain cases revises the A-St of the resultant CV sequence, as will be demonstrated in this chapter. The triggering factor is identified to be the meaning component of the V2. When a V1 unifies with a V2, the resultant CV sequence acquires a meaning distinct from its V1 counterpart. The new semantic structure of the CV sequence might contain a set of semantic roles whose syntactic realization requires a different set of arguments than that of its V1 counterpart. As a result of this the A-St modification takes place formally. The whole idea is inspired by our fundamental assumption (see chapter 1 for illustrations) that a CV sequence is a lexical variant of its V1 counterpart.

This chapter is divided into the following subsections. An overview of the chapter is presented in section 1. Section 2 reviews the works of Pinker, Dowty and Goldberg who studied the argument structure alternation of various types of verbs in English such as *location alternation*, *middle construction* and so on. Section 3 records cases from Bangla where the A-ST of a CV sequence is not identical with that of its V1 constituent. In section 4, I attempt to give an account of argument structure modification visible in Bangla CV sequences. Finally a set of linking types is postulated in section 5. Each of these types specifies a constraint that holds between the syntactic arguments on the A-St of verbs and the values of proto-roles represented inside the semantic structure associated with them.

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- 2a. The robbers loaded the money into their bags
 - b. The robbers loaded their bags (with the money)

Pinker formalizes the ‘locativization’ semantic operation in the following way: this process takes as input the variant of ‘load’ in (1a) and ‘spray’ in (2a) in which the ACTOR act on the “theme”. The output is the variant of the verbs specified in (1b) and (2b) in which the “theme” moves to a location due to a direct effect of the ACTOR’s action.

5.1 Overview

Let us start our discussion with a class of intransitive verbs that licenses an experiencer argument. This argument is realized as the subject as illustrated in (1a):

- 1a. *are chele-ṭa oto ghabra-cche kæno?*
Oh boy-cl so much become nervous-3 pr cont why
‘Why is the boy getting so nervous?’

- b. *ritu chele-ṭa-ke ghabr-e di-lo*
Ritu boy-cl-obj become nervous-cp give-3 pt
‘Ritu perplexed the boy’

- c. **ritu chele-ṭa-ke ghabra-lo*
Ritu boy-cl-obj become nervous-3 pt
‘Ritu perplexed the boy’

When the verb *ghabrano* ‘become nervous’ unifies with the V2 *deqa* ‘give’, the resultant CV licenses an extra argument, the causer. This argument occupies the subject position (Ritu in (1b)). The experiencer argument of V1 (*chele-ṭa* ‘the boy’ in (1a)) is demoted to the object position (*cheleṭa-ke* ‘to the boy’ in (1b)). Thus the CV *ghabre deqa* ‘perplex’ becomes dyadic, while the corresponding V1 *ghabrano* ‘become nervous’ is actually a monadic verb and it does not license two arguments. Therefore the sentence in (1c) is ill-formed.

The V2 *deqa* ‘give’ appears to be a plausible source for this extra argument. This assumption calls for a compositional analysis of the A-St of CVs. The constraint is stated in (A):

- A. The A-St of a CV sequence is the summation of that of its constituent Vs (V1 and V2).

However a system based on *compositionality* fails to explain the following case where the unification of V1 and V2 results in a reduced number of arguments in the A-St of the resultant CV sequence:

Verbs such as *peša* ‘grind’, *dhoqa* ‘wash’ are basically dyadic. When these verbs combine with the V2 *jaqa* ‘go’³, the resultant CV becomes unaccusative and licenses only one argument as shown in (2b).

2a. *ami hamandista-ε mɔšla piš-i*
 I mortar and pestle-loc spices grind-1pr
 ‘I grind spices in mortar and pestle’

b. *hati-r pae-r tɔla-ε mee-ti-r matha piš-e gæ-lo / *piš-lo*
 elephant-gen feet-gen under-loc girl-cl-gen head grind-cp go- 3pt grind-3 pt
 ‘The girl’s head crushed under the elephant’s feet’

The alternative constraint stated in (B) gives an account of the above A-St modification:

B. The V2 is the sole determiner of the number of arguments licensed in a CV.

As stipulated in the constraint, a monadic V2 suppresses one of the arguments of a transitive V1 when the two Vs unify as illustrated in (2). This constraint also explains the data presented in (1). Since the V2 variant of the verb *deqa* ‘give’ is a transitive verb the CV sequence *ghabre deqa* ‘perplex’ licenses two arguments as shown in (1b). However this strategy allegedly results in the proliferation of the number of homophonous V2s in the grammar because many V2s unify with both intransitive and transitive verbs. For example, both the intransitive verb *haša* ‘laugh’ and the transitive verb *dækha* ‘see’ select the V2 *phæla* ‘drop’. *heše phæla* ‘laugh inadvertently’ is an intransitive CV and *dekhe phæla* ‘see-

³ In chapter 3, I postulated two variants of V2 *jaqa* ‘go’, one of them expressing extendedness and the other representing the *change of state relation*. In this chapter I am referring to the second variant of *jaqa* ‘go’.

cp drop” is a transitive one. The only way-out left within this approach is to postulate two lexical entries for the V2 *phæla* ‘drop’, one monadic and the other dyadic.

In another approach the role of V2s in determining the A-St of the CVs is stipulated in a disjunctive manner. V2s are classified into two groups depending on whether their unification with V1 results in a revision of the A-St of the resultant CV structure or not. The constraint stipulates:

- C. Each class of V2 is associated with a *compounding mechanism*:
 - a. For class I, the V2 determines through *compounding* the number of arguments of the resultant CV
 - b. For class II, the CVs inherit the A-St of the V1 counterpart

The constraints stated in (A), (B) and (C) attempt to compose the A-St of a CV sequence independently of the meanings of the individual constituents or the resultant construction as a whole. However, there might be a difference in what the constituent Vs and the resultant CV can take as syntactic dependents, which cannot be accounted for at the level of syntax alone. Let us consider, for example, the following case: The sentence in (3a) shows that the transitive verb *pɔʔa* ‘read’ allows a post-positional *kache* ‘near’-phrase (underlined) while the CV sequence *poʔe deʔa* ‘read out for somebody’ in (3c) does not:

- 3a. *ritu ma-er kache ramaʔon poʔ-lo*
 Ritu mother-gen near Ramayan read-3 pt
 ‘Ritu took her mother’s help to read the Ramayan’
- b. *ritu rɔma-ke uil-ta poʔ-e di-lo*
 Ritu Ramaa-obj will-cl read-cp give-3 pt
 ‘Ritu read out the will to Ramaa (for her benefit)’

c. *ritu *ma-er* _____ *kache* *rɔma-ke* *uil-ʔa* *por-e* *di-lo*

Ritu mother-gen near Ramaa-obj will-cl read-cp give-3 pt

‘Ritu took her mother’s help to read out the will to Ramaa (for her benefit)’

The argument (*ma* ‘mother’) of the post-position *kache* ‘near’ in (3a) is an associate who helps the agent, Ritu, to accomplish her goal. Verbs such as *khaḡa* ‘eat’, *ʃekha* ‘learn’, *pɔra* ‘read’ which imply that the result of the action goes to the actor fits into the environment of the *kache* ‘near’-phrase. In (3a), for example, Ritu takes help from her mother in the reading and understanding of the *Ramayan*. On the other hand, the semantics of the CV sequence *porə deḡa* ‘read out for somebody’ suggests that the actor reads out something for the benefit of others (for example, Ramaa in (3b)). Therefore *porə deḡa* ‘read out for somebody’ does not fit into the context of the *kache* ‘near’-phrase. The aforementioned constraints, however, do not rule out sentences such as (3c).

I maintain that the argument taking capacity of CVs, and for that matter of any verbal predicate, is semantically conditioned. The next section reviews a number of works that advocate a similar view.

5.2 Review

Verbs that often show alternation in argument structure may have more than one semantic alternant and each of them yields a new argument structure for the verb. Polysemy in verbs is taken to be the basis of argument structure alternation. Several scholars including Pinker (1989), Levin and Rappaport (1988), Levin (1993), who have primarily worked on the English verbal system, maintain this position. Dowty (2001), on the other hand, argues that there is nothing distinctive about the lexical semantics of an “alternating” verb that triggers the alternation. Alternation consists in the application of a lexical rule to the base form of a verb that changes subcategorization of the verb and simultaneously applies a semantic function to the original meaning of the verb yielding a meaningful result. If the semantic output is anomalous, alternation is blocked. In this way Dowty distinguishes “alternating” verbs from “non-alternating” ones in English.

Goldberg’s (1995) constructional theory, in contrast, does not associate the difference in A-St configuration with the semantics of the alternating verbs alone. The theory recognizes the existence of independent *constructions* in the language. These constructions are semantically contentful (see chapter 3 for more discussion on *construction*). For example, the resultative construction implies that “X CAUSES Y to BECOME Z”. Systematic differences in meaning between occurrences of the same verb in different constructions are attributed directly to differences in constructions. ‘Construction can add roles not contributed by verb’ (Goldberg 1995, p. 54).

Even though constructional grammar identifies the existence of some entity in abstraction (“constructions”), one can unequivocally conclude that all these approaches seem to have been somewhat misled by the morphological poverty of English. There are many alternations such as *locative alternation*, *middle alternation* and *causative/inchoative alternation* that are lexically expressed in English, which have overt morphological reflexes in other languages. German, for example, is one language in which one alternant of the *locative alternation* bears a prefix. In Bangla, *causative/inchoative alternation* is morphologically expressed as shown in the following illustrations. The inchoative verb *cōṭa* ‘become angry’ in (4a) is causativized in (4b):

4a. *lok-ṭa chele-der cōṣobbho bæbohar-e cōṭ-lo*
 man-cl boy-gen-cl indecent behavior-loc become angry-3 pt
 ‘The man got angry at the indecent behavior of the boys’

b. *chele-ra lok-ṭa-ke cōṭ-a-lo*
 boy-cl man-cl-obj become angry-caus “enrage”-3 pt
 ‘The boys enraged the man’

The infix *-a-* in *cōṭ-a-lo* ‘enraged’ is the causative marker in Bangla. My contention is that the A-St modification under consideration does not result from an ad hoc lexical rule or any pseudo-syntactic mechanism that directly alters the A-St of the V1. Rather, when a V1

selects a V2, the unification brings about a modification in the semantic structure of the resultant CV which in certain cases has a revised argument-structure. The following subsection describes cases where the A-ST of a CV sequence is not a copy of that of its V1 constituent.

5.3 A-St of CV not always Identical to V1 Constituent

Case 1:

The verb *gɔɾa* ‘build’ is transitive. It takes two arguments as shown in (5a). When the verb *gɔɾa* ‘build’ unifies with the V2 *oɥha* ‘rise’ the resultant CV becomes unaccusative:

5a. *nodi-r dudhar-e šobbho manuš adhunik šɔhor gor-eche*
 river-gen two sides-loc civilized human being modern city build-3 pr pft
 ‘Civilized human beings have built modern cities on the two banks of the river’

b. *nodi-r dudhar-e adhunik šɔhor gor-e uɥh-eche / *gor-eche*
 river-gen two sides-loc modern city build-cp rise-3pr pft build-3 pr pft
 ‘Modern cities have grown on the two banks of the river’

c. **nodi-r dudhar-e šobbho manuš adhunik šɔhor gor-e uɥh-eche*
 river-gen two sides-loc civilized human being modern city build-cp rise-3pr pft
 ‘Civilized human beings have grown modern cities on the two banks of the river’

The argument associated with the agent role (for example, *šobbho manuš* ‘civilized human being’ in (5a)) is forbidden in the context of *gor-e oɥha* “build-cp rise” ‘grow’ and the *incremented theme* (for example *adhunik šɔhor* ‘modern city’ in (5a)) is promoted to the subject position. Interestingly I have found no other dyadic verb that undergoes an A-St modification, like the verb *gɔɾa* ‘build’, when combined with the V2 *oɥha* ‘rise’.

Case 2:

This case is quite similar to the one illustrated in (5). Transitive verbs such as *peša* ‘grind’ and *dhoḡa* ‘wash’ become monadic when they select V2 *jaḡa* ‘go’ as shown in (6)b:

6a. *ami hamandista-ḡ mḡšla piš-i*

I mortar and pestle-loc spices grind-1pr
‘I grind spices in mortar and pestle’

b. *hati-r pae-r tḡla-ḡ mee-ṭi-r matha piš-e gæ-lo*

elephant-gen feet-gen under-loc girl-cl-gen head grind-cp go-3 pt
‘The girl’s head got smashed under the elephant’s feet’

a. *ami bašonpḡtro dhu-lam*

I utensils wash- 1 pt
‘I washed utensils’

b. *brišṭi-r jḡl-e šḡb rḡḡ dhu-e gæ-lo*

rain-gen water-loc all color wash-cp go-3 pt
‘All colors washed away in rain water’

Again very few transitive verbs belong to this class. In fact, I could find only one more transitive verb that shows similar behavior. The verb is *gūrono* ‘crush, grind, pulverize’. There exists, however, a large number of Bangla verbs that exhibit both transitive and unaccusative alternation as exemplified in (7) - (10):

7a. *ritu glaš-ṭa bhaḡ-lo*

Ritu glass-cl break-3 pt
‘Ritu broke the glass’

b. *tak theke por-e glaš-ṭa bhaṅ-lo*
shelf from fall-cp glass-cl break-3 pt
‘The glass fell from the shelf and broke’

8a. *ritu dora-ṭa khul-lo*
Ritu door-cl open-3 pt
‘Ritu opened the door’

b. *dora-ṭa khul-lo kikore?*
door-cl open-3 pt how
‘How did the door open?’

9a. *ritu balti-te jol bhor-che*
Ritu bucket-loc water fill-3 pr cont
‘Ritu is filling the bucket with water’

b. *amar mon khuši-te bhor-eche*
I-gen mind happiness-loc fill-3 pr pft
‘My mind has filled with happiness’

10a. *ritu duhat-e mukh dhak-lo*
Ritu two hands-loc face cover-3 pt
‘Ritu covered (her) face with (her) two hands’

b. *akaš megh-e dhek-eche*
sky cloud-loc cover-3 pr pft
‘The sky was overcast with cloud’

The verbs *bhaja* ‘break’, *khola* ‘open’, *bhōra* ‘fill’ and *dhaka* ‘cover’ in (7a), (8a), (9a) and (10a) license two arguments, an actor and an entity undergoing change of state. The

sentences in (7b), (8b), (9b) and (10b), on the other hand, present the unaccusative variant of the verbal predicate, in which the theme argument is promoted to the subject position. Only the unaccusative alternant selects the V2 *jaqa* ‘go’ as shown in (7c), (8c), (9c) and (10c):

7c. *tak theke por-e glaš-ṭa bheṅ-e gæ-lo*
 shelf from fall-cp glass-cl break-cp go-3 pt
 ‘The glass fell from the shelf and broke’

8c. *dorja-ṭa khul-e gæ-lo kikore ?*
 door-cl open-cp go-3 pt how
 ‘How did the door get open?’

9c. *amar mon khuši-te bhor-e gæ-che*
 I-gen mind happiness-loc fill-cp go-3 pr pft
 ‘My mind has been filled with happiness’

10c. *megh-e akaš dhek-e gæ-che*
 cloud-loc sky cover-cp go-3 pr pft
 ‘The sky has been overcast with cloud’

Case 3:

The data illustrated in (1) is repeated in (11):

11a. *are chele-ṭa oṭo ghabṛa-cche kæno?*
 Oh boy-cl so much become nervous-3 pr cont why
 ‘Why is the boy getting so nervous?’

b. *ritu chele-ṭa-ke ghabṛ-e di-lo*
 Ritu boy-cl-obj become nervous-cp give-3 pt
 ‘Ritu perplexed the boy’

c. *ritu chele-ṭa-ke **ghabṛa-lo**

Ritu boy-cl-obj become nervous-3 pt

‘Ritu perplexed the boy (intended reading)’

12a. ritu porikkha-ḡ bhalobhabe-i **utr-eche**

Ritu examination-loc successfully-emp pass-3 pr pft

‘Ritu has successfully passed the examination’

b. bhOgoban ebar-er moto porikkha-ḡ **utr-e da-o**

god this time-gen prt exam-loc pass-cp give-2 pr imp

‘Oh God, please get me through the exam this time’

c. *bhOgoban ebar-er moto porikkha-ḡ **utro-ḡ**

god this time-gen prt examination-loc pass- 2 pr imp

‘Oh God, please get me through the exam this time (intended reading)’

Verbs such as *comkano* ‘be startled’, *bhṛkano* ‘become scared’ belong to this class.

Case 4:

The following set of transitive V1s licenses two arguments:

13a. ritu æk-ṭa šari **kin-lo**

Ritu one-cl saree buy 3 pt

‘Ritu bought a saree’

b. ritu ækṭa baṛi **khūj-chilo**

Ritu one house look for- 3 pt cont

‘Ritu was looking for a house’

c. *ritu baranda-e ækta doṛi taṅa-lo*
 Ritu veranda-loc one rope hang up-3 pt
 ‘Ritu hung up a rope in the veranda’

When these verbs select the V2 *deḡa* ‘give’, the resultant CV allows three arguments as shown in (14a), (14b) and (14c):

14a. *ritu rᵒma-ke æk-ṭa šari kin-e di-lo*
 Ritu Ramaa-obj one-cl saree buy-cp give-3 pt
 ‘Ritu bought Ramaa a saree’

a’. **ritu rᵒma-ke æk-ṭa šari kin-lo*
 Ritu Ramaa-obj one-cl saree buy-3 pt
 ‘Ritu bought Ramaa a saree’

b. *ritu rᵒma-ke æk-ṭa baṛi khūj-e di-lo*
 Ritu Ramaa-obj one-cl house search-cp give-3 pt
 ‘Ritu found a house for Ramaa’

b’. **ritu rᵒma-ke æk-ṭa baṛi khūj-lo*
 Ritu Ramaa-obj one-cl house search-3 pt
 ‘Ritu searched a house for Ramaa’

c. *ritu rᵒma-ke chad-e æk-ṭa doṛi taṅi-e di-lo*
 Ritu Ramaa-obj terrace one-cl rope hang up-cp give-3 pt
 ‘Ritu hung up a rope in the terrace for Ramaa’

c’. **ritu rᵒma-ke chad-e æk-ṭa doṛi taṅa-lo*
 Ritu Ramaa-obj terrace one-cl rope hang up-3 pt
 ‘Ritu hung up a rope in the terrace for Ramaa’

The underlined word represents the extra argument that appears when these V1s combine with the V2 *deqa* ‘give’. I will attempt to give an account of the A-St modification that I recorded in this section.

5.4 Modifications in the Semantics of Bangla CV Sequences

When a V1 unifies with a V2, the latter contributes semantic nuances to the overall meaning of the resultant CV due to which the meaning of the CV becomes subtly distinct from that of its V1 constituent. As proposed in the introductory section, the semantic representation of the resultant CV might contain a set of semantic roles whose syntactic realization requires a different set of arguments than what is licensed by its V1 associate. In this section I will examine how the semantics of a compound verb gets modified by the semantic structure of its V2 constituent.

5.4.1 As mentioned in chapter 3, a variant of the V2 *deqa*⁴ ‘give’ adds the following semantic constraints to the overall meaning of any compound verb of which it forms a part:

1. The *actor* is constrained to be realized as the subject of the resultant CV, and
2. The effect of the action is directed towards an *affected being* other than the *actor*

In my analysis the expression, *affected entity*, refers to entities that are either *causally affected* or *benefited* from the event. Affecting an entity causally involves *physical or mental change of state* in the entity. An actor, on the other hand, does not act directly upon a beneficiary to induce some change in it. But the beneficiary is *affected* by the result of the event predicated by the verb. Verbs of the following two classes (class 1 and class2) license an argument that denotes the *causally affected entity*.

⁴ In chapter 3, I argued that V2 *deqa* ‘give’ is polysemous in nature.

Class1:

<i>oškano</i> ‘instigate’	<i>dabano</i> ‘supress’	<i>kamrano</i> ‘bite’	<i>gōtano</i> ‘thrust’
<i>cɔɾano</i> ‘slap’	<i>bɔka</i> ‘scold’	<i>bigrono</i> ‘spoil’	<i>pōta</i> ‘implant’
<i>thokrano</i> ‘prick’	<i>ācɾano</i> ‘scratch’	<i>mɔckano</i> ‘twist’	<i>mɔɟkano</i> ‘snap’
<i>chēra</i> ‘tear’	<i>capɾano</i> ‘pat’	<i>hākano</i> ‘drive away’	<i>bhaŋa (trans)</i> ‘break’
<i>thætlano</i> ‘smash’	<i>mɔla</i> ‘pull one by the ear’		

Figure 1 represents the semantic structure of the verb *oškano* ‘instigate’ which belongs to class1:

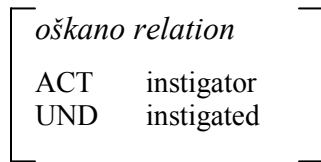


Figure: 1

Verbs of class 1 represent a simple event of causation. The semantic type *oškano relation* in figure 1, for instance, denotes an event in which an instigator is causally affected an entity which is denoted by the value of the proto-role attribute UND. Verbs of class 2, on the other hand, contain a subevent which necessarily follows the main event. The following verbs belong to class2:

Class 2:

<i>khæpano</i> ‘irritate’	<i>cɔɟano</i> ‘enrage’	<i>bhɔrano</i> ‘fill’	<i>tatano</i> ‘instigate’
<i>phaɟano</i> ‘explode’	<i>janano</i> ‘inform’	<i>poɾano</i> ‘burn’	<i>bācano</i> ‘rescue, save’
<i>lagano</i> ‘stick’	<i>harano</i> ‘defeat’	<i>jalano</i> ‘inflamm, light’	<i>nebano</i> ‘extinguish’
<i>bhagano</i> ‘drive away’	<i>jagano</i> ‘awake’	<i>jetano</i> ‘cause to win’	<i>dumɾono</i> ‘fold’
<i>paɟhano</i> ‘send’	<i>khædano</i> ‘drive away’		<i>šoɟano</i> ‘cause to lie down’
<i>cobano</i> ‘plunge’	<i>nabano</i> ‘bring something down’	<i>bholano</i> ‘charm, comfort’	
<i>thamano</i> ‘stop, bring to a halt’	<i>hɔɟano</i> ‘drive away’	<i>pherano</i> ‘bring someone back’	
<i>dhokano</i> ‘penetrate, cause to enter’	<i>phāšano</i> ‘cause trouble for others’		

The semantic representation of the verbs *c ʔano* ‘enrage’ and *dhokano* ‘cause to enter’ are shown in figure 2 and figure 3 respectively:

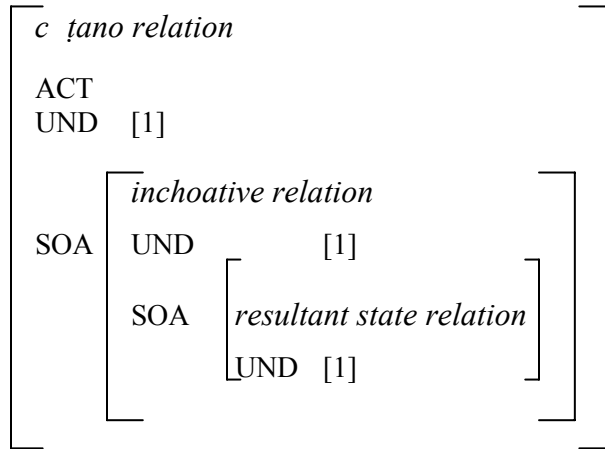


Figure: 2

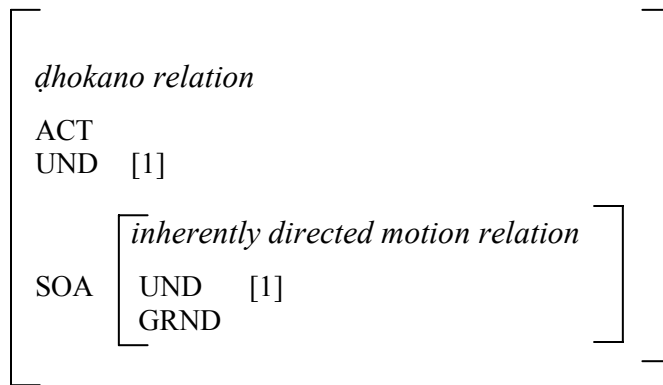


Figure: 3

The verb *c ʔano* ‘enrage’ (see figure 2) denotes an event type in which a causer stimulates an affected entity to a point that he/she becomes angry. The value of ACT and UND denotes the causer or stimulant and the affected entity respectively. The event is accompanied with a subevent (the value of SOA) that denotes the resulting state caused by the main event. The resultant state entails that the affected entity arrives at a state of anger. Similarly the

representation of the verb *dhokano* ‘cause to enter’ in figure 3 embeds a semantic relation of the type *inherently directed motion relation*. The verb entails that a causer (the value of ACT) forcefully enters an affected entity (the value of UND) into the specified location. The location is denoted by the value of the embedded proto-role attribute GRND.

From the foregoing discussion we understand that the semantics of V1s of class 1 and 2 are subtypes of *cause relation*. They contain a top-level ACT and UND proto-role attributes whose value denotes a causer⁵ and an affected entity respectively. The semantics of the V2 *deqa* ‘give’ also falls in this category⁶. When verbs of class 1 and class 2 select V2 *deqa* ‘give’ the semantic structure of the resultant CV does not, therefore, require any revision while undergoing *periphrastic compounding* with the V2 *deqa* ‘give’.

The case is not so simple when the V2 *deqa* ‘give’ unifies with verbs of class 3. The semantics of V2 revises the participant relation defined within the semantic structure of the V1s. Class 3 contains the following verbs:

Class 3:

otrano ‘qualify, pass’ *ghabrano* ‘become nervous’ *cɔmkano* ‘startle’
bhɔrkano ‘frighten’

Verbs of class 3 denote an event type in which the participant is an experiencer. I assume the semantics of these verbs are the subtype of *und relation* as shown in Figure 4:

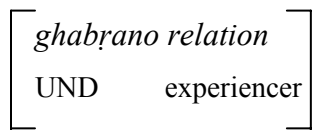


Figure: 4

⁵ As I maintained in the previous chapter, the *cause relation* reflect the idea of Talmy’s *force-dynamic relation*.

⁶ Here we must remember that the representation of semantics of the simple verb *deqa* ‘give’ and its V2 variant are related although not identical. I assume that both variants share the top-level semantic structure with having an ACT and UND proto-role attribute. However the V2 does not entail the semantics of *change of possession relation*, which is the value of top-level SOA within the semantic structure of full-verb *deqa* ‘give’.

When the verb *ghabrano* ‘become nervous’ selects the V2 *deqa* ‘give’, the resultant CV *ghabre deqa* ‘perplex’ licenses two semantic slots: one for the causer (or stimulant) and the other for the participant affected by the event. The semantics of the compound verb predicator is, therefore, a subtype of *act-und relation* (see Figure 5):

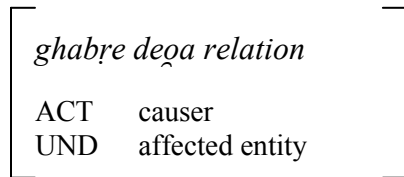


Figure: 5

As noted earlier (see section 5.1), the experiencer argument of verbs of class 3 is realized as the subject when these verbs occur as a simple verb within a sentence. The same participant is realized as an object when these verbs undergo periphrastic compounding with the V2 *deqa* ‘give’ (see sentences in (11) and (12) for illustration). This issue is addressed in section 5.5 below where I demonstrate mapping constraints that link syntactic arguments and semantic roles.

Class 4 includes the following verbs:

Class 4:

<i>banano</i> ‘build’	<i>kena</i> ‘buy’	<i>khōja</i> ‘search’	<i>rādha</i> ‘cook’	<i>bhaja</i> ‘fry’
<i>ṭañano</i> ‘hang up’	<i>kaṭa</i> ‘cut (vegetables)’	<i>āka</i> ‘draw’	<i>ana</i> ‘bring’	<i>kōra</i> ‘do’
<i>koṛa</i> ‘scrape’	<i>koṛano</i> ‘collect’	<i>gōra</i> ‘build’	<i>chōka</i> ‘plan’	<i>ṭoka</i> ‘copy’
<i>joṭano</i> ‘collect’	<i>paṛa</i> ‘bring down’	<i>bacha</i> ‘select’	<i>lekha</i> ‘write’	
<i>kucono</i> ‘cut into pieces’	<i>koṭa</i> ‘cut (vegetables)’	<i>maja</i> ‘wash (utensils), scrub’		

This list includes all dyadic verbs. Their semantic types are regarded as the subtype of *effect relation*. Only the semantics of V1 *kena* ‘buy’ is a subtype of *possession relation*. The *effect relation* contain The top-level event of these verbs excluding *kena* ‘buy’ include two

participants that fill the semantic slots of ACT and UND as shown in the following semantic structure representing *banano* ‘build’ (Figure 6):

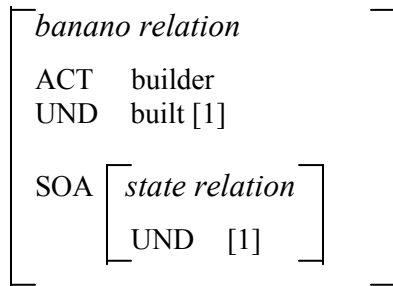


Figure: 6

However, the UND argument does not entail being causally affected or benefited. I argued in the previous chapter that the value of the top-level UND for the *effect relation* experiences a change of state (see subsection 4.3.3.2.1). The embedded subevent denotes the ‘changed state’ of the UNDERGOER. The UND within the value of SOA and the top-level UND are structure-shared as shown by co-indexation in figure (6). The value of the top-level UND for the verbs *banano* ‘build’, *rādha* ‘cook’, *bhaja* ‘fry’, *gōra* ‘build’, *āka* ‘draw’ is further characterized as ‘incremental theme’. When these verbs select the V2 *deḡa* ‘give’, the semantic structure of the resultant CV acquires a semantic slot for beneficiary. This entailment is also associated with the UND proto-role attribute as illustrated in figure 8.

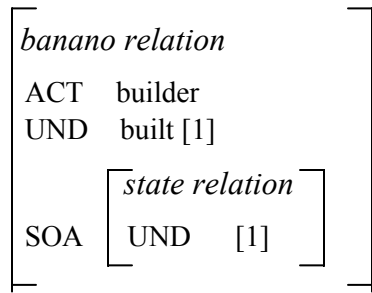


Figure: 7

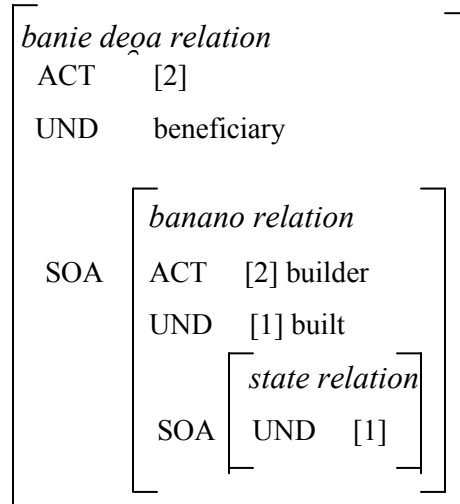


Figure: 8

The feature structure of *possession relation* is assumed to have no top-level UND proto-role attribute as shown in figure 9. When this verb unifies with the V2 *deqa* ‘give’, the resultant structure acquires an extra layer of event similar to what was represented in figure 8. Thus the semantic structure of *kine deqa* “buy-cp give” is presented in figure 10 below:

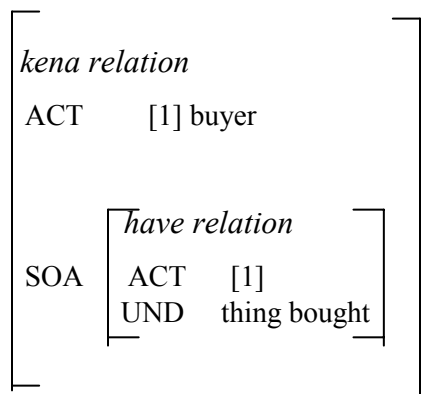


Figure: 9

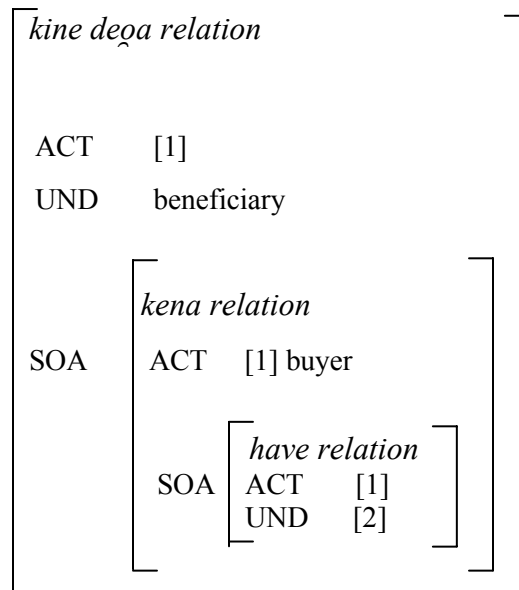


Figure: 10

Interestingly all dyadic verbs listed in class 4 become ditransitive when they select V2 *dega* ‘give’. The argument mapped onto the beneficiary role occurs in the indirect object position in a sentence and bears the objective case desinence *-ke*. Unlike verbs of class 3, the positions of the other arguments of class 4 verbs do not alter.

5.4.2 Just as in English, many verbs in Bangla have identical morphosyntactic forms for both transitive and intransitive alternation as exemplified in (15), (16) and (17). The pairs represent *causative/inchoative alternation*.

15a. *ritu glaš-ṭa bhay-lo*

Ritu glass-cl break-3 pt

‘Ritu broke the glass’

b. *tak theke por-e glaš-ṭa bhay-lo*

shelf from fall-cp glass-cl break-3 pt

‘The glass fell down from the shelf and broke’

16a. *rag-er matha-ḡ lakkhon šurponakha-r nak keṭ-e take šasti di-lo*

anger-gen head-loc Laksman Surponakha-gen nose cut-cp her punishment give-3 pt

‘In a fit of anger Laksman cut Surponakha’s nose and thus punished her’

b. *rasta-ḡ por-e gi-e ritu-r hat keṭ-eche*

road-loc fall-cp go-cp Ritu-gen hand cut-3 pr pft

‘Ritu fell on the road and got her hand cut’

17a. *rtiu ghor-er dorja eṭ-e bhetore boš-e roḡ-lo*

Ritu room-gen door lock up-cp inside sit-cp remain-3 pt

‘Ritu locked up the door and sat inside the room’

- b. *kibhabe æto jore dɔrja-ʈa ǎʈ-lo ?*
 how so tightly door-cl get fasten- 3 pt
 ‘How did the door fasten so tightly?’

The transitive alternant of verbs in (15a), (16a) and (17a) licenses an actor who acts upon an affected entity. The participant entailed to be the actor is realized as the subject. The affected entity, for instance *glaš* ‘glass’ in (15a), *šurponɔkha-r nak* ‘Surponakha’s nose’ in (16a) and *dɔrja* ‘door’ in (17a) is instantiated as the object. The *affected entity* is realized as the subject when the sentences contain the intransitive variant of the verbs as illustrated in (15b), (16b) and (17b). These intransitive verbs are called *unaccusative* verbs.

Sometimes causative verbs are morphologically related to their non-causative variants as shown in the following pair of sentences:

- 18a. *chele-ra buro lokta-ke khæpa-lo*
 boy-cl old man-cl irritate-3 pt
 ‘The boys irritated the old man’

- b. *buro lok-ʈa khɛp-lo*
 old man-cl get angry- 3 pt
 ‘The old man got angry’

- 19a. *majhi nodi-te nouka bhaša-lo*
 boatman river-loc boat launch-3 pt
 ‘The boatman launched the boat in the river’

- b. *nodi-te nouka bhaš-lo*
 river-loc boat float-3 pt
 ‘The boat floated in the river’

20a. *ukil-er ækṭa bhul doṣi-ke bāca-lo*
 advocate-gen one mistake accused-obj save- 3 pt
 ‘The mistake committed by the advocate saved the accused’

b. *ukil-er ekṭa bhule doṣi bāc-lo*
 advocate-gen one mistake-loc accused escape-3 pt
 ‘The advocate committed one mistake and as a result of that the accused
 escaped (punishment)’

I have already shown at the beginning of this section that the transitive counterpart of verbs illustrated in (15a–20a) select the V2 *deḡa* ‘give’. These CVs are exemplified in the sentences in (21a–25a). I will now examine the semantic constraint associated with the V2 *jaḡa* ‘go’. The V2 *jaḡa* ‘go’ is selected by the intransitive alternant as shown in (21b–25b):

21a. *tomar bhalobaṣa amar jibon bodl-e di-lo (/ *bodl-e gæ-lo)*
 you-gen love I-gen life change-cp give-3 pt (change-cp go-3 pt)
 ‘Your love changed my life’

b. *tomar bhalobaṣa-ḡ amar jibon bodl-e gæ-lo (/ *bodl-e di-lo)*
 you-gen love-loc I-gen life change-cp go- 3 pt (change-cp give-3 pt)
 ‘My life has been changed in your love’

22a. *rtiu ghɔr-er dɔrja ẽṭ-e di-e (/ *ẽṭ-e gi-e) bhetore boṣ-e roi-lo*
 Ritu room-gen door lock up-cp give-cp (lock up-cp go-cp) inside sit-cp remain-3 pt
 ‘Ritu locked up the door and sat inside the room’

b. *kibhabe æto jore dɔrja-ṭa ẽṭ-e gæ-lo (/ *ẽṭ-e di-lo) ?*
 how so tightly door-cl get stuck- 3 pt go-3 pt (lock up-cp give-3 pt)
 ‘How did the door get stuck so tightly?’

- 23a. *rag-er matha-ḡ lɔkkhon šurponɔkha-r nak keṭ-e di-e*
 anger-gen head-loc Laksman Surponakha-gen nose cut-cp give-cp
 (/ *keṭ-e gi-e) take šasti di-lo
 (cut-cp go-cp) she-obj punishment give-3 pt
 ‘In a fit of anger Laksman cut Surponakha’s nose and thus punished her’
- b. *rasta-ḡ por-e gi-e ritu-r hat keṭ-e gæ-lo (/ *keṭ-e di-lo)*
 road-loc fall-cp go-cp Ritu-gen hand cut-cp go-3 pt (cut-cp give-3 pt)
 ‘Ritu fell on the road and got her hand cut’
- 24a. *biru-r hoṭhokarita amar cokh khul-e di-eche (/ *khul-e gæche)*
 Biru-gen impulsiveness I-gen eye open-cp give-3 pr pft (open-cp go-3 pft)
 ‘Biru’s impulsiveness has opened my eyes’
- b. *biru-r hoṭhokarita-ḡ amar cokh khul-e gæche (/ *khul-e di-eche)*
 Biru-gen impulsiveness-loc I-gen eye open-cp go-3 pft (open-cp give-3 pr pft)
 ‘Due to Biru’s impulsiveness my eyes have been opened’
- 25a. *majhi nodi-te nouka bhaši-e di-lo (/ *bhaši-e gæ-lo)*
 boatman river-loc boat launch-cp give-3 pt (launch-cp go-3 pt)
 ‘The boatman launched the boat in the river’
- b. *nodi-te nouka bheš-e gæ-lo (/ *bheš-e di-lo)*
 river-loc boat float-cp go-3 pt (launch-cp give-3 pt)
 ‘The boat drifted away in the river’

I discussed in chapter 3 that the V2 *jaḡa* ‘go’ has two alternants. The semantic type of the V2 *jaḡa* ‘go’ that I am concerned here is the subtype of the relation type *change of state relation* (which is a subtype of *und relation*). The *jaḡa-relation* is presented in figure 11:

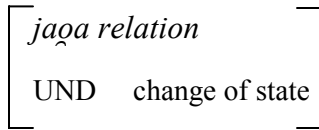


Figure: 11

The semantic types of the intransitive counterpart of the verbs presented in (15b – 20b) are also subtypes of *und relation*. Therefore those verbs are semantically compatible with the V2 *jaḡa* ‘go’ and they can unify with this V2. As a consequence, well-formed CVs are generated as shown in (21b – 25b).

In this section I examined a set of verbs that have polysemous existence in the language. I have shown that their unification with the V2s *deḡa* ‘give’ and *jaḡa* ‘go’ resolve the ambiguity. The CV variants V1+*deḡa* ‘give’ and V1+*jaḡa* ‘go’ represent the causative and the non-causative alternant respectively. The next subsection discusses a more specific case where the intransitive variant of an otherwise transitive verb is generated only when the verb unifies with the V2 *jaḡa* ‘go’.

5.4.3 There are transitive verbs in the language that do not have intransitive counterpart as shown in sentences in (6), repeated in (26):

26a. *ami hamandista-e mɔʂla piš-i*

I mortar and pestle-loc spices grind-1pr

‘I grind spices in mortar and pestle’

b. *hati-r pae-r tɔla-e mee-ṭi-r matha piš-e gæ-lo*

elephant-gen feet-gen under-loc girl-cl-gen head grind-cp go-3 pt

‘The girl’s head got smashed under the elephant’s feet’

a. *ami bašonpɔtro dhu-lam*

I utensils wash-1 pt

‘I washed utensils’

b. *brišti-r jɔl-e šɔb rɔŋ dhu-e gæ-l-o*

rain-gen water-loc all color wash-cp go-3 pt

‘All colors washed away in rain water’

The verbs *peša* ‘grind’ and *dhoqa* ‘wash’ are transitive verbs. They license an actor and an undergoer, the latter experiencing a change in state. These verbs do not have intransitive variant. When they select the V2 *jaqa* ‘go’, the consequent unification brings in a change in the semantic structure of the V1s. The resultant semantic relation belongs to a subtype of *und relation*. Thus the semantic structures representing the meaning component of *peša* ‘grind’ and *piše jaqa* ‘get smashed’ is illustrated in the following figures:

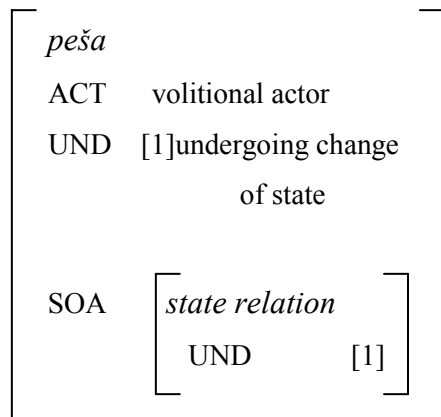


Figure: 12

=>

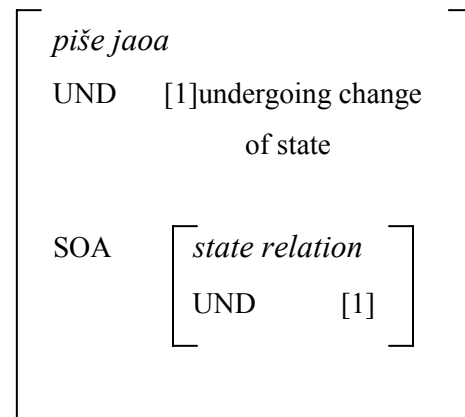


Figure: 13

What semantic property of verbs such as *peša* ‘grind’, *dhoqa* ‘wash’ causes these verbs to undergo intransitive CV alternation is a matter of further research. Nevertheless, the sentences in (26)b support our postulation of the semantics of V2 *jaqa* ‘go’ as a subtype of *und relation*.

This section demonstrated how the semantic structure of V2s plays a role in making the semantic structure of the resultant CV distinct from that of its V1 associate. I have only discussed here those cases where the semantic alternation triggers a change in argument-structure of the CV sequence. The interaction is defined in terms of a mechanism, which is popularly known as linking theory.

The next section proposes a set of general *linking constraints*. They constrain the mapping between the values of the semantic roles and the ordered elements on the argument structure list that indicate a predicator's syntactic requirements.

5.5 Linking

In the lexicalist approach a verb subcategorizes for arguments and semantically subsumes a structure, which represents the meaning of the verb. I have constructed, in the previous chapter, the meaning component of verbs to be typed feature structures, which contain a set of proto-role attributes (or semantic slots). The value of these proto-roles is the interpretation of the arguments that a verb syntactically licenses. For example, in the interpretation of (27), the ACT and UND semantic slots of the semantic relation associated with the verb *chōra* 'throw' is filled by *Taru* and *tir* 'arrow' respectively:

27. *taru tir chōr-e*

Taru arrow throw-3 pr

28. *chōra* (THROWER: *Taru*, THROWN: *tir*)

A Bangla speaker will connect the state of affairs with the strings as shown in (28) and not the other way round. That is, the mapping of *Taru* to THROWN and *tir* 'arrow' to THROWER is blocked by the grammar. Thus recent works on argument structure in the domain of syntax-semantic interface realize a highly constrained interaction or mapping between the list of syntactic arguments that a verbal predicate allows and its lexical semantics. However I do not take the extreme position of Pinker (1989) and Wechsler (1995) who advocate that semantic structure and A-St of a verbal predicate are in an

isomorphic relation. Pinker, for instance, as we have seen in the introductory section of this chapter, bases his account of subcategorization alternations alone on semantic differences between the alternants. While accepting the fundamental correctness of semantically grounded syntactic argument alternation Davis (2001) observes “there do appear to be cases where subcategorization is partly arbitrary, in the sense that it is not semantically driven”. To illustrate his point he refers to an English pair of verbs, which are semantically quite similar but exhibit different subcategorization:

- 29a. Stanley waited for / awaited Livingstone
- b. Homer opted for / chose a chocolate frosted doughnut
- c. The senator didn’t respond to / answer the reporters

Davis 2001, p. 171

The first member of the pairs, ‘wait’ ~ ‘awaited’, ‘opted’ ~ ‘chose’ and ‘respond’ ~ ‘answer’, is an intransitive verb, while the second member is a transitive one. If the subcategorization frame of a verb is to be solely determined by its semantics, then, as Davis has rightly commented, the differences in subcategorization between the members of the synonymous verb pairs in (29) must be laid to “some unelucidated semantic difference between them”.

Davis instead proposes a model of linking that attempts to build in the right mixture of flexibility and restrictiveness by allowing subcategorization to be specified independently of lexical semantic content. In my work I adapt the model of linking theory as developed by Davis and Koeing (1999) and Davis (2001). Before I discuss the principle of linking in the next subsection, I will briefly review here the syntactic structure of the Bangla verbal predicator.

Bangla is a verb final language. Syntactically verbal predicates in Bangla license at most three NP arguments. They are realized as subject, direct and indirect objects in a sentence. The argument occupying the subject position generally bears the unmarked nominative case. In certain cases they are marked for dative or genitive as illustrated below:

30a. *amake bari je-te ho-be*
I-obj house go-inf be-3 ft
'I will have to go home'

b. *amar matha dhor-eche*
I-gen head catch-3 pr pft
'I have a headache'

The argument, which occurs in direct object position, remains either unmarked or the objective case desinence *-ke* is added to it. If the argument is animate, it is always marked for objective case. Otherwise it generally remains unmarked. The sentences in (31) illustrate the two cases:

31a. *ritu chobi-ta dekh-lo*
Ritu picture-cl see-3 pt
'Ritu saw the picture'

b. *ritu lok-ta-ke dekh-lo*
Ritu man-cl-obj see-3 pt
'Ritu saw the man'

The argument occupying the indirect object position always bears objective case marker as shown in (32):

32a. *ritu ama-ke chobi-ta dækha-lo*
Ritu I-obj picture-cl show-3 pt
'Ritu showed me the picture'

When the indirect object is a personal pronoun, it sometime occurs in locative case:

32b. *ritu ama-e chobi-ṭa dækha-lo*
 Ritu I-loc picture-cl show-3 pt
 ‘Ritu showed me the picture’

The default ordering of arguments in a sentence is as follows:

A. Subject - Indirect object - Direct object – Verb

However, arguments can freely move inside a sentence in Bangla. For example, the sentences in (33a) and (34a) present the default position of arguments, while other sentences in (33) and (34) reflect different legitimate ordering of arguments:

33a. *ritu šešporjonto šari-ṭa kin-lo*
 Ritu finally saree-cl buy-3 pt
 ‘Ritu finally bought the saree’

b. *ritu šešporjonto kin-lo šari-ṭa*
 Ritu finally buy-3 pt saree-cl
 ‘Ritu did buy the saree finally’

c. *šari-ṭa ritu-i kin-lo šešporjonto*
 saree-cl Ritu-emp buy-3 pt finally
 ‘Finally it was Ritu who bought the saree’

d. *šari-ṭa šešporjonto kin-lo ritu*
 saree-cl finally buy-3 pt Ritu
 ‘Finally Ritu bought the saree’

e. *kin-lo bṭe ritu šari-ṭa, kintu o-ṭa manabe na oke*
 buy-3 pt prt Ritu saree-cl but that-cl suit-3 ft not she-obj
 ‘Although Ritu bought the saree, it would not suit her’

34a. *ritu rɔma-ke æk-ʈa šari di-eche*

Ritu Ramaa-obj one-cl saree give-3 pr pft

‘Ritu has given Ramaa a saree’

b. *ritu šari-ʈa rɔma-ke di-eche*

Ritu saree-cl Ramaa-obj give-3 pr pft

‘Ritu has given the saree to Ramaa’

c. *rɔma-ke ritu æk-ʈa šari di-eche*

Ramaa-obj Ritu one-cl saree give-3 pr pft

‘Ritu has given Ramaa a saree’

d. *rɔma-ke šari-ʈa ritu di-eche*

Ramaa-obj saree-cl Ritu give-3 pr pft

‘It was Ritu who gave Ramaa the saree’

e. *šari-ʈa ritu rɔma-ke di-eche*

saree-cl Ritu Ramaa-obj give-3 pr pft

‘The saree Ritu gave to Ramaa (and none but her)’

f. *šari-ʈa rɔma-ke ritu di-eche*

saree-cl Ramaa-obj Ritu give-3 pr pft

‘The saree was given to Ramaa by Ritu’

g. *di-eche jɔkhon rɔma tomake šari-ʈa, tɔkhon por-e-i phæl-o*

give-3 pr pft when Ramaa you-obj saree-cl then wear-cp-emp drop-2 pr imp

‘Since Ramaa has given you the saree, put it on’

h. *jɔkhon di-eche tomake rɔma šari-ʔa, tɔkhon por-e-i phæl-o*
 when give-3 pr pft you-obj Ramaa saree-cl then wear-cp-emp drop-2pr imp
 ‘Since Ramaa has given you the saree, put it on’

I will not deal with the issue of word ordering in my thesis. I will assume that the linear ordering of arguments on A-St list directly reflects their default order in a sentence, as shown in (A). The mapping constraints interact with members of this ordered list and the values of the proto-role attributes within the semantic structure of a verb.

5.5.1 Principle of linking

The structure of lexical hierarchy is subject to a principle, which ensures that certain lexical types are subtypes of others. The lexical types inherit from the *semantic predictor* and *valence predictor* types, which exist at the top of the lexical hierarchy. The *semantic relations* within *semantic predictors* denote types of situations characterized by properties that one or more than one participant in such situations are entailed to bear. I identified various semantic relations in the previous chapter. There I have also arranged these *semantic relations* in a multiple-inheritance hierarchy, with more specific types of situations as subtypes of more general ones. I will now introduce a universal principle that requires the lexical hierarchy to mirror the semantic relations hierarchy. Davis has formulated the principle in the following manner:

If *s* is a type in the semantic relations hierarchy and there exists a type in the lexical hierarchy with CONTENT of type *s*, then there exists a type *s-p* in the lexical hierarchy with CONTENT of type *s* such that every type in the lexical hierarchy with CONTENT a subtype of *s* is a subtype of *s-p*.

Davis 2001, p. 190

The homomorphism between the semantic relation hierarchy and the hierarchy of the semantic predictor type is depicted in the following figures:

Hierarchy of semantic relation types

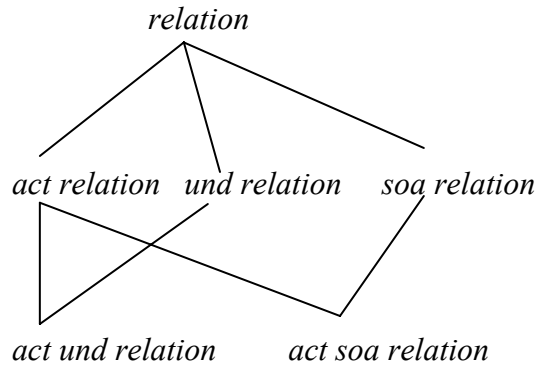


Figure: 14

Hierarchy of semantic predictor type

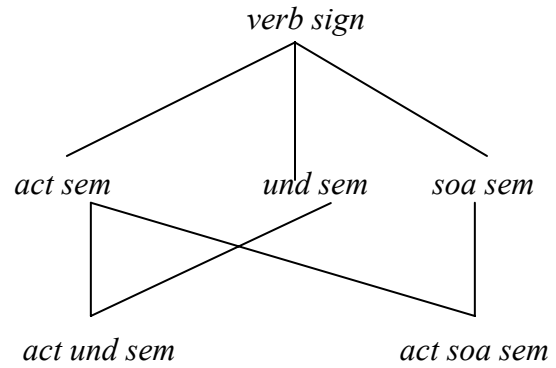


Figure: 15

Similarly *valence predictors* determines the various subcategorization frames and are arranged in the lexical hierarchy as shown in the following figure:

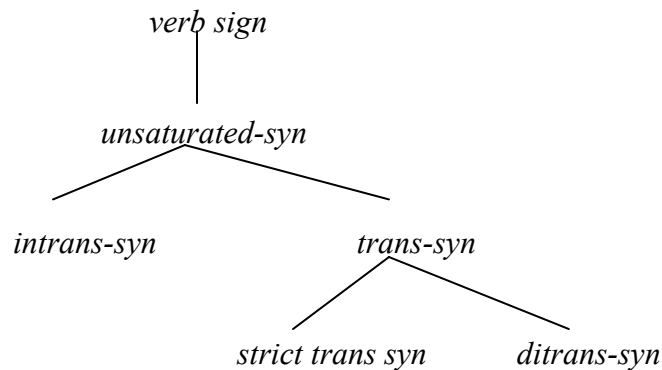


Figure: 16

The type *unsaturated syn* declares only that the predictor in question has a non-empty ARG-ST list. The type *transitive syn* constrains the ARG-ST to have at least two NPs on it.

We can at this point regard linking types as those types in the lexical hierarchy that inherit from *semantic predictor* and *valence predictor*. An example of such a type in the hierarchy shown in figure (17) is *unsat-act-lnk*, which inherits from the types *unsat syn* and *act sem*. The point to be noted is that linking types are now independent of semantic grounding. A simple consequence of this model is the inheritance of linking information from more general to more specific semantically and syntactically defined classes of predictors. A fragment of the subtypes of *valence predictors* and *semantic predictors* and their greatest lower bounds are depicted in figure 17:

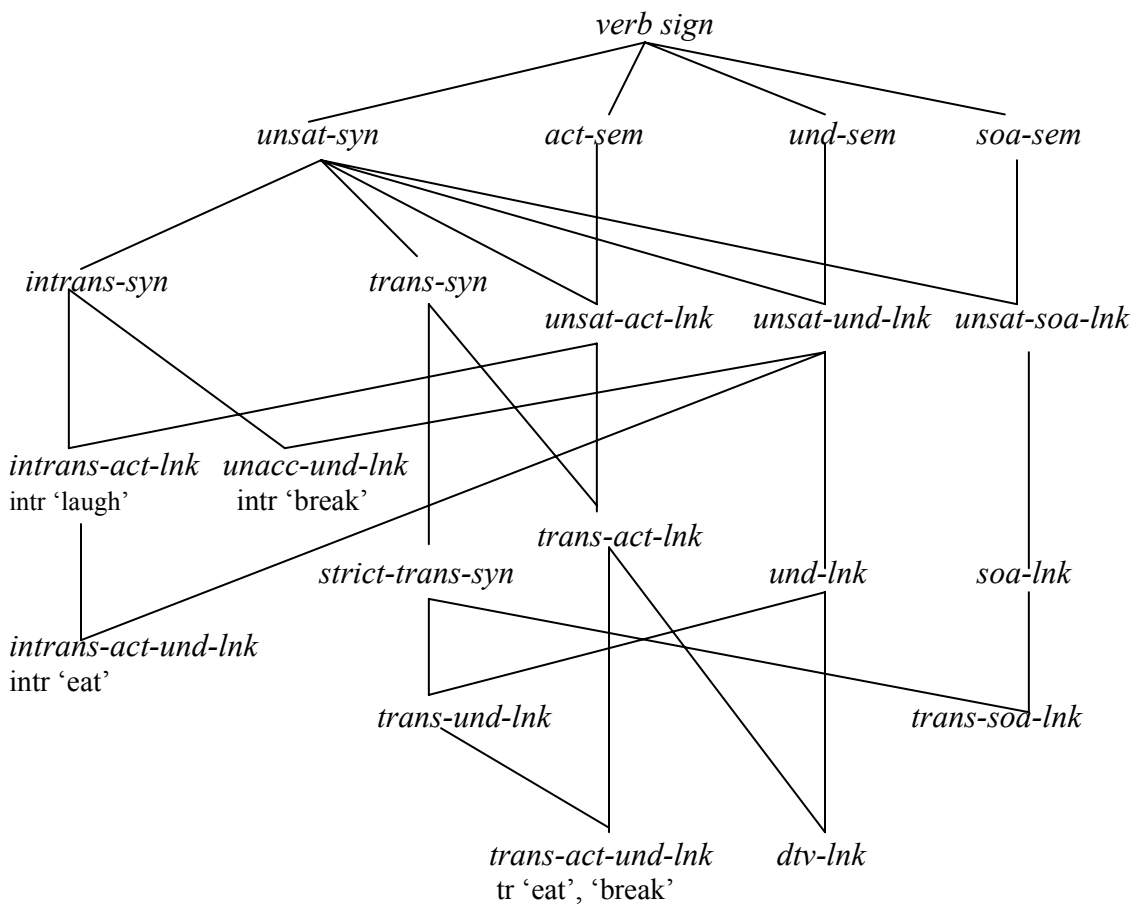


Figure: 17

As mentioned earlier the type *unsat-act-lnk*, which is defined to be the greatest lower bound of the types *unsat-syn* and *act-sem*, is a linking type. The constraint associated with this linking type states that the first member of the ARG-ST list is linked to ACT in the semantic predicator *act-sem*. This constraint is shown in the following figure:

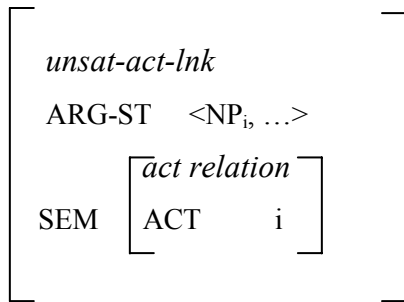


Figure: 18

The lexical hierarchy depicted in figure 17 ensures that this constraint will be inherited by all intransitive and transitive verbs whose subject is mapped to ACT proto-role attribute. The unaccusative verbs are not a subtype of this linking type. In the present discussion, I assume a simplified structure of SEM. The path SEM | ACT as shown in figure 18 actually substitutes for the path SEM | PREDS | THEM. The next sub-section presents some linking constraints, which are imposed on the greatest lower bounds in the lexical hierarchy illustrated in figure 17.

5.5.2 Linking types

The *intrans-act-lnk* is a subtype of the *unsat-act-lnk* and the *intrans-syn*. This type declares the argument on the ARG-ST list to be linked to the value of the ACT proto-role attribute as shown in figure 19:

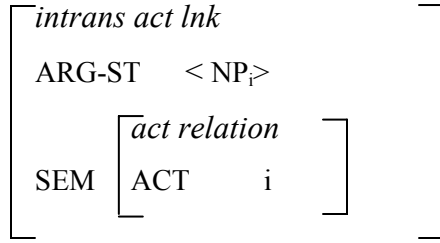


Figure: 19

All intransitive verbs that bear an ACT proto role in its semantic structure are subtypes of this linking type. The type *unsat-und-lnk* is a subtype of *unsat-lnk* and *und-sem*. The value of UND can link to the first argument of a verb if it is the only argument on ARG-ST. This kind of verbs is commonly known as unaccusative verb. Otherwise, the UND value is mapped to an argument, which occupies the object position of transitive verbs. To accommodate this disjunctive pattern of linking in the structure of LKB syntax, which does not allow disjunctive stipulation, I will adopt the following strategy: The *unsat-und-lnk* does not specify any mapping. Thus this type can be a supertype for verbs which semantically require an ACT and UND but only ACT gets syntactically realized. Davis has used the term ‘unspecified object deletion’ to describe this phenomenon. In Bangla and other Indo-Aryan languages, it is a very common practice to suppress the undergoer from being realized syntactically. For example, the intransitive verb *khaoa* ‘eat’, *pɔra* ‘read’, *lekha* ‘write’ in the following sentences instantiate unspecified object deletion:

- 35a. *ritu kha-cche ar gɔlpo kor-che*
Ritu eat-3 pr cont and story do-3 pr cont
‘Ritu is eating and chatting’
- b. *ritu amar kɔlom die likh-che*
Ritu I-gen pen with write-3 pt cont
‘Ritu is writing with my pen’

The *intrans-act-und-lnk* type, the greatest lower bound of the type *intrans-act-lnk* and *unsat-und-lnk*, in figure 17 represents these verbs. Since *intrans-act-lnk* is a subtype of *unsat-act-*

lnk, the mapping for the subject to ACT will already be specified for *intrans-act-und-lnk* and no other linking specification is required. The hierarchical arrangement illustrated here obviates the requirement of having a lexical rule for converting transitive verbs to intransitive counterparts in order to give an account of intransitive alternants such as *khaoa* ‘eat’, *pɔra* ‘read’, *lekha* ‘write’ and so on. The linking type *unacc-und-lnk* also subsumes all unaccusative verbs. The constraint associated with this type states that the only argument on ARG-ST be linked to UND. The figure in 20 represents this linking type:

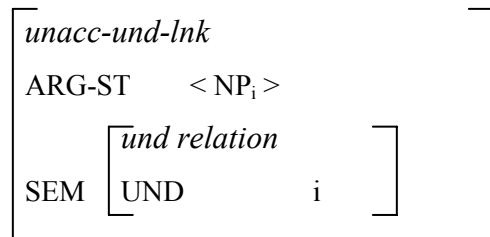


Figure: 20

Leaving aside unaccusative verbs, the value of UND is always mapped onto a non-subject argument. The UND might be a top-level proto-role attribute representing an affected entity in *cause relation*, (see 4.3.3.2.3 in chapter 4) or an entity undergoing change in state in *effect relation* (see 4.3.3.2.1); or it may be embedded within SOA as in the case of the *possession relation* (see 4.3.3.2.2) and *notion relation* (see 4.3.3.1). We have discussed in chapter 4 that verbs of *possession relation* and *notion relation* do not have a top-level UND⁷. The following is one alternative proposal for linking the value of UND to the object argument: An UND of any depth, be it top-level or embedded, is mapped to one of the non-initial arguments on ARG-ST. I will however propose a non-recursive linking strategy, which will be easy for implementation on LKB. The idea is to identify UND in two positions. The constraint imposed on *und-link* in figure 21 maps the second argument on ARG-ST to the top-level UND. The other constraint is specified on *soa-lnk*, which maps the second argument on ARG-ST to the UND embedded within SOA. The type *trans-act-und-lnk*, the greatest lower

⁷ To recapitulate, the participant other than the ACTOR involved in the situation denoted by these verbs do not characterize in the main event any entailment associated to proto-role UND. Their UND role entailment can only be specified at an embedded level. Therefore they are denoted by the value of UND within a sub-event, which is presented as the value of top-level SOA.

bound of *trans-act-lnk* and *trans-und-lnk* in the hierarchy, reflects the linking constraint on *und-lnk*:

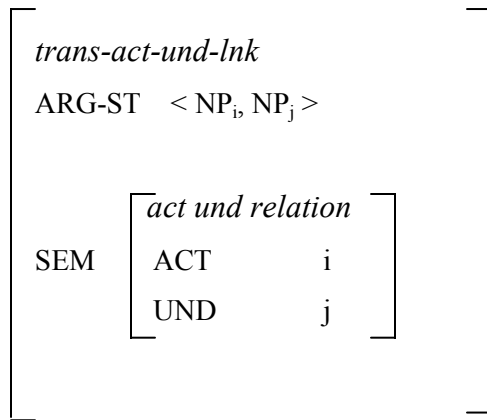


Figure: 21

The type *trans-act-und-lnk* subsumes verbs of *cause relation* and *effect relation*. The type *soa-lnk*, on the other hand, is inherited by verbs of *possession relation*, *perception relation* and *notion relation*:

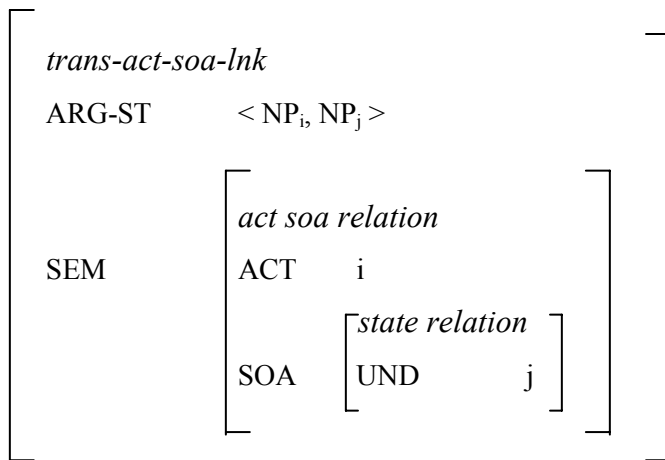


Figure: 22

An argument is linked to an embedded UND only in case where no top-level UND is specified. Otherwise, the top-level UND is always mapped on the second argument on ARG-ST.

If one more argument is left in the list as in the case with ditransitive verbs, that argument is mapped to an embedded UND.

In this chapter I discussed those CV sequences whose argument structures are not copies of that of their V1 constituents. It is natural that these CVs and their corresponding V1s are subsumed by different linking types. For instance, intransitive verbs such as *ghabrano* ‘become nervous’ and *utrono* ‘pass the exam’ inherit from the *unacc-und-lnk*, while their CV variants *ghabre deqa* ‘perplex’ and *utre deqa* ‘pass-cp give’ being transitive verbs instantiate *trans-act-und-lnk* on the lexical hierarchy. Let us consider another instance. The CV sequences *piše jaqa* ‘get smashed’ and *dhue jaqa* ‘wash away’, which are compound verb alternants of the transitive verbs *peša* ‘grind’, *dhoga* ‘wash’ respectively, are intransitive verbs themselves and are subsumed by the *unacc-und-lnk* type. Nevertheless as we understand it, no separate linking type is required for accommodating lexical entries for the CVs discussed in this chapter. The general linking types, which account for the linking strategies of simple verbs in the language, also explain the mapping of arguments to the semantic roles for CV sequences.

5.6 Conclusion

In this chapter, I recorded cases where the number of arguments on the argument structure lists of a V1 and its CV variant are not identical (do not match). It has been noted that the CVs under consideration either license more arguments than its V1 associate (see (11), (12) and (14)) or not all arguments of the V1 get realized on the argument structure list of its CV alternant (see (5) and (6)). I attempted to give a semantic account for these A-St modifications. Scholars (Pinker (1989), Jackendoff (1990), Levin (1993), Goldberg (1995) and Wechsler (1995), to name a few) who work on the syntax-lexical semantics interface advocate a similar view: argument structure alternation that a verb undergoes is semantically driven. In section 5.2, I reviewed their viewpoints. While adopting the core idea of this approach I contended that the A-St modification under consideration does not result from any ad hoc lexical rule or pseudo-syntactic mechanism. Instead, when a V1 unifies with a V2, the latter adds subtle semantic nuances to the meaning of the resultant CV. As a result of that, a

CV acquires a meaning distinct from its V1 counterpart. The semantic type of the resultant CV denotes an event that is correlated with the event denoted by its V1 associate, but distinct. Under this circumstance the semantic structure of the resultant CV might contain a set of semantic slots whose values denote a different set of participants than that of its V1 counterpart. The syntactic realization of these participants requires a different set of arguments on the argument structure list of the CV than what is licensed by its V1 constituent. While agreeing to the fundamental correctness of semantic grounding, I maintain with Davis that the strongly deterministic version of it is not sustainable. Therefore I have not adopted the extreme position of Pinker (1989) and Wechsler (1995) who advocate that semantic structure and A-St of a verbal predicate are in an isomorphic relation. Instead I followed Davis who proposes a model of linking that allows subcategorization to be specified independently of lexical semantic content. In section 5.5, I discussed Davis's system in detail. Finally I arranged the *valence* and *semantic predictors* on a multiple inheritance hierarchy network. The greatest lower bound of a *valence predictor* and a *semantic predictor* is considered to be a linking type. The constraint that controls the link between the values of proto-role attributes and the syntactic arguments on the argument structure list is declared on these types. I contend that these linking types will subsume the lexical description of CVs.