

Participial Strategies for Relative Clause Constructions and Hierarchies of Relativizability in New Indo-Aryan Languages*

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Abstract

Since the seminal work by Keenan & Comrie (1977), typological studies have shown that languages vary with respect to the range of arguments that can be relativized on. In this study, we systematically examine what can be relativized in five New Indo-Aryan (NIA) languages: Hindi-Urdu, Nepali, Early Nepali, Sinhala, and Bengali. Inspired by typological studies on relative clauses, we conducted our examination using a novel systematic methodology. First, we examined both headless and headed relative clauses. Second, we examined relativization on arguments for each of the macro roles S, A, P, T, and R. Lastly, we examined every participial strategy for relative clause constructions when a language had different participles for tense or aspect. Our investigation showed that there are both similarities and differences in the relativizability of NPs in relative clause constructions in the five NIA languages examined. On the one hand, in each language examined, arguments of the same range of macro roles can be relativized on in both headed and headless relative clauses. On the other hand, the five languages differ as to which macro roles can be relativized on. Based on this difference of the relativizability of NPs and our novel methodology, we propose hierarchies of relativizability for these NIA languages. The hierarchies are $\{S\} > \{A\} > \{P, T, R\}$ for relative clause constructions by imperfective/nonpast participles and $\{S, P, T\} > \{A\} > \{R\}$ for those by perfective/past participles.

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1. Introduction

Relative clauses have been a major area of interest in linguistic typology, due in part to the fact that languages vary with respect to the range of arguments that can be relativized on. In the literature on the typology of relative clauses, Keenan & Comrie (1977) proposed the NP Accessibility Hierarchy to capture the universality and diversity of relative clauses in languages. They claim the following implicational hierarchy for the relativizability of NPs.

(1) The NP Accessibility Hierarchy (Keenan & Comrie 1977)

subject > direct object > indirect object > oblique > genitive > object of comparison

The hierarchy in (1) shows that the subject can always be relativized, and that if a strategy in a language is available for one grammatical relation, it is also available for grammatical relations higher up on the hierarchy.

Relative clauses in New Indo-Aryan (henceforth NIA) languages seemingly exhibit counterexamples to the NP Accessibility Hierarchy. It has been reported that some relative clauses in these languages do not follow the hierarchy in (1) (Subbārāo 2012). For example, in Bengali, NPs of direct object and oblique (e.g., locative) can be relativized, but indirect object cannot (Faquire 2014; Subbārāo 2012: 331), as shown in (2).

(2) Bengali

- a. [*amar dekh-a*] *lok=ṭi*
 1SG.GEN see-PTCP person=CLF
 ‘The person whom I saw’ (Faquire 2014: 26)¹
- b. *[*amar ciṭhi de-wa*] *lok=ṭi*
 1SG.GEN letter give-PTCP person=CLF
 ‘The person to whom I send a letter’ (Faquire 2014: 26)
- c. [*alta pɔɽ-a*] *pa*
 alta wear-PTCP foot
 ‘The foot on which alta dye is worn’ (Subbārāo 2012: 332)

(2a) shows the relativization of the direct object *lok* ‘person’, and (2c) shows the relativization of the oblique *pa* ‘foot’. As shown in (2b), the indirect object *lok* ‘person’ cannot be relativized. The examples in (2) deviate from the predicted pattern outlined in the NP Accessibility Hierarchy. Since indirect objects fall between direct objects and obliques in the hierarchy, if an oblique can be relativized in a language, it is predicted that an indirect object can also be relativized. The Bengali data in (2) do not follow this prediction.

Situations like the above that go against the predictions of the NP Accessibility Hierarchy in NIA languages are found only in participial strategies for relative clause constructions. Most NIA languages have two strategies for relative clauses: participial and relative-correlative strategies. Relative-correlative

¹We altered the glossing of examples from other studies if necessary throughout this paper.

strategies have little restriction on relativizability (Subbārāo 2012: 271). In this paper, we focus on participial strategies for relative clause constructions.

This study aims to provide a systematic survey of participial strategies in five NIA languages. We investigated both headless and headed relative clauses created by participles for each of the macro roles S, A, P, T, and R in Hindi-Urdu, Nepali, Early Nepali, Sinhala, and Bengali.

This study is systematic in three respects. First, it examines relative clauses both with and without a head NP. A relative clause with a head NP is illustrated in (3).

(3) Nepali

[*pokhara ja-ne* *bʌs khahā pa-i-ncha?*
 Pokhara go-IMPV.PTCP bus where get-PASS-3SG
 ‘Where can I get a bus going to Pokhara?’ (Matthews 1998: 160)

In the example above, the relative clause *pokhara ja-ne* ‘going to Pokhara’ modifies the head NP *bʌs* ‘bus’. This type of relative clauses is called a headed relative clause. Some languages have relative clauses that do not modify nouns or pronouns (Dryer 2007: 197). For example, in Nepali, a participle can occur without modifying a head noun.

(4) Nepali

[*bhan-eko na-man-ne*]=*lai* *sallah di-erʌ ke kam?*
 say-PFV.PTCP NEG-listen-IPFV.PTCP=DAT advice give-CVB what work
 ‘What’s the use of giving advice to someone who does not listen to what you say?’ (Matthews 1998: 171)

In (4), the relative clause formed by the participial phrase *bhan-eko na-man-ne* ‘one who does not listen to what you say’ functions as a noun phrase without modifying a noun. This type of relative clauses is called a headless relative clause, as opposed to a headed relative clause (Dryer 2007: 197). In recent typological studies, both headed and headless relative clauses have been considered equally important. Shibatani Masayoshi (Shibatani 2019 among others) argues that relative clauses should be reanalyzed as nominalizations, and that so-called headed and headless relative clauses are the two uses of nominalizations. Except for Nepali (Wallace 1985; Paudyal 2010), the relativizability of the gapped argument in a headless relative clause, or nominalization, has not often been described. In the literature, Nepali data seem to show that the relativizability of an NP can differ between headed and headless relative clauses. Wallace (1985) shows that only the subject can be relativized in headless relative clauses (‘nominalizations’ in his terminology), while Paudyal (2010) provides data for headed relative clauses whose head NP is something other than the subject. This study examines both headed and headless relative clauses when a language has both.

Second, this study is systematic because it examines relativization for each of the macro roles S, A, P, T, and R. Here we deviate from Keenan & Comrie (1977). Their discussion is based on grammatical relations like subject and object. Describing relative clauses based on macro roles enables us to accomplish

more accurate generalizations, as some grammatical relations cover more than one macro role. For example, subject is the syntactic generalization over S and A, and direct object is the syntactic generalization over P and T. However, the macro roles covered by a grammatical relation do not necessarily behave similarly especially in a language with ergativity. For example, in the ergative language Central Alaskan Yup'ik, S and P can be relativized, while A cannot (Shibatani 2021). In such a situation, we cannot syntactically generalize S and A as subjects in relativization because they behave differently syntactically. Similarly, a number of NIA languages, including Hindi-Urdu and Nepali, show ergativity to varying degrees (Verbeke 2013). In describing these languages, it is especially necessary to focus on macro roles rather than on grammatical relations like subject and direct object. In previous studies on relative clauses in NIA languages, however, the difference in relativizability based on macro roles has not often been described. More focus has been put on grammatical relations like subject and object. For example, it is repeatedly mentioned that the Hindi-Urdu imperfective participial strategy is available for subjects (see, for example, Kachru (2006)), but it is not clearly shown whether this strategy is available for both S and A. In order to describe relativizability in NIA languages, macro roles must be investigated separately.

Third, this study systematically examines every participial strategy for relative clause constructions when a language has different participles depending on tense or aspect. Among the five languages investigated, Hindi-Urdu, Nepali, Early Nepali, and Sinhala have two participles: perfective or past participle and imperfective or nonpast participle. A large number of NIA languages show split ergativity in their marking of argument or agreement depending on tense and aspect (Abbi 2001: 29). For example, in Nepali, the A argument is marked by the ergative marker *=le* in the simple past tense (Matthews 1998: 94). Relativizability can also be different depending on tense or aspect. Thus, we investigate both forms of participles when a language has two participial strategies.

Through the systematic investigation described in this study, we are able to offer generalizations about relative clause constructions in the NIA languages examined. Our investigation shows that there are both similarities and differences between these languages. On the one hand, none of the five languages examined shows any difference of relativizability between headed and headless relative clauses. On the other hand, the five languages differ as to which macro roles can be relativized. We propose a hierarchy of relativizability for NIA languages based on our results.

This paper is organized as follows. In Section 2, we introduce the languages examined and the methodology we used for testing grammaticality. In Section 3, we discuss the geographical locations of the languages and summarize what is known about these languages from previous studies. In Section 4, we provide the results of our investigation. In Section 5, we discuss the similarities and differences between the four NIA languages and propose hierarchies of relativizability. In Section 6, we conclude the paper.

2. Methodology

To investigate the behavior of the participle strategies of relative clause constructions in NIA languages, we selected five NIA languages: Hindi-Urdu, Nepali, Early Nepali, Sinhala, and Bengali. By Early Nepali, we mean Nepali of the 18th to 19th centuries. The data pertaining to Early Nepali was sourced from Wallace (1985). As for the remaining four languages, we utilized the data from the literature and from the stories, and we also collected data through direct elicitation from our informants. To elicit data, we conducted

grammatical judgment tests with a single informant for each language. Table 1 shows the basic information on our informants.

Table 1. The informants for the present study

	Gender	Year of birth	Origin	The first language	Other languages	Elicitation methods
Hindi-Urdu	Male	1972	Karachi, Pakistan	Urdu	Punjabi, English	virtual meeting, checking written examples
Nepali	Male	1989	Jhapa, Nepal	Nepali	English, Japanese	in-person session, virtual meeting
Sinhala	Female	1998	Colombo, Sri Lanka	Sinhala	English	telephone
Bengali	Male	1975	Kolkata, India	Bengali	English, Hindi	in-person sessions

The Hindi-Urdu informant is a male individual born in the year 1972. He hails from Karachi, Pakistan. Urdu is his first language, and he is also proficient in Punjabi and English. We elicited data from him through both virtual meetings and the checking of written examples. The Nepali informant is a male born in the year 1989. He originates from Jhapa, Nepal. Nepali is his first language, and he also speaks English and Japanese. We elicited data from him through both virtual meetings and in-person sessions. The Sinhala informant is a female born in the year 1998. She is from Colombo, Sri Lanka. Sinhala is her first language, and she also speaks English. We elicited data from her via telephone conversations. The Bengali informant is a male born in the year 1975. He hails from Kolkata, India. Bengali is his first language, and he also speaks English and Hindi. We elicited data from him through face-to-face sessions.

In this study we focus on three elements to carry out a systematic study of the relative clause constructions in NIA languages: (i) headed and headless relative clauses, (ii) macro roles, and (iii) participial strategies based on tense or aspect.

During our elicitation sessions, we presented informants with headed and headless relative clause constructions contrastively with information on the context. See the English example below.

- (5) You should marry a man [whom you love] and you should not marry [whom you do not love].

The first half of the example in (5) contains a headed relative clause construction, and the second half contains a headless relative clause construction. The contrastive illustration of headed and headless relative clause constructions enables an informant to interpret a headless relative clause easily. This is due to the fact that the interpretation of headless relative clauses relies on the context in many cases since a head noun phrase is absent in a headless relative clause construction.

As mentioned earlier, previous studies have focused more on the grammatical relation of an extracted argument in relativization. However, we investigated relative clause constructions with a focus on the macro roles of an extracted argument, that is S, A, P, T, and R. Each macro role corresponds to the single

argument of an intransitive construction, the agent of transitive construction, the patient of transitive construction, the theme of a ditransitive construction, and the recipient of a ditransitive construction, respectively. English examples of each macro role are given in (6).

(6) Macro roles

- a. S macro role: **A train** is coming from Delhi.
- b. A macro role: **A boy** is reading a book.
- c. P macro role: A boy is reading **a book**.
- d. T macro role: I will give **a gift** to my friend.
- e. R macro role: I will give a gift **to my friend**.

Finally, in our study, we focused on the participial strategies of relative clause constructions. Many NIA languages have multiple participial strategies for relative clause constructions based on aspect or tense. For example, Hindi-Urdu has two distinct participial strategies based on aspect: imperfective and perfective participles. See the examples below.

(7) The imperfective participle strategy in Hindi

[*ro-t-a* *hu-a*] *bacca* *mā=ko* *dekh-kār*
 cry-IPFV.PTCP-M.SG be-PFV.PTCP child.M.SG mother=DAT see-CP
cup *ho* *gə-ya*
 quiet be go-PFV.PTCP.M.SG

‘The child who was crying became quiet when he saw his mother.’ (Kachru 2006: 137)

(8) The perfective participle strategy in Hindi

[*khət=pər* *beṭh-a* *hu-a*] *admī*
 cot=on sit-PFV.PTCP.M.SG be-PFV.PTCP man
koī *upānyas* *pərh* *rəh-a* *th-a*
 some novel read PROG-M.SG be.PST-M.SG

‘The man sitting on the cot was reading some novel.’ (Kachru 2006: 137)

In the example in (7), the imperfective participle of the verb *ro* ‘cry’ is used for relativization. It corresponds to the progressive event of crying. In the example in (8), the perfective participle of the verb *beṭh* ‘sit’ is used for relativization. It corresponds to the stative interpretation of the event of sitting.

When a language has two participial strategies based on the differences of aspect or tense, we included both strategies in our study. Thus, the imperfective or nonpast participle strategies and the perfective or past participle strategies can be observed in Hindi-Urdu, Nepali, Early Nepali, and Sinhala. On the other hand, Bengali has a sole participial strategy for the relative clause construction, which can be used in both perfective and imperfective aspects depending on the context.

In Hindi-Urdu, another strategy, namely *vala* construction or “agentive participle” is included in the participial strategies of relative clauses in some studies (Kachru 1980; Kachru 2006; Hook 1979). This

construction is composed of “inflected infinitive form of the verb followed by the item *vala*” (Kachru 2006: 136). This *vala* construction is not included in our study, as it does not code a specific tense or aspect and behaves differently from other participles (e.g., it can also follow elements other than verbs).

We focused on these three elements mentioned at the beginning of this section in our investigation: (i) headed and headless relative clauses, (ii) macro roles, and (iii) participial strategies based on tense or aspect. The elements we focused on in this study are summarized in Table 2 below. When a language has two participial strategies based on tense or aspect, it is necessary to investigate the possibility of relative clause formation in 20 patterns.

Table 2. The summary of the parameters for the survey

Strategy	Head	Macro roles				
		S	A	P	T	R
imperfective/nonpast participle strategy	headed	✓	✓	✓	✓	✓
	headless	✓	✓	✓	✓	✓
perfective/past participle strategy	headed	✓	✓	✓	✓	✓
	headless	✓	✓	✓	✓	✓

3. The investigated languages

We investigated five NIA languages, Hindi-Urdu, Nepali, Early Nepali, Sinhala, and Bengali, in the present study. The four currently-spoken languages are distributed across South Asia, as shown in the map in Figure 1.



Figure 1. The geographical location of the languages under examination

As noted earlier, among the five languages investigated, Hindi-Urdu, Nepali, Early Nepali, and Sinhala have two participial strategies for relative clause constructions based on aspect or tense. On the

other hand, Bengali has a sole participial strategy for the relative clause construction, which can be used in both perfective and imperfective aspects depending on the context.

We decided to investigate the five languages listed above for two reasons. First, we wanted to investigate both ergative languages like Hindi-Urdu and Nepali and accusative languages like Sinhala and Bengali. We included both Early Nepali and Modern Nepali in the present study because Wallace (1985) notes that a change is observed between the two stages of Nepali regarding ergativity in the headless relative clauses with perfective participle strategy (it is called *-eko* nominalization by Wallace). Thus, it is worth investigating Early Nepali and Modern Nepali to observe the development of relative clause constructions. Second, each language genetically belongs to a distinct subgroup of the NIA linguistic group. As per the subcategorization of NIA languages by Chatterji (1923), Hindi-Urdu belongs to the Midland group, Nepali belongs to the North group, Sinhala belongs to the Southwest group, and Bengali belongs to the Eastern group of NIA languages, respectively. Investigating these languages enabled us to observe possible variations within the NIA languages.

Several researchers have investigated the behavior of participial strategies of relative clause constructions in these languages (see Hook & Koul 2014; Kachru 1980; Subbārão 2012; Nishioka & Kumar 2021; Ahmed 2010 for Hindi-Urdu, Wallace 1985; Paudyal 2010 for Nepali, Subbārão 2012; Chandralal 2010 for Sinhala, Dasgupta 1980; Faquire 2014; Subbārão 2012 for Bengali). Among them, the study by Subbārão (2012) is noteworthy because it focuses on macro roles to investigate relative clause constructions in South Asian languages including NIA languages. However, previous studies have not conducted a systematic investigation focusing on the three elements altogether, namely (i) headed and headless relative clauses, (ii) macro roles, and (iii) participial strategies based on tense or aspect. Thus, previous descriptions are incomplete since they do not fully address the patterns and characteristics of participial strategies employed in relative clause constructions across these languages.

4. Data

In this section, we present the data from our study. The results are summarized in Tables 3 and 4. Both tables represent the results of the respective participial strategies, namely imperfective and perfective participle strategies. When “OK” appears in a cell, it indicates that a specific macro role was observed to be relativized in a certain type of event. It does not necessarily mean that macro roles in all types of events can be relativized when “OK” is shown.

Table 3. The summary of the results: imperfective/nonpast participle strategy

Language	S	A	P	T	R
Hindi-Urdu	OK	NO	NO	NO	NO
Early Nepali	OK	OK	NO	NO	NO
Modern Nepali	OK	OK	OK	OK	OK
Sinhala	OK	OK	OK	OK	OK
Bengali	OK	OK	OK	OK	OK

Table 4. The summary of the results: perfective/past participle strategy

Language	P	T	S	A	R
Early Nepali	OK	OK	OK	NO	NO
Hindi-Urdu	OK	OK	OK	OK	NO
Modern Nepali	OK	OK	OK	OK	OK
Sinhala	OK	OK	OK	OK	OK
Bengali	OK	OK	OK	OK	OK

We discuss the results presented in Tables 3 and 4 for each language in the following section.

4.1. Hindi-Urdu

Hindi-Urdu has two participial strategies, namely imperfective and perfective participle strategy. We discuss the data related to the imperfective participle strategy and the perfective participle strategy in Sections 4.1.1 and 4.1.2, respectively.

4.1.1. Imperfective participle strategy

In Hindi-Urdu, only S is relativized with the imperfective participle strategy. Both headed and headless relative clauses are accepted. The example in (9) shows S relativization via a headed relative clause.

(9) S relativization

[*cəl-t-ī* (*hu-ī*)] *gaṛī=se* *khūd* *pəṛ-na* *bevaqūfī* *he*
 move-IPFV.PTCP-F (be-PFV.PTCP.F) train=from jump fall-INF foolish be.3.PRS
 ‘To jump from a moving train is stupidity.’ (McGregor 1986: 156)

In the above example, the subject *gaṛī* ‘train’ is relativized with the imperfective participle of the verb *cəl* ‘move’. The perfective participle of *ho* ‘be’ following a participle of a verb is optional. The headless relative clause for S relativization is shown in the example in (10).

(10) S relativization

[*mər-t-a*] *kya* *nə* *kər-t-a?*
 die-IPFV.PTCP-M.SG what NEG do-PTCP-M.SG
 ‘What wouldn’t a dying man do?’ (McGregor 1986: 158)

In the above example, the imperfective participle of the verb *mər* ‘die’ refers to the S of the event, that is the one who is dying.

Next, A relativization with the imperfective participle is not accepted in Hindi-Urdu, as shown in (11).

(11) A relativization

*[*kitab* *pəʃh-t-a* *hu-a*] *ləʃka*
 book read-IPFV.PTCP-M.SG be-PFV.PTCP.M.SG boy
mera *choʃa* *bhaī* *he*
 1.GEN.M.SG small.M.SG brother be.PRS.3SG
aur [*əkhbar* *pəʃh-t-ī* *hu-ī*] *merī* *baʃī* *bəhən* *he*
 and newspaper read-IPFV.PTCP-F be-PFV.PTCP-F 1.GEN.F big.F sister be.PRS.3SG
 ‘The boy who is reading a book is my younger brother and the one who is reading the newspaper is my elder sister.’

In the first half of the above example, the imperfective participle of the verb *pəʃh* ‘read’ forms the relative clause, but it is not accepted. The second half of the example shows the headless relative clause, which cannot be accepted either.

Similarly, P relativization, T relativization, and R relativization with the imperfective participle strategy are not accepted in Hindi-Urdu. The example in (12) illustrates P relativization.

(12) P relativization

*[*mere* *bhaī=kī* *pəʃh-t-ī* *hu-ī*] *kitab*
 1.SG.GEN.OBL brother=GEN.F read-IPFV.PTCP-F be-PFV.PTCP.F book.F
mē *bhī* *bəcpən=mē* *pəʃh-t-ī* *th-ī*
 1.SG.NOM also childhood=in read-IPFV.PTCP-F be.PAST-F.SG
aur [*merī* *bəhən=ka* *pəʃh-t-a* *hu-a*]
 and 1.SG.GEN.F sister=GEN.M.SG read-IPFV.PTCP-M.SG be-PFV.PTCP.M.SG
mē *bhī* *roz* *pəʃh-t-ī* *hū*
 1.SG.NOM also everyday read-IPFV.PTCP-F be.PRS.1SG
 ‘I used to read the book which my brother is reading, and I also read the one which my sister is reading every day.’

In the first half of the above example, the imperfective participle of the verb *pəʃh* ‘read’ is used to relativize P, which is *kitab* ‘book’. The agent *mera bhai* ‘my brother’ is marked by a genitive. In the second half of the example, the imperfective participle of the verb *pəʃh* ‘read’ is used in the headless relative clause for P

relativization. This sentence was judged ungrammatical by our informant.

An example of T relativization with the imperfective participle strategy is shown in (13).

(13) T relativization

*[*mera* *apne* *dost=ko* *de-t-a*] *tofa*
 1.SG.GEN.M.SG self.M.OBL friend=dat give-IPFV.PTCP-M.SG gift

is *kəmre=mē* *he*
 this.OBL room=in be.PRS.3SG

aur [*tumhara* *apnī* *dost=ko* *de-t-a*]
 and 2.SG.GEN.M.SG self.SG.F friend=dat give-IMP.PTCP-M.SG

us *kəmre=mē* *he*
 that.OBL room.OBL=in be.PRS.3SG

‘The gift which I will be giving to my friend is in this room and the one which you will be giving to your friend is in that room.’

In the first half of the above example, the imperfective participle of the verb *de* ‘give’ is used to relativize T, which is *tofa* ‘gift’. In the second half of the example, the imperfective participle of the verb *de* ‘give’ is used in the headless relative clause for T relativization. This sentence was judged ungrammatical by our informant.

Lastly, an example of R relativization with the imperfective participle strategy is shown in (14).

(14) R relativization

*[*mera* *aj* *tofa de-t-a*] *admī* *mera* *dost* *he*
 1.SG.GEN.M.SG today gift give-IPFV.PTCP-M.SG man 1.SG.GEN.M.SG friend be.PRS.3SG

aur [*merī* *bīvī=kī* *tofa de-t-ī*] *us=kī* *sāhelī* *he*
 and 1.SG.GEN.F wife=GEN.F gift give-IPFV.PTCP-F that=GEN.F female.friend be.PRS.3SG

‘The person to whom I will be giving a gift today is my friend, and the one to whom my wife will be giving a gift is her friend.’

In the first half of the above example, the imperfective participle of the verb *de* ‘give’ is used to relativize R, which is *admī* ‘man’. In the second half of the example, the imperfective participle of the verb *de* ‘give’ is used in the headless relative clause for R relativization. This sentence was judged ungrammatical by our informant.

To summarize, in Hindi-Urdu, only S is relativized with the imperfective participle strategy in headed and headless relative clause constructions. The literature mentions that the subject as a grammatical relation can be relativized by the imperfective participle strategy in Hindi-Urdu (Kachru 1980: 35). However, our data demonstrated that only S is possible.

4.1.2. Perfective participle strategy

Hindi-Urdu allows P, T, S, and A macro roles to be relativized with the perfective participle strategy. Both

headed and headless relative clauses are accepted for these macro roles.

An example of P relativization is given in (15).

(15) P relativization

[*səlmā=kī* *pichle* *sal* *likh-ī* *hu-ī*] *kitab*
 Salma=GEN.F last.M.OBL year write-PTCP.F be-PFV.PTCP.F book
əchhī *th-ī* *or* [*səlmā=kī* *is* *sal*
 good.F be.PST-F.SG and Salma=GEN.F this.OBL year
likh-ī *hu-ī*] *bhī* *thīk* *th-ī*
 write-PFV.PTCP.F be-PFV.PTCP.F also fine be.PST-F.SG
 ‘The book which Salma wrote last year was good, and the one which Salma wrote this year was also fine.’

In the first half of the above example, the patient *kitab* ‘book’ is relativized with the perfective participle consisting of the verb *likh* ‘write’. The second half of the example exhibits the headless relative clause construction.

Next, headed relative clauses with T relativization are shown in examples (16) and (17).

(16) T relativization

ghər=mē [*īfwər=ka* *di-ya* *hu-a*] *səb kuch* *hē*
 house=in god=GEN.M.SG give-PFV.PTCP.M.SG be-PFV.PTCP.M.SG all anything be.PRS.3SG
 ‘Everything that God/the god gave us is in the house.’ (Premchand, *Nirmala*)

In the above example, the T *səb kuch* ‘everything’ is relativized with the perfective participle of the verb *de* ‘give’. The example in (17) illustrates a headless relative clause for the T macro role.

(17) T relativization

[*un=ka* *di-ya* *hu-a*] *həm* *kəbhī*
 3PL.OBL-GEN.M.SG give-PFV.PTCP.M.SG be-PFV.PTCP.M.SG 1PL.NOM never
nəhī *cuka* *sək-t-e*
 NEG complete be.able-IPFV.PTCP-M.PL
 ‘You can never repay what they gave.’ (Nishioka & Kumar 2021: 91)

In the above example, the perfective participle consisting of the verb *de* ‘give’ refers to T without specifying the head noun phrase.

Next, S relativization with the perfective participle strategy is also accepted in Hindi-Urdu. The example in (18) is a headed relative clause for the S macro role.

(18) S relativization

<i>am=ke</i>	<i>bag=mē</i>	<i>gaḍ=ke</i>	<i>lāṛke</i>	<i>lāṛkiyā</i>
mango=GEN.M.OBL	garden=in	village=GEN.M.PL	boy.PL	girl.PL
[<i>hawa=se</i>	<i>gir-e</i>	<i>hu-e</i>]	<i>am</i>	
wind.F=from	fall-PFV.PTCP.M.PL	be-PFV.PTCP.M.PL	mango	
<i>cun</i>	<i>rāh-e</i>	<i>th-e</i>		
select	PROG-M.PL	be.PST-M.PL		

‘The boys and girls from the village were picking up mangos which fell through the air into the mango garden.’ (Premchand, *Algyojha*)

In the above example, the S *am* ‘mango’ is relativized with the perfective participle of the verb *gir* ‘fall’. Similarly, a headless relative clause construction is illustrated in (19) below.

(19) S relativization

[<i>gir-ḍ</i>]= <i>ko</i>	<i>uṭha-o</i>
fall-PFV.PTCP.M.PL.OBL=DAT	raise-IMP

‘Raise up the fallen.’ (McGregor 1986: 158)

In the above example, the perfective participle of the verb *gir* ‘fall’ forms the headless relative clause and refers to S of the event, followed by the dative marker *ko*.

Although we demonstrated felicitous examples of S relativization with the perfective participle strategy in Hindi-Urdu, it is important to acknowledge that not all S can be relativized in this manner. Ahmed (2010) highlights the significance of a verb feature which he calls “post-state” in the process of S relativization with the perfective participle strategy in Urdu. According to Ahmed (2010), when a verb possesses a positive “post-state” feature, it indicates that a change of state is involved in an event described by the verb. In other words, when an event describes a change of state, S in that event can be relativized with the perfective participle strategy in Hindi-Urdu.

Next, we present examples of A relativization. A relativization is also restricted to some types of verbs in Hindi-Urdu. Hook (1979: 202) mentions that A relativization is possible with only a few reflexive transitive verbs like *pi* ‘drink’ and *pāhan* ‘wear’. Another characteristic of the perfective participle strategy for A relativization in Hindi-Urdu is that it indicates the change of state. See the example in (20).

(20) A relativization

[<i>pi-ya</i>	<i>hu-a</i>]	<i>admī</i>	<i>cāl</i>	<i>rāh-a</i>	<i>he</i>	<i>or</i>
drink-PFV.PTCP.M.SG	be-PFV.PTCP.M.SG	man	move	PROG-M.SG	be.PRS.3.SG	and
<i>udhār</i>	[<i>pi-ya</i>	<i>hu-a</i>]	<i>nac</i>	<i>rāh-a</i>	<i>he</i>	
there	drink-PFV.PTCP.M.SG	be-PFV.PTCP.M.SG	dance	PROG-M.SG	be.PRS.3.SG	

‘The drunken man is walking and another drunken man is dancing over there.’

The first half of the example shows the headed relative clause construction, where *pi-ya hu-a* ‘drunken’

relativizes the agent *admi* ‘man’. The second half of the example shows the headless relative clause construction with the same verb. With the perfective participle of the verb, the relative clause construction *pi-ya hu-a admī* does not refer to the man who drank a beverage but to the drunken man. Change of state is an important factor for interpreting A relativization.

Next, in Hindi-Urdu, R relativization with the perfective participle strategy is not accepted, as shown in (21).

(21) R relativization

*[*ɔrət=ka* *khilḁna* *di-ya* *hu-a*] *bḁcca* *dḁrasḁl*
 lady=GEN.M.SG toy give-PFV.PTCP.M.SG be-PFV.PTCP.M.SG child actually
mera *bhaī* *he* *pḁr* [*ɔrət=ke* *miṭhaī*
 1SG.GEN.M.SG brother COP.PRS.3SG but lady=GEN.M.OBL sweet
di-e *hu-e]=ko* *mē* *nḁhī* *jan-t-a*
 give-PFV.PTCP.M.OBL be-PFV.PTCP.M.SG.OBL=DAT 1SG.NOM NEG know-IPFV.PTCP-M.SG
 ‘The child to whom the lady gave a toy is actually my brother, but I do not know the one to whom she gave a sweet.’

In the first half of the above example, the recipient *bḁcca* ‘child’ in the event where a lady gave a toy cannot be relativized. Similarly, the headless relative clause is not accepted as illustrated in the second half of the example.

In summary, Hindi-Urdu allows P, T, S, and A macro roles to be relativized with the perfective participle strategy. Headed and headless relative clauses show the same behavior with respect to the macro roles to be relativized on.

4.2. Early Nepali

Early Nepali has two participial strategies, namely imperfective and perfective participle strategies, which we discuss in sections 4.2.1 and 4.2.2, respectively.

4.2.1. Imperfective participle strategy

According to Wallace (1985), in Early Nepali, S and A are relativized with the imperfective participle strategy. The example in (22) is a headless relative clause for S relativization in Early Nepali.

(22) S relativization

gha *va-nya* *dekhi* [*kirat=baṭṭa* *bhagi-ja-nya*]=*kana* *paṭṭar-erṭ*
 union make-IPFV.PTCP after Kirat=from flee-go-IPFV.PTCP=ACC capture-CVBS
hami=lai saūpi *di-nya* *cha*
 1PL=DAT ally give-IPFV.PTCP COP.PRS.3
 ‘After the alliance is made, our ally will give us those who fled from Kirat whom he captured.’

(Wallace 1985: 108)

In the above example, the participle of the verb *bhagi-ja* ‘flee’ relativizes the S, which is followed by the accusative marker *kana*.

The example in (23) is a headless relative clause for A relativization in Early Nepali.

(23) A relativization

[*cita-yako* *kamana* *purayau-nya*] *ajla* *daiba* *cha* *arke* *chaina*
 think-PFV.PTCP desire fulfill-IPFV.PTCP today fate COP.PRS other COP.NEG
 ‘That which fulfills our desires is fate and nothing else.’ (Wallace 1985: 108)

In the above example, the participle of the verb *purayau* ‘fulfill’ relativizes the agent. To summarize, S and A are relativized with the imperfective participle strategy in Early Nepali.

4.2.2. Perfective participle strategy

According to Wallace (1985), in Early Nepali, P, T, and S are relativized with the perfective participle strategy P relativization via a headless relative clause construction is shown in example (24), taken from Wallace (1985).

(24) P relativization (18th century)

[*bhan-yako*] *sunyau*
 say-PFV.PTCP hear.PST.1PL
 ‘We heard what was said.’ (Wallace 1985: 109)

In the above example, the perfective participle of the verb *bhan* ‘say’ refers to the P without specifying a head noun phrase.

Wallace (1985) also demonstrates T relativization by a headless relative clause in Nepali from the 19th century, as shown in the example in (25).

(25) T relativization (19th century)

tasartha *taha* [*ma=kane* *prakafa* *gar-yako*]
 therefore then 1SG=DAT clear do-PFV.PTCP
timi=le *na-jan-yako* *ho*
 2SG=ERG NEG-know-PFV.PTCP be.PRS.3SG
 ‘Therefore, you do not understand that which has been made clear to me.’ (Wallace 1985: 109)

In the above example, the perfective participle of the verb *prakafa gar* ‘clarify’ refers to T without the head noun phrase. The example in (26) shows an example of S relativization in Nepali of the 19th century.

(26) S relativization (19th century)

[*bāc-yak-i*] *mer-i* *huncha*
 survive-PFV.PTCP-F 1SG.GEN-F be.PRS.3SG
 ‘The one who survived is my wife.’ (Wallace 1985: 109)

In the above example, the perfective participle of the verb *bāc* ‘survive’ relativizes the S. In summary, In Early Nepali, P, T, and S are relativized with the perfective participle strategy.

4.3. Nepali

Nepali (Modern Nepali) has two participial strategies, namely imperfective and perfective participle strategies, which we discuss in sections 4.3.1 and 4.3.2, respectively.

4.3.1. Imperfective participle strategy

In Nepali, the relativization of all macro roles with the imperfective participle strategy was accepted by our informant. Also, both headed and headless relative clauses are accepted in each macro role. The example in (27) shows an example of S relativization.

(27) S relativization

[*biratnagar=baʎa au-ne*] *bas ahile=samma pug-eko chaina*
 Biratnagar=from come-IPFV.PTCP bus now=till arrive-PFV.PTCP COP.NEG
ʎaʎa [kaʎhmāḍi=baʎa au-ne] ek għaḅa aḡaḍi na
 but Kathmandu=from come-IPFV.PTCP one hour before EMPH
pug-i sak-y-o
 arrive-CP finish-PST-3
 ‘The bus which comes from Biratnagar has not arrived yet, but the one which comes from Kathmandu arrived one hour ago.’

In the first half of the above example, the S of the event, namely *bas* ‘bus’ is relativized with the imperfective participle strategy consisting of the verb *au* ‘come’. In the second half of the example, the headless relative clause construction is demonstrated, where the relative clause employing the imperfective participle of the verb *au* ‘come’ refers to another bus.

Next, an example of A relativizations accepted by our informant is shown in (28).

(28) A relativization

[*fuʎbol dherai jit-ne*] *def brazil ho*
 football much win-IPFV.PTCP country Brazil be.PRS.3
ani [krikeʎ jit-ne] aʎtreliya ho
 and cricket win-IPFV.PTCP Australia be.PRS.3
 ‘The national team which wins soccer games is Brazil, but the one which wins cricket games is Australia.’

In the first half of the above example, the participle of the verb *jit* ‘win’ relativizes the A, *des* ‘country’. In the second half of the example, the participle of the verb *jit* ‘win’ forms the headless relative clause.

Next, an example of P relativization with the imperfective participle strategy accepted by our informant is shown in (29).

(29) P relativization

[*brʌzil=le dherʌi jit-ne*] *khel fʌtʌbol ho*
 Brazil=ERG much win-IPFV.PTCP game football be.PRS.3
tʌrʌ [*ʌstrelɪyʌ=le jit-ne*] *krikeʃ ho*
 but Australia=ERG win-IPFV.PTCP cricket be.PRS.3

‘The game which Brazil wins is football, but the one which Australia wins is cricket.’

In the first half of the above example, the participle of the verb *jit* ‘win’ relativizes the P, *khel* ‘game’. In the second half of the example, the participle of the verb *jit* ‘win’ forms the headless relative clause.

Unlike our investigation, the headless relative clause for P relativization in Nepali was rejected by Wallace (1985), as shown in the example in (30).

(30) P relativization

*[*jit-ne*]=*haru baliya thie*
 win-PTCP=PL strong be.PST.3

‘Those who were defeated were strong.’ (Wallace 1985: 94)

According to Wallace (1985: 94), the above example is interpreted as A relativization, where the imperfective participle refers to the A, the one who conquered. It cannot be interpreted as P relativization, while the example in (29) was judged as grammatical by our informant. In this respect, our study differs from Wallace’s (1985) study because we filled arguments other than the extracted argument within the relative clause. We assume that this is one of the factors contributing to the acceptance of P relativization in our study. Wallace uses the verb *jit* ‘win’, which has both transitive and intransitive uses. Speakers tend to interpret *jit* ‘win’ as an intransitive use in example (30). However, when sufficient arguments are provided within the relative clause as in example (29), the interpretation of a transitive use of *jit* ‘win’ becomes possible and P relativization is considered grammatically acceptable.

Next, the example in (31) shows an accepted example of T relativization with the imperfective participle strategy.

(31) T relativization

[*mʌi=le us=lai di-ne*] *kura=hʌru tyo koʃha=ma thie*
 1SG=ERG 3SG.OBL=DAT give-IPFV.PTCP thing=PL that room=in be.PST.3

rʌ [*mʌi=le tʌpʌi=lai di-ne*]=*hʌru* *yo koʃha=ma thie*
 and 1SG=ERG 2SG=DAT give-IPFV.PTCP=PL this room=in be.PST.3

‘The things which I gave to him/her were in that room, and the ones which I gave to you were in this room.’

In the first half of the above example, the participle of the verb *di* ‘give’ relativizes the T, *kura* ‘thing’. In the second half of the example, the participle of the verb *di* ‘give’ forms the headless relative clause.

Wallace (1985) also rejected the headless relative clause for the T macro role in Nepali as shown in (32).

(32) T relativization

*[*di-ne*]=*hʌru* *yo koʃha=ma thie*
 give-IPFV.PTCP=PL this room=in be.PST.3

‘Those things which were given are in this room.’

In the above example, the participle of the verb *di* ‘give’ is used for relativization. According to Wallace (1985), this sentence is felicitous only for A relativization as in ‘those who gave are in this room’. The difference between the accepted and rejected sentences above is again whether the relative clause has enough arguments for the interpretation. The accepted example of T relativization in (31) has the agent argument inside the relative clause. Thus, there is no ambiguity in interpreting which argument is extracted. On the other hand, the rejected example of T relativization in (32) does not have the A inside the relative clause, and speakers prefer to interpret A as the extracted argument, rather than T.

Lastly, the example in (33) shows R relativizations with the imperfective participle strategy. This example was accepted as grammatical by our informant.

(33) R relativization

[*mʌi=le ajʌ gift di-ne*] *manche mero sathi ho*
 1SG=ERG today gift give-IPFV.PTCP person 1SG.GEN.M friend be.PRS.3

ʌni [*meri srimati=le gift di-ne*]
 and 1SG.GEN.F wife=ERG gift give-IPFV.PTCP

unki sathi hun
 3SG.HON.GEN.F friend be.PRS.3.HON

‘The person to whom I will give a gift today is my friend, and the one to whom my wife will give a gift is her friend.’

In the first half of the above example, the imperfective participle of *di* ‘give’ relativizes the R, *manche* ‘person’. In the second half of the example, the participle of the verb *di* ‘give’ forms the headless relative

clause.

In summary, S, A, P, T, and R are relativized with the imperfective participle strategy in headed and headless relative clauses in Modern Nepali.

4.3.2 Perfective participle strategy

In Nepali, the relativizations of all macro roles, namely P, T, S, A, and R with the perfective participle strategy were accepted by our informant. Also, both headed and headless relative clauses are accepted in each macro role. An example of P relativization is given in (34).

(34) P relativization

[*brʌzil=le olimpik=ma jit-eko*] *sport* *fuṭbol* *thiyo*
 Brazil=ERG Olympic=in win-PFV.PTCP sport football be.PST.3
ʌni [*ʌsṭreliya=le jit-eko*] *hʌkki* *thiyo*
 and Australia=ERG win-PFV.PTCP hockey be.PST.3

‘The sport which Brazil won in the Olympics was football, and the one which Australia won was hockey.’

In the first half of the above example, the perfective participle of *jit* ‘win’ relativizes the P, *sport* ‘sport’. In the second half of the above example, the perfective participle of the verb *jit* ‘win’ forms the headless relative clause.

Next, an example of T relativizations is given in (35). This example was judged to be grammatical by our informant.

(35) T relativization

[*mai=le us=lai di-eko*] *kura=haru* *tyo* *koṭha=ma* *thie*
 1SG=ERG 3SG=DAT give-PFV.PTCP thing=PL that room=in be.PST.3
rʌ [*mai=le tʌpaĩ=lai di-eko*]=*haru* *yo* *koṭha=ma* *thie*
 and 1SG=ERG 2SG=DAT give-PFV.PTCP=PL this room=in be.PST.3

‘The things which I gave to him/her were in that room, and the ones which I gave to you were in this room.’

In the first half of the above example, the perfective participle of *di* ‘give’ relativizes the T, *kura=haru* ‘things’. In the second half of the example, the perfective participle of the verb *di* ‘give’ forms the headless relative clause.

An example of S relativizations accepted by our informant is given in (36).

(36) S relativization

[*biratnagar=baʎa a-eko*] *bas thik ʔaim=ma a-i pug-y-o*
 Biratnagar=from come-PFV.PTCP bus fine time=in come-CP arrive-PST-3
ani [kaʔhmãdũ=baʎa a-eko] ek ghãʔa agãʔi nai
 and Kathmandu=from come-PFV.PTCP one hour before EMPH
pug-i sak-y-o
 arrive-CP finish-PST-3

‘The bus which came from Biratnagar has already arrived on time, and the one which came from Kathmandu arrived one hour ago.’

In the first half of the above example, the perfective participle of *au* ‘come’ relativizes the S, *bas* ‘bus’. In the second half of the example, the perfective participle of the verb *au* ‘come’ forms the headless relative clause.

Next, an example of A relativizations accepted by our informant is given in (37).

(37) A relativization

[2022 *sal=ma fuʔbol wãrlɔkãp jit-eko*] *def arzentina ho*
 2022 year=in football worldcup win-PFV.PTCP country Argentina be.PRS.3
ani [tyohi varfa krikeʔ wãrlɔkãp jit-eko] ingland=le ho
 and that year cricket worldcup win-PFV.PTCP England=ERG be.PRS.3

‘The national team which won the Soccer World Cup in 2022 was Argentina, and the one which won the Cricket World Cup in that year was England.’

In the first half of the above example, the perfective participle of *jit* ‘win’ relativizes the A, *def* ‘country’. In the second half of the example, the perfective participle of the verb *jit* ‘win’ forms the headless relative clause.

Lastly, an example of R relativizations accepted by our informant is given in (38).

(38) R relativization

[*mãhila=le khilõna di-eko*] *cora bastãv=ma*
 lady=ERG toy give-PFV.PTCP child actuality=in
mero bhaĩ ho
 1SG.GEN.M brother be.PRS.3SG
ʔãʎã [mãhila=le mithai di-eko]=la mãlai thaha chai-na
 but lady=ERG sweet give-PFV.PTCP=DAT 1SG.DAT known be.1SG-NEG

‘The child to whom the lady gave a toy is actually my brother, but I do not know the one to whom the lady gave a sweet.’

In the first half of the above example, the perfective participle of *di* ‘give’ relativizes the R, *cora* ‘child’. In the second half of the example, the perfective participle of the verb *di* ‘give’ forms the headless relative

clause.

In summary, In Nepali, S, A, P, T, and R are relativized with the perfective participle strategy in headed and headless relative clause constructions.

4.4. Sinhala

Sinhala has two participial strategies, namely nonpast participle and past participle strategies, which we discuss in Sections 4.4.1 and 4.4.2, respectively.

4.4.1 Nonpast participle strategy

In Sinhala, the relativizations of all macro roles with the nonpast participle strategy are accepted. Examples of these are given in (39)–(43).

(39) S relativization

[*mehee innə*] *lamayə*
 here exist.NPST.PTCP child
 ‘the child who exists here’

(40) A relativization (Chandralal 2010: 131)

[*darua-wə hoyənə*] *amma*
 child-ACC search.NPST.PTCP mother
 ‘the mother who searches for her child’ or ‘the mother, who searches for her child’

(41) P relativization (Chandralal 2010: 131)

[*amma hoyənə*] *darua*
 mother search.NPST.PTCP child
 ‘the child whom the mother searches for’

(42) R relativization

[*Ranjit potə denə*] *lamea*
 Ranjit book give.NPST.PTCP child
 ‘the child to whom Ranjit gives the book’

(43) T relativization

[*Ranjit lamea-[-ə] denə*] *potə*
 Ranjit child-DAT give.NPST.PTCP book
 ‘the book which Ranjit gives to the child’

In Sinhala, the nonpast participle does not function as a noun phrase without modifying a noun or pronoun.

4.4.2. Past participle strategy

The relativizations of all macro roles with the past participle strategy were accepted by our Sinhala informant, as shown in (44)–(48).

(44) S relativization

[*mehee hitiyə*] *lamayə*
 here exist.PST.PTCP child
 ‘the child who existed here’

(45) A relativization

[*darua-wə hoyəpu*] *amma*
 child-ACC search.PST.PTCP mother
 ‘the mother who searched for her child’ or ‘the mother, who searched for her child.’

(46) P relativization

[*amma hoyəpu*] *darua*
 mother search.PST.PTCP child
 ‘the child whom the mother searched for.’

(47) R relativization (Chandralal 2010: 131)

[*Ranjit potə dunnə*] *lamea*
 Ranjit book give.PST.PTCP child
 ‘the child to whom Ranjit gave the book’

(48) T relativization

[*Ranjit lamea-tə dunnə*] *potə*
 Ranjit child-DAT give.PST.PTCP book
 ‘the book which Ranjit gave to the child’

In Sinhala, the past participle does not function as a noun phrase without modifying either a noun or pronoun.

4.5. Bengali

Bengali does not have multiple participial strategies for relative clause constructions based on the differences of aspect or tense. There is only one participial strategy. Our Bengali informant accepted examples of headed and headless relative clauses with all macro roles. An example of S relativization is given in (49).

(49) S relativization

[*cennai theke af-a*] *tren=guli ekhən-o pouncho-e-ni*
 Chennai from come-PTCP train=CLF now-also arrive-PRS.3-NEG
tobe [dilli theke af-a]=guli æk ghōṅṭa age pounch-ech-e
 but Delhi from come-PTCP=CLF one hour before arrive-PRF-3
 ‘The trains which come from Chennai have not arrived yet but the ones which come from Delhi arrived one hour ago.’

In the first half of the above example, the S, that is *tren=guli* ‘the trains’ is relativized with the participle of the verb *af* ‘come’. The second half of the example illustrates the headless relative clause, where the

classifier *guli* follows the relative clause consisting of the verb *af* ‘come’. We consider this to be a headless relative clause construction in Bengali, as the classifiers cannot work as nouns on their own. Note that the participial strategy of Bengali cannot function as a headless relative clause without the existence of classifiers. When classifiers are deleted, the participle is interpreted as a verbal noun denoting the event.

Next, an example of A relativizations is shown in (50).

(50) A relativization

[*fuṭbol biṣṣokap jit-e ne-wa*] *def=guli* *ho-cch-e brajil ar arjenṭina*
 football worldcup win-CP take-PTCP country=CLF be.PROG.3 Brazil and Argentina
ar [krikeṭ biṣṣokap jite ne-wa]=guli ho-l-o oṣṭreliya ar bharṭ
 and cricket worldcup win-CP take-PTCP=CLF be-PST-3 Australia and India
 ‘The countries which win the Soccer World Cup are Brazil and Argentina, and the ones which win the Cricket World Cup are Australia and India.’

In the first half of the above example, the agent *def=guli* ‘the countries’ is relativized by the participle of *jit-e ne* ‘win’. In the second half of the example, the same participle forms the headless relative clause, which is followed by the classifier *guli*.

Next, an example of P relativization is shown in (51).

(51) P relativization

[*amar ajke bajar-e ken-a*] *jiniḥ=guli* *amar baṛi-te ach-e*
 1.SG.GEN today market-LOC buy-PTCP thing=CLF 1.SG.GEN house-LOC be-3
ar [tomar kalke bajar-e ken-a]=guli ekhan-e ro-ech-e
 but 2.SG.GEN yesterday market-LOC buy=CLF here-LOC stay-PRF-3
 ‘The things which I bought in the market today are in my house and the ones which you bought in the market yesterday are here.’

In the first half of the above example, the participle of the verb *ken* ‘buy’ relativizes the P, *jiniḥ=guli* ‘things’. In the second half of the example, the relative clause consisting of the participle of the verb *ken* ‘buy’ refers to the P, followed by the classifier *guli*.

Next, an example of T relativization is shown in (52).

(52) T relativization

[*amar take de-wa*] *jiniḥ=guli* *fei għor-e chil-o*
 1SG.GEN 3SG.DAT give-PTCP thing=CLF that room-LOC be.PST-3
ar [amar apnake de-wa]=guli ei għor-e chil-o
 and 1SG.GEN 2SG.HON.DAT give-PTCP=CLF this room-LOC be.PST-3
 ‘The things which I gave to him were in that room, and the ones which I gave to you were in this room.’

In the first half of the above example, the T, *jiniḡ=guli* ‘the things’ is relativized with the participle of the verb *de* ‘give’ and in the second half of the example, the relative clause, followed by the classifier *guli*, refers to the T.

Next, an example of R relativizations is given in (53).

(53) R relativization

[*mohila-r khelna de-wa*] *bacca=guli aḡl-e* *amar bhai*,
 lady-GEN toy give-PTCP child=CLF actual-LOC 1SG.GEN brother
tobe [mohila-r miḡḡi de-wa]=guli=ke *ami cin-i na*
 but lady-GEN sweet give-PTCP=CLF=DAT 1SG.NOM know-PRS.1 NEG

‘The children to whom the lady gave a toy are actually my brothers, but I do not know the ones to whom the lady gave a sweet.’

In the first half of the above example, the recipient *bacca=guli* ‘the children’ is relativized with the participle of the verb *de* ‘give’. In the second half of the example, the participle forms a headless relative clause, followed by the classifier *guli*.

The headed relative clause of the R macro role in Bengali was not accepted by Faquire (2014), as shown in the example (54).

(54) R relativization

[*amar ciḡhi de-wa*] *lok=ḡi*
 1SG.GEN letter give-PTCP person=CLF

‘The person to whom I send a letter.’ (Faquire 2014: 26)

In the above example, the participle of the verb *de* ‘give’ relativizes the R, *lok=ḡi* ‘the person’, which was rejected by Faquire (2014). However, R relativization was accepted by our informant as shown in example (53). This is perhaps because the elaborated contexts were provided to the informant for the grammatical judgment test, while Faquire (2014) showed only the noun phrase.

In summary, in Bengali, all macro roles, namely S, A, P, T, and R are relativized with the participial strategy in headed and headless relative clauses.

4.6. Summary

In this section, we presented data on participial strategies for relative clause constructions in Hindi-Urdu, Early Nepali, Modern Nepali, Sinhala, and Bengali. The findings of the investigation are summarized in Tables 5 and 6. Table 5 presents a summary of the findings of the imperfective/nonpast participle strategies and Table 6 presents a summary of the findings of the perfective/past participle strategies.

Table 5. Results: imperfective/nonpast participle strategy

Language	S	A	P	T	R
Hindi-Urdu	OK	NO	NO	NO	NO
Early Nepali	OK	OK	NO	NO	NO
Modern Nepali	OK	OK	OK	OK	OK
Sinhala	OK	OK	OK	OK	OK
Bengali	OK	OK	OK	OK	OK

Table 6. Results: perfective/past participle strategy

Language	P	T	S	A	R
Early Nepali	OK	OK	OK	NO	NO
Hindi-Urdu	OK	OK	OK	OK	NO
Modern Nepali	OK	OK	OK	OK	OK
Sinhala	OK	OK	OK	OK	OK
Bengali	OK	OK	OK	OK	OK

These tables demonstrate that the languages show different patterns in the ranges of macro roles to be relativized on. Within NIA languages, there is variation with respect to the macro roles which are extracted by participial strategies of relative clause constructions.

5. Discussion

The NIA languages examined in this study show both similarities and differences with regard to the relativizability of relative clause constructions. On the one hand, both headed and headless relative clauses are found in the same range of macro roles if a language has both. Among the languages examined, Hindi, Nepali, Early Nepali, and Bengali have both headed and headless relative clauses. What can be relativized is the same regardless of the presence or absence of the head. In previous studies, headed and headless relative clauses have not been examined together except in the case of Nepali (Wallace 1985). As for Nepali, it has been shown that only the subject is relativized in headless relative clauses via imperfective participles, while there is no such restriction for grammatical relations in headed relative clauses by imperfective participles. This study systematically examined the relativization of S, A, P, T, and R both with and without the head NP for the five languages. We did not find relative clauses that always lack the head NP or which cannot lack it in any of the languages examined.

On the other hand, the five languages differ as to which macro roles can be relativized. Even inside a language, different ranges of macro roles can be relativized by different participles. In previous studies, grammatical relations, such as subject and direct object, are often the parameters of the examination, and consideration is not given to possible differences among macro roles. For example, Hook & Koul (2014) show that relativization by imperfective participle is only available for subject in Hindi-Urdu. A subject

can be interpreted to be composed of S and A. It is not clearly mentioned whether both S and A behave in the same way. In contrast, this study showed that the macro roles treated under one grammatical relation in a given language can show different syntactic behaviors with respect to relativization. We showed that S can be relativized with an imperfective participle in Hindi-Urdu, but A cannot.

Based on the results of our investigation, we propose aspect-based implicational hierarchies of relativizability for NIA languages. For relative clauses with imperfective/nonpast participles, we propose the implicational hierarchy in (55).

(55) Hierarchy of macro roles in imperfective/nonpast relativizability:

$$\{S\} > \{A\} > \{P, T, R\}$$

We consider the macro roles between parentheses to have equal status in the hierarchy. For example, in (55), P, T, and R are written together between parentheses, and we do not consider there to be any hierarchical order among them. The order of the macro roles in a parenthesis is irrelevant. The data for Hindi-Urdu and Early Nepali create the breakpoints. Hindi-Urdu allows relativization for S, but not for A, P, T, and R. Early Nepali allows relativization for S and A, but not for P, T, and R. The other languages in this study allow relativization for all macro roles.

For relative clauses with perfective/past participles, we propose the implicational hierarchy in (56).

(56) Hierarchy of macro roles in perfective/past relativizability:

$$\{S, P, T\} > \{A\} > \{R\}$$

Again, the Hindi-Urdu and Early Nepali data create the breakpoints. Early Nepali allows relativization for S, P, and T, but not for A and R. Hindi-Urdu allows relativization for S, P, T, and A, but not for R. The other languages in this study allow relativization for all the macro roles.

We believe that the relativizability of NPs in the five languages examined in this study is better captured by the hierarchies we present in (55) and (56) than by the NP Accessibility Hierarchy (Keenan & Comrie 1977). In the NP Accessibility Hierarchy, generalizations are made with reference to grammatical relations like subject and direct object. Subject is the syntactic generalization over S and A, and direct object is the generalization over P and T. P and T are in the same position both in (55) and (56). This pattern can be generalized by the NP Accessibility Hierarchy. However, S and A behave differently both in (55) and (56). The differences between S and A cannot be appreciated when these macro roles are grouped in a single category subject, as in the NP Accessibility Hierarchy. Moreover, by presenting two different hierarchies, we can see the difference of relativizability of NPs depending on tense and aspect.

These generalizations can only be made when you systematically investigate each macro role and each participial strategy, as we do in our framework. In this study, we have shown that our methodology is effective for studies of relative clauses in NIA languages. As mentioned in Section 2, this study has a limitation in its sample size. We tested the grammaticality with only one informant per language. However, our study is still the first to systematically investigate relative clause constructions from different NIA languages and compare them. Our hierarchies could be refined by further research on other NIA languages

in the same framework.

6. Conclusion

In this study, we examined the relativizability of NPs in the five NIA languages: Hindi-Urdu, Nepali, Early Nepali, Sinhala, and Bengali. First, we investigated both headless and headed relative clauses of participial strategies. Second, we examined relativization on arguments for each of the macro roles S, A, P, T, and R. Third, we examined every participial strategy for relative clause constructions when a language has different participles depending on tense or aspect. Our investigation showed that there are both similarities and differences in relative clause constructions in the five NIA languages examined. On the one hand, none of the languages examined shows any difference of relativizability between headed and headless relative clauses. On the other hand, the five languages differ as to which macro roles can be relativized. Based on these findings, we proposed two novel hierarchies of relativizability for the five NIA languages. We proposed the hierarchy $\{S\} > \{A\} > \{P, T, R\}$ for relative clauses with imperfective/nonpast participles and $\{S, P, T\} > \{A\} > \{R\}$ for those with perfective/past participles. We argued that the generalizations discussed in this study can only be made by examining imperfective/nonpast participles and perfective/past participles separately and by using macro roles rather than grammatical relations. Further studies on other NIA languages using our methodology are needed to extend and refine our hierarchies.

Abbreviations

1	first person	F	feminine	PL	plural
3	third person	GEN	genitive	PRF	perfect
ACC	accusative	HON	honorific	PFV	perfective
CLF	classifier	IPFV	imperfective	PROG	progressive
COP	copula	INF	infinitive	PRS	present
CP	conjunctive participle	LOC	locative	PST	past
CVB	converb	M	masculine	PTCP	participle
DAT	dative	NEG	negative	Q	question marker
ERG	ergative	NPST	nonpast	SG	singular
EMPH	emphasis	OBL	oblique		

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新期インド・アーリヤ語における分詞関係節と関係節化階層

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キーワード：インド・アーリヤ語派 シンハラ語 ネパール語 ヒンディー・ウルドゥー語
ベンガル語 関係節 言語類型論

要旨

この論文は、インド・アーリヤ語派に属する言語の関係節化のデータを体系的に提示することを目的とする。調査対象言語はヒンディー・ウルドゥー語、ネパール語、シンハラ語、ベンガル語である。各言語について、分詞による主要部あり関係節と主要部なし関係節において、どのマクロロールが関係節化可能であるかを調査した。その結果、インド・アーリヤ諸語の関係節には、類似性と相違点があることがわかった。どの言語も、主要部の有無による関係節化可否の違いは観察されなかった点で共通している。他方で、調査された言語はどのマクロロールについて関係節化できるかは異なっていた。この調査データに基づき、インド・アーリヤ諸語に対して関係節化可能性の階層を提案する。未完了分詞については $\{S\} > \{A\} > \{P, T, R\}$ の階層を提案し、完了分詞については $\{S, P, T\} > \{A\} > \{R\}$ の階層を提案する。

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