Chapter 6 Exercises Solutions

The exercises in this chapter are among the most substantial in the book. Exercise 1 looks at an interesting construction in English; the results of this exercise are referred to in later chapters. Exercises 2 and 3 apply the analysis of grammatical relations from the chapter to large amounts of data from Toba Batak (exercise 2) and Lakhota (exercise 3). The Barai problem in exercise 5 is probably the most difficult one in the entire book; it should be assigned only to advanced students. However, it is a good problem to work together in class, as it brings together many of the ideas from chapters 3-6 and illustrates a typologically very unusual language.

1. What is the syntactic pivot of the following English construction? Compare it to the syntactic pivot of other major constructions in English. [Hint: the sentence-initial subject NP is not the pivot of the relevant construction.]

The syntactic pivot is the obligatory gap in the linked core. This construction is like the 'want' constructions discussed in the text, in that there is a syntactic argument missing in the linked core. As the (b) and (d) examples in (1)-(4) show, it is obligatory for there to be a missing argument in the linked core; if the post-verbal gap is filled by an NP (pronoun), as in the (b) and (d) examples, the result is ungrammatical. In some of the examples, e.g. the (a) examples in (1)-(4), there are two missing arguments in the linked core; there appear to be both 'subject' and 'object' gaps. There is, however, an important difference between the preverbal and postverbal gaps in the linked core: the preverbal gap (when the verb is transitive) can optionally be filled by an NP, as the (c) examples in (1)-(4) show, while the postverbal gap cannot, as the (b) and (d) examples in (1)-(4) show. When the verb in the linked core is passive, as in (6), then the obligatory gap is preverbal, the traditional 'subject'. As the (b) and (d) examples show, this gap cannot be filled by an NP. Thus, when the verb in the linked core is transitive and in active voice, the pivot is the postverbal gap, whereas when it is in passive voice, the pivot is the preverbal gap. It would be incorrect to say that the gap is the 'direct object' in the first case, because of examples like (2a) and (4a) in which the gap is the object of a preposition.

When the verb in the linked core is intransitive, as in (7) and (8), then the obligatory gap is preverbal, the traditional 'subject'. Again, the (b) and (d) examples show that this gap cannot be lexically filled, unlike the optional preverbal gap in (1)-(4).

What is particularly interesting about this construction, normally referred to as a 'purposive construction', is that the pivot is not the traditional 'subject' when the verb is transitive and active voice; it need not even be a direct core argument, as (2) and (4) show. This is obviously very different from the usual [S,A,d-S] PSA which defines the traditional English 'subject' notion, and it shows that not all constructions in English have the same PSA.

2. Based on the data below and the data in (2)-(3) in Exercise 3 in Chapter 5, determine whether Toba Batak has grammatical relations or not. Follow the same procedures used in §6.2.1 in the discussion of English, Enga and Acehnese. If it does, characterize the restricted neutralization of each of the constructions illustrated in the data, and ascertain whether each pivot or controller is variable or invariable; if there is a variable syntactic pivot, is there any evidence as to whether it is a pragmatic pivot? What general patterns, if any, emerge regarding grammatical relations in this language? The data are from Schachter (1984b) and Shugamoto (1984).

In (M)-transitive clauses like (1) and (4), the verb may have a prefix man(g)- or di-, and the choice of prefix correlates with the order of actor and undergoer. When the prefix is *mang*-, as in (1) and (2), the undergoer immediately follows the verb in what we saw in exercise 3 in Chapter 5 is the unmarked focus position, and the actor is in the (core-)final position, which is normally topical. When the prefix is di-, as in (4) and (8), the actor occurs in the immediately postverbal focus position, and the undergoer occurs in the (core-)final position. Four grammatical constructions are exemplified in the data: preverbal occurrence of an NP (presumably in the PrCS, since there is no intonational break and the interpretation is that of narrow focus), which we will refer to as 'fronting', relativization, reflexivization, and Coordinate construction with zero anaphora in the linked clause analogous to the Dyirbal and Tepehua examples discussed in the chapter.

We will look at fronting first. There are two intransitive verbs in the data, mate 'die', which takes an undergoer argument, and *laho* 'leave, go', which takes an actor argument. If they can both occur in the PrCS in this construction, then that is evidence that there is a restricted neutralization with intransitive verbs. The sentences in (12) and (14) exemplify these verbs in this construction, and therefore we can conclude that there is a restrictive neutralization in this construction with intransitive verbs. What about transitive verbs? The crucial examples here are (6) and (9), on the one hand, and (7), (11) and (13), on the other. In (6) and (9), an NP appears in the PrCS; in (6) the verb bears the man(g)- prefix, while in (9) it bears the di- prefix. When the verb has the man(g)prefix, the PrCS NP can only be interpreted as the actor, whereas when the verb has the *di*- prefix, it can only be interpreted as the undergoer. Since the mang- prefix correlates with the actor in final position in the simple clause in (1) and the *di*- prefix with the undergoer in final position in (4), we may conclude that the PSA for this construction is the clause-final NP. This is confirmed when we look at (7), (11) and (13); they are related to the simple sentences in (2) and (8). When the verb is manjaha 'read', as in (2), only the actor NP (guru i 'the teacher') may occur in the PrCS, as the grammaticality of (11) and the ungrammaticality of (7) show; in order for the undergoer to occur in the PrCS, the verb must be dijaha, as in (13). Thus, there is a restricted neutralization with transitive verbs in this construction: either actor or undergoer may occur in the PrCS, but there is an important restriction to the effect that NP in the PrCS must correspond to the clause-final NP in the corresponding simple clause. The same pattern was found in the WH-questions in exercise 3 in Chapter 5: only the clause-final NP could optionally appear in the PrCS.

The following tentative picture of basic Toba Batak clause structure emerges. The word order is V NP NP, and the clause-final NP is the PSA. When the verb is (M-)transitive, the verb prefix man(g)- signals that the PSA is the actor, while the prefix di- signals that it is the undergoer. The single argument of intransitive verbs, regardless of whether it is actor or undergoer, behaves like the PSA of a transitive verb. We now turn to the other constructions to see if this same pattern holds for them as well.

The next construction is relativization, illustrated in (15)-(20); these examples include only transitive verbs. In a Toba Batak relative clause, there is a gap corresponding to the head noun, and the clause is introduced by the particle *na*. The pattern is the same as in the fronting construction. In a relative clause in which the verb bears the man(g)- prefix, the head noun must be interpreted as the actor, as in (15) and (19), whereas when it bears the *di*- prefix, the head noun can only be interpreted as the undergoer, as in (17) and (20). The ungrammaticality of (16) and (18) follows from this, as do the possible interpretations of (19) and (20).

Reflexivization in (21)-(24) yields a rather different pattern, but it is one we have seen in the text several times. The controller of the reflexive must be the actor, regardless of whether it is the clause-final NP or not; this is similar to the situation in Lango and Sama. The contrast between (21) and (22) is particularly important here, since the same NP (*si Torus*) is in the normal PSA position in both sentences, and yet the only grammatical possibility is when it is the actor, as in

(21). Thus, this construction has a semantic controller, the actor NP.

The coordinate constructions in (25)-(32) involve both a controller and a pivot. Because Toba Batak is verb-initial and PSA-final, the pivot will be in the first clause and the controller in the second. We will first determine the pivot, the missing argument in the linked (first) clause. The sentences in (27) and (32) show that the single argument of an intransitive verb can be omitted and therefore function as pivot. The pattern with transitive verbs is the same as that for fronting and relativization: the omitted argument is interpreted as the actor when the verb bears the man(g)-prefix and as the undergoer when it has the *di*- prefix. Thus, the pivot in these constructions is the same as the pivot for fronting and relativization. The controller is in every case the clause-final NP in the second clause, and unlike the controller for relativization, it need not be the actor, as (26), (27) and (28) show. Again, the interpretation of the controller is a function of the prefix on the verb, when it is transitive: if the prefix is man(g)-, the controller is the actor in the clause, as in (25), whereas if it is *di*-, it is the undergoer, as in (26). Hence both the controller and the pivot in this constructions.

We may conclude, then, that Toba Batak has grammatical relations, i.e. has restricted neutralizations of semantic roles for syntactic purposes in a number of constructions. The results are summarized in Table 1.

Construction	PSA type
Fronting and WH-questions	Variable syntactic pivot
Relativization	Variable syntactic pivot
Reflexivization	Semantic controller
Coordinate construction	Variable syntactic controller Variable syntactic pivot

Table 1: Toba Batak grammatical relations

It is highly likely that the variable syntactic pivots and controllers are in fact pragmatic pivots, as the constructions in (25)-(32) are very similar to the ones in Dyirbal and Tepehua discussed in the text. It is difficult to characterize the Toba Batak PSAs in terms of S, A, U and d-S, because we have no real evidence regarding the markedness relations between the man(g)- and di- forms of the verb; that is, it is not clear from this data that one of these is the marked and the other the unmarked choice for the variable PSAs. Moreover, because this voice alternation is PSA modulation only, there is no reason to posit that one of the forms has a d-S function; there is no evidence that there is any variation in the transitivity of the prefixed verb forms. The best one can do is to say that the non-semantic PSAa in Table 1 are [S, CF], where 'CF' refers to the 'clause-final NP' whose semantic function is signalled by the prefix on the verb.

3. Based on the data below, determine whether Lakhota has grammatical relations or not. Follow the same procedures used in §6.2.1 in the discussion of English, Enga and Acehnese. If it does, characterize the restricted neutralization of each of the constructions illustrated in the data, and ascertain whether each pivot or controller is variable or invariable; if there is a variable syntactic pivot, is there any evidence as to whether it is a pragmatic pivot? What general patterns, if any, emerge regarding grammatical relations in this language?

The first four examples illustrate the basic facts of verb agreement/cross-reference in Lakhota; since Lakhota is a head-marking languages, these morphemes are the core arguments of the verb. The verbs hi 'arrive' and ya 'go' in (1) are intransitive; their single argument, an actor, is marked

The verbs hi 'arrive' and ya 'go' in (1) are intransitive; their single argument, an actor, is marked by wa- when it is first singular, ya- when it is second singular, zero when it is third singular, and zero + -pi when it is third plural. If the verb stem begins with a y-, such as ya 'go', the first singular marker is *bl*- and the second singular is *l*-; the others are the same as for verbs like *hi* 'arrive'. Some stem-final a vowels alternate morphophonemically with e; this is irrelevant to the problem. The verb in (2), naxiu 'hear', is (M)-transitive. Its actor argument is signalled by the same prefixes as in (1), whereas its undergoer argument is indicated by a different set: ma- for first singular, *ni*- for second singular, zero for third singular, and withe- for third plural animate. The verbs in (3) and (4) are intransitive like those in (1), but their single argument is an undergoer, not an actor. Which forms will it take to mark its single argument? In the first and second person singular, they take the same forms as the undergoer of transitive verbs; in the third person, however, they take zero (singular) and zero + -pi (plural). All third person singular forms are zero, regardless of whether the argument is actor or undergoer and the verb is transitive or intransitive. In the third person plural, however, the verbs in (3) and (4) do not take with a but take zero + -pi like the other intransitive verbs and transitive actors. Thus in the singular, the verbs in (3) and (4) take transitive undergoer coding for their single argument, and in this Lakhota is more like Acehnese than like English or Enga.

The sentences in (5)-(8) illustrate basic facts about word order. Lakhota is strictly verb-final, and the unmarked order of the two NPs in a transitive clause is actor-undergoer, as in (5) and (7). If the two arguments are disambiguated by animacy or number, then they may occur in either order before the verb, as in (6). When both NPs are animate or human, as in (7) and (8), then the first is interpreted as the actor and the second as the undergoer.

The examples in (9)-(10) concern WH-question formation. The WH-word occurs *in situ*, as (9) clearly shows. When there is an initial WH-word, as in (10), it must be interpreted as the actor. Unlike Jakaltek, Sama or Toba Batak, there is no restricted neutralization with respect to WH-question formation; either argument of a transitive verb can be questioned directly (as can the single argument of an intransitive verb), and therefore there is a neutralization but no restriction. The same is true in the relative clause construction exemplified in (11). Lakhota relative clauses are head-internal, and the NP interpreted as the head noun must be marked as indefinite within the relative clause. Since both NPs in the relative clause are indefinite in (11), the sentence is actually ambiguous, since either NP can be interpreted as the head. What this shows is that there is no restricted neutralization with respect to relativization in Lakhota analogous to the one found in Toba Batak or Jakaltek. Again, there is a neutralization but no restriction.

The sentences in (12)-(28) exemplify coordinate constructions, and issue here is whether there are any restricted neutralizations with respect to the missing NP in the second clause and its antecedent (controller). The first thing to note about all of these sentences is that the argument markers on the verb are never omitted in this construction; while one or more NPs may be omitted from the linked clause, as in (16)-(18), the verb always carries its full complement of argument markers. Hence there is no restriction on the omission of independent NPs in the linked clauses. Two of the examples involve fronting, (13) and (16), and in the first the fronted NP is interpreted as the actor of the second clause, whereas in the second it is interpreted as the undergoer of the second clause. Since the verb is the same in both sentences, this shows that there is no restriction on which NP of a transitive verb can occur sentence-initially. Finally, there is no restriction on which arguments can be interpreted as the antecedent of the omitted NP in the second clause. Either of the NPs in the first clause can be interpreted as actor or undergoer in the second clause, depending upon

the inflection of the verb. Hence there is no restricted neutralization with respect to these coordinate constructions of the kind found in Toba Batak, Dyirbal and Tepehua.

The construction in (29)-(32) is analogous to the 'want' constructions in English and Enga, and here we find a different pattern from the other constructions. As (29)-(31) clearly show, the argument marker on the verb in the linked unit must be omitted. When the verb is transitive, as in (29), it is the actor marker, and when the verb is intransitive, as in (30)-(31), the single marker must be omitted, regardless of whether it indicates actor, as in (31) or undergoer, as in (30). Here we have our first evidence of a restricted neutralization in Lakhota, one with intransitive verbs. Is there a neutralization, restricted or otherwise, with transitive verbs? We have already seen in (29) that it is possible to omit the actor marker with a transitive verb; is it possible to omit the undergoer marker? The answer is 'no', as (32) demonstrates. In this example, the actor marker appears and the undergoer marker is missing; the intended meaning is something like 'I tried to be heard by you', but the sentence is ungrammatical. Lakhota has no voice oppositions, and therefore there is no way for the undergoer of a transitive verb to function as the PSA in this construction. Hence there is no neutralization with transitive verbs in this construction, only with intransitive verbs. The controller is the actor of *iyútha* 'try'; hence it a semantic controller.

The construction in (33)-(38) is a direct perception construction, and in this construction one of the argument markers on the verb in the linked unit can optionally be omitted. The examples in (33)-(35) show that the single argument marker of an intransitive verb may be omitted, regardless of whether it codes actor or undergoer; this is the same pattern found in the 'try' construction above. The single argument of the linked verb is obligatorily coded as the undergoer of the perception verb. What happens when the verb in the linked unit is transitive, as in (36)-(38)? First, it is the actor, not the undergoer, marker which can be optionally omitted. Second, it is the actor, not the undergoer, of the verb in the linked clause which is coded as the undergoer of the perception verb. As in the 'try' construction, there is no neutralization with transitive verbs.

The last three examples illustrate the formation of imperatives, and the addressee can be the actor of a transitive verb, as in (39), the single argument of an intransitive verb, as in (40) and (41), regardless of which kind of marker it takes. There is no possibility of forming an imperative with the undergoer of a transitive verb as the addressee. Hence the pattern here is the same as in the previous two constructions.

We have found restricted neutralizations with intransitive verbs in three constructions, and therefore we muct conclude that Lakhota does have grammatical relations. The results are summarized in Table 2 (next page). Lakhota thus presents a very different picture from Toba Batak, in that most constructions don't have restricted neutralizations and therefore don't have PSAs, and those that do have them have invariable syntactic pivots and controllers, all of which are [S,A]. This is another example of a language of the Warlpiri/Enga type. Since there are no variable syntactic pivots or controllers, there cannot be any pragmatic pivots in these constructions.

Construction	PSA type
Cross-reference	None
WH-question formation	None
Relativization	None
Fronting	None
Coordinate construction	None
'Try' construction	Semantic controller[A]Invariable syntactic pivot[S,A]
Direct perception construction	Semantic controller[U]Invariable syntactic pivot[S,A]
Addressee of imperative	Invariable syntactic controller [S,A]

Table 2: Lakhota grammatical relations

4. Discuss the results of the last two exercises in terms of the issues raised in this chapter regarding the diversity of grammatical relations systems cross-linguistically. Bring the data from Sama, Tzutujil and Jakaltek into the discussion. In particular, evaluate each of the proposals in §6.1 as well as the theory of grammatical relations proposed in §6.3 with respect to these phenomena. Do they support strong claims about the universality of grammatical relations? How do they bear on the issue of whether grammatical relations are primitives or are derived?

The main points here are: (1) these data further reinforce the conclusion reached in §6.2 that there is no obvious candidate for a universally valid notion of 'subject' or any other grammatical relation; (2) the split in Toba Batak between reflexivization and the other constructions raises problems for the assumption that languages have a single consistent set of grammatical relations; (3) none of the theories discussed in §6.1 predict the diversity found in Tables 6.3-6.5, as well as in these data, and there is no obvious way for them to be extended to handle it; (4) the theory in §6.3 is flexible enough to account for all of these phenomena, but it gives up the idea that there could be universally valid notions of grammatical relations; and (5) it's difficult to see how they could be considered primitives, given their lack of universality and the variation within and across languages.

5. It was mentioned in note 7 that Barai, a language of Papua-New Guinea (Olson 1978, 1981), neutralizes the actor-undergoer opposition with transitive verbs yet does not have a formal voice construction. Based on the Barai data below, explain how syntactic pivots work in Barai. Also, describe the Barai switch-reference system and specify the type of syntactic pivot that it is sensitive to. The switch-reference markers will be glossed 'S/R', and you will need to determine which suffix marks 'same' and which signals 'different'.

This is one of the most challenging and interesting problems in the book. Barai syntax is unique in a number of respects, which will emerge in the solution to this exercise.

The first set of sentences have an intransitive verb *difuri* 'run', which takes an actor argument. When the single argument is a definite NP, as in (1b) and (1d), then it can take a pronominal copy. There is an emphatic particle ka, which is cliticized to a pronoun. When there is a definite NP subject in clause in which the emphatic particle occurs, it must be attached to the pronominal copy, as in (1d). The sentences in (2) involve an intransitive verb which takes an undergoer argument, and this argument has the same morphological form as the single argument in (1). Hence in terms of the form of pronouns, the possibility of a pronominal copy and the occurrence of the emphatic particle, single arguments of intransitive verbs are treated alike.

The next set of sentences contains a transitive verb, kan- 'hit'. One of the first things to be noted here is that it agrees with the undergoer, not the actor; there was no agreement in clauses with intransitive verbs. The word order in all of the examples in (3) is actor-undergoer-verb. An important difference between the first and second arguments is revealed in (c, c') and (d, d'): only the NP in initial position can host the emphatic particle ka. The final four examples involve two full NPs, and this difference manifests itself in a second way: only the initial NP can have a pronominal copy, as (e, e') show. Hence being able to host the emphatic particle is a property of the initial NP only, regardless of whether it is a full NP or a pronoun. Since these two properties were also properties of the single arguments of intransitive verbs, regardless as to whether they are actor or undergoer, it appears that there is a restricted neutralization with respect to these two coding properties and that it involves the single argument of an intransitive verb and the actor argument of a transitive verb. It appears, tentatively, that this combination constitutes a possible PSA for Barai.

The sentences in (4) also contain a transitive verb, visinam- 'to sicken'. What is striking about these examples is that they appear to work rather differently from those in (3): it is the second NP, not the initial NP, which takes the pronominal copy and hosts the emphatic particle. With this verb, the second NP seems to have all of the PSA properties that the initial NP has with a verb like kan- 'hit'. Assuming these verbs to be representative of larger classes, we must ask, what could be different about these two verbs that could explain this difference in the syntactic behavior of their arguments? Visinam- 'sicken' is the derived causative form of visi 'sick', which was introduced in (2) (see also §3.2.1). Visi takes an undergoer as its single argument, and so let us hypothesize that because this verb is derived from a state verb taking an undergoer as its argument, the undergoer will be the PSA with verbs of this type. Since word order in the examples we have seen is actor-undergoer-verb, this would mean that the second NP would be the PSA. A verb like kan- 'hit', on the other hand, is not derived from a state verb; with verbs like this, we may hypothesize, the actor is the primary argument, and accordingly, the first NP will be the PSA. Let us refer to verbs like kan- 'hit' as A-verbs, since they have the actor as their primary argument, and refer to verbs like visinam- 'sicken' as U-verbs, since they have the undergoer as their primary argument. We thus arrive at the clause patterns summarized in [1].

[1] a. A-verb:	PSA NP V
b. U-verb:	NP PSA V

The sentences in (5)-(7) introduce a new factor into the analysis. In (5a), both NPs are definite, and the actor is the PSA. The verb is *kan*-, an A-verb. In (b), on the other hand, the actor is non-specific (cf. (1b^{\prime})), and the definite undergoer appears in initial position; it is the PSA, as can be seen by the occurrence of the pronominal copy and the emphatic particle. A non-specific NP cannot be in initial position, as (b^{\prime}), (c), (c^{\prime}), and (d^{\prime}) show. (5c) shows that it is not possible to have two non-specific NPs in a clause. If both NPs are indefinite and one is specific and the other non-specific, as in (d), then the specific indefinite NP must appear in initial position. The same situation holds, mutatis mutandis, in clauses with U-verbs, as (6) shows. If the undergoer is non-specific, then it cannot be in second position; the definite actor occupies second position, and the non-specific undergoer appears in initial position. It is clear, then that the PSA in Barai is available

syntactic pivot, since either actor or undergoer can function as PSA with either kind of verb.

The examples in (7a-c) add a fourth term to the definiteness hierarchy, namely 'unmarked for definiteness'. In (7a) both NPs are unmarked, and the default order obtains. In (b), on the other hand, the undergoer *are* 'house' is marked as indefinite-specific while the actor *ine* 'tree' is unmarked, and the unmarked NP appears in the initial PSA position. The examples in (c) and (c') show that definite and indefinite-specific outrank unmarked. It appears, then, that there is a hierarchy of definiteness, definite > indefinite specific > unmarked > indefinite non-specific, which plays a role in the determination of which argument occurs in the PSA position. Thus with both types of verb, the argument occuring as PSA must be the same as or higher on the definiteness hierarchy than the other argument. If they have the same rank, then the default order obtains (both must be minimally specific); if one outranks the other, then the higher ranking one will appear in the PSA position.

In addition to definiteness marking, Barai NPs may also be marked for being new information by the suffix *-iebe*, as illustrated in (8). The data show that an NP explicitly marked as new cannot be the PSA with either A- or U-verbs. The facts in (5)-(8) point to the conclusion that discoursepragmatic factors play an important role in determining which argument will appear in the PSA position; in other words, the PSA in Barai is a pragmatic pivot. This is confirmed by the examples in (9), in which pairs of sentences differ only in the definiteness of the actor NP: when it is definite, it is the PSA, whereas when it is unmarked for definiteness, the undergoer is the PSA. The same is true in the examples with U-verbs, as we saw in (6).

Before looking at switch-reference phenomena, we need to summarize the analysis of Barai grammatical relations. Barai has a pragmatic pivot with a number of unusual features. First, there is no formal voice construction in the language, and yet there is clearly a restricted neutralization of actor and undergoer with transitive verbs. Second, the position of the pragmatic pivot in the clause is a function of the semantic class of the verb: with A-verbs it is initial position, whereas with U-verbs it is preverbal position. Third, since the basic word order is actor-undergoer-verb, this means that the unmarked choice for PSA with A-verbs is the actor and with U-verbs is the undergoer. Thus, if one looks at intransitive verbs and A-verbs, the system is accusative, whereas if one looks at intransitive verbs, the system is ergative.

The first task in analyzing the Barai switch-reference system is to ascertain which suffix marks 'same' and which marks 'different' in clear cases. The two sentences in (10a, a') provide a minimal pair, in which two clauses with A-verbs are conjoined; in (a) *-na* indicates that the actor/PSA in the second clause is the same as in the first, while in (a') *-mo* indicates that the actor/PSA in the second clause not the same as in the first. Given these first two examples, it cannot be determined whether what is 'same' or 'different' is the actor or PSA in the two clauses, since they are not distinct. The sentences in (b) provide evidence which allows us to distinguish between these two possibilities. In (b) the situation is the same as in (a), but in (b') and (b'') the actor is either non-specific or new information and therefore cannot be the PSA. In these two sentences the definite undergoer is the PSA in the first clause, and therefore the verb carries *-mo* 'different', even though the actors are the same in the two clauses. Thus the switch-reference system is monitoring pragmatic pivots (PSAs) rather than invariable syntactic pivots (actors and single arguments of intransitive verbs), which, as we noted in §6.4.1, is very unusual.

The situation in (c) and (d) also shows that pragmatic pivots are crucial. In (c) it is the non-PSA undergoer of the first clause that is the single argument of the second clause, and therefore the suffix is *-mo* 'different'. In (c'), on the other hand, because the actor NP *miane* 'firestick' is indefinite and the undergoer is a pronoun, a type of definite NP, the undergoer is the pragmatic pivot of the first clause, and in this case it is the same as the single argument of *barone* 'die' in the second clause; hence the suffix is *-na* 'same'. In (d) the actor of the first clause is the undergoer of the second; both verbs are A-verbs. However, the actor of the second clause is unmarked for definiteness and is therefore outranked for pragmatic pivot by the pronoun na '1sg' (which is omitted; the only overt marking of the undergoer is the *-ie* '1sgU' suffix on the verb). Consequently, the two pragmatic pivots are the same, and therefore the switch-reference marker is *-na* 'same'.

All of the transitive verbs in these examples have been A-verbs; what happens when the transitive verb is a U-verb? In (e) the undergoer in the PSA position in the first clause is the same as the single argument of the intransitive verb, and therefore -na 'same' is used. This is analogous to (b) which has an A-verb in the first clause. The examples in (f) and (f') show that with U-verbs it is pragmatic pivots that are crucial. In (f) the actor of each clause is the same, but because the first verb is a U-verb with a definite undergoer, the actor of the first clause is not the pragmatic pivot; consequently, the marker must be -mo 'different'. In (f'), on the other hand, the undergoer *ame* 'child' is marked as new information by *-iebe* and therefore cannot be the pragmatic pivot; it occurs in initial position. The definite NP *bara* 'girl' functions as pragmatic pivot, and it is also the single argument of the intransitive verb in the second clause; hence the marker is -na 'same'. Thus, Barai presents a host of typologically unusual features, from its variable syntactic pivot despite the lack of any voice oppositions to its switch-reference system that monitors pragmatic pivots.