Relative Clauses in Japanese Sign Language

3. Relative Clauses in Japanese Sign Language

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Abstract

In this chapter, the authors analyze four texts totaling 25 minutes of video in Japanese Sign Language (JSL) from a discourse/typology perspective to determine how relative clauses (RCs) are handled in normal language use. We find examples of three separate structures that serve the function of a RC. One is a pre-nominal externally headed RC, unique among signed languages studied so far. In another structure, the RC follows the head noun. In a third structure, the head noun is completely absent, assumed from previous context with no relative pronoun, indexer, or buoy involved. We also confirm the grammaticality of an internally headed RC not found in our own data. We see RCs that contain or consist entirely of depictive expressions.[1] We find that JSL RCs are often formed with no relativizing non-manual markers, buoys, or indexing signs, nor any other relativizing lexical items present at all. Finally, we find the head noun or its token playing a variety of grammatical roles. We see the head noun functioning in the matrix sentence as the subject, object, or indirect object of the main verb, and within the RC itself as either subject or object.

3.1. Introduction

3.1.1. JSL Sociolinguistics and "Standard JSL"

For the purpose of this chapter, the variety of Japanese Sign Language (JSL)[2] under discussion is that which is passed on by Deaf children with Deaf parents through their Deaf school communities to the larger Deaf community. Modern JSL has been documented back as far as 1875 (The Deaf School Attached to Tokyo University of Education 1975), and it appears to have existed before that time as well (Nakamura 2006: 40). It is distinguished from "signed Japanese," a communication system which puts JSL lexical items in Japanese word order and grammar patterns, with each manual sign usually accompanied by a mouthed Japanese word. Although JSL shows some influences from Japanese, the two are very different. Though the basic word order of both languages is SOV (Ichida 2010: 20), and

borrowing in the form of fingerspelling (rare) and mouthing (common) occurs, a widely differing modality results in major differences in syntax. Japanese verbs have one set of suffixes to denote a wide variety of aspects and modes and another set that distinguishes between the relative status of the speaker and the addressee. JSL, in contrast, does not have a required tense/aspect system. It uses either non-manual markers (NMMs) that co-occur with the manual sign or separate words to indicate modals, and its politeness forms are much less overt and systematized. Still, it would be hard to maintain that Japanese has had no influence on JSL grammar. For instance, one common relative clause (RC) in JSL functions similarly to the standard RC of Japanese. The JSL and Japanese examples below show a similar word order and relativizing mechanism.

(1)   Japanese
      [sakki   ki-ta]   *hito*
      [before   come-PAST]   *person*
      the person [who came before]

(2)   JSL
      [ALL-OF-YOU   KNOW]   *MOVIE*
      The movie [you all know]

Both use the standard gap strategy of relativization without a relativizer (see discussion in 3.3.1 below), and both RCs precede the head. It is certainly possible to posit that this kind of RC in JSL is influenced by Japanese, especially since there are other ways in JSL to form RCs.

3.1.2.   Description of Study
3.1.2.1.   Discourse Analysis Approach
In this chapter, the authors (two Deaf native signers, one hearing) analyzed a small corpus (four texts totaling 25 minutes of video)[3] of natural JSL texts from a discourse/typology perspective to determine how RCs are handled in normal language use. Because the corpus was small, we were able to use the "bottom up" labor intensive approach of examining each of the 1,250 verbs in our corpus to determine whether it was the main verb of an independent clause (1,101), or whether it was in a subordinate clause (149).[4] For subordinate clauses, we further defined them as an adjunct, complement, or RC. We found 31 potential RCs, which we then examined in greater detail. Extracting from the data instances in which the stative verb of the RC could also be analyzed as an adjective, or in which the clause could also be analyzed as an argument of the head noun, or in which KNOW functions as a shared information trigger rather than as a RC (see 3.3.5 for more details), we were left with 25 RCs to examine further.

3.1.2.2.   Definitions and Notation Conventions
From a typological framework, if one is looking for differing expressions of similar functions cross-linguistically, terms must be defined in ways that make them possible to find. As

languages vary in structure and form, researchers must employ semantic and sometimes pragmatic criteria or they run the risk of missing the new or different structures they are setting out to find (Croft 2003: 13–14). For example, if we were to define a RC as a clause containing a relative pronoun or particle, the standard Japanese pattern for expressing the equivalent of an English RC would be ruled out *a priori*, since there is no relative pronoun or particle in Japanese. Though this is not a broad, cross-linguistic study, we have, following Keenan and Comrie (1977), used a semantically-based definition of RCs in order to gain as wide a selection as possible of RCs for analysis.

There are any number of definitions to start with. Keenan and Comrie (1977: 63–64) define a RC as follows:

> We consider any syntactic object to be an RC if it specifies a set of objects (perhaps a one-member set) in two steps: a larger set is specified, called the domain of relativization, and then restricted to some subset of which a certain sentence, the restricting sentence, is true. The domain of relativization is expressed in surface structure by the Head NP, and the restricting sentence by the restricting clause, which may look more or less like a surface sentence depending on the language.

Andrews (2007: 206) puts it more succinctly: "A relative clause (RC) is a subordinate clause which delimits the reference of an NP by specifying the role of the referent of that NP in the situation described by the RC." Both of these definitions, because the purpose of their studies was a broad typological comparison, apply only to restrictive RCs, not non-restrictive ones. Since we are seeking all possible RCs in JSL, we looked for a broader definition. Croft, in summarizing Keenan and Comrie's definition, gives one that is both more succinct and also includes non-restrictive RCs: ". . . a referent (noun phrase) being qualified (modified) by a proposition (clause, or verbal form plus its modifiers) in which the referent plays a role (has a grammatical relation)" (Croft 2003: 147). Summer Institute of Linguistics (2004) has an even more succinct definition: "A relative clause is a clause which describes the referent of a head noun or pronoun. It often restricts the reference of the head noun or pronoun." These definitions, however, could be construed to rule out situations where the head noun phrase is not specifically expressed, as in so-called "headless" RCs. Modifying the SIL definition somewhat to accommodate this, we define a RC as an embedded clause that modifies a head noun or pronoun (expressed or implied) and helps narrow down its reference (restrictive) or further describes it (non-restrictive).

Another task is to determine for each RC whether it is restrictive or non-restrictive. Here we used two parameters from Kubus' dissertation on RCs in Turkish Sign Language (Kubus 2016: 208):

(1) Restrictive RCs require a non-specific antecedent
(2) Restrictive RCs form a constituent with their antecedent

Regarding notation, in the sample sentences of this chapter, the noun phrase in the matrix clause that is being further described, also called the domain nominal or head noun, is

written in italics. The RC itself is bracketed with square brackets (e.g. *The monkey* [which Mr. Yamada keeps]).

3.1.2.3. Data Choice

All four texts used in this chapter come from the publicly available DVD publications of a yearly Deaf storytelling event called "Enjoying Sign Language" sponsored by the Deaf advocacy group D-PRO's Deaf literature department (D-PRO 2004; 2007). Because our research group is connected with a project that translates material for the broader JSL community, we chose both Deaf adults with Deaf parents and Deaf adults with hearing parents. One is from Western Japan, three are from two mutually distant locations in Eastern Japan. All of them are familiar with public address, have done on-camera work for national or cable television programs, and are trained in JSL pedagogy with JSL teaching experience. The two Japanese Deaf-of-Deaf researchers on our team watched each text as a whole to ensure overall acceptability of the signing and its suitability for analysis as well as examining each RC in more detail.

In line with spoken language discourse study methods, our stories were mainly 3rd person narratives. Two texts included heavy use of movie retelling. In addition to the story portions, we included in our analysis the introductory and closing comments that bracketed the retelling proper.

3.1.2.4. Data Processing

Because this chapter began with an overall detailed discourse analysis of Signer A's text, there were some differences in how we processed the data in this text and the other three that we analyzed later.

In the first case, with input from Signer A himself and other Deaf Japanese people, Penner, the hearing researcher of our group, broke the text down into paragraphs, sentences, clauses, and words, and made a free translation of each sentence. He made a detailed gloss of each sign, including co-occurring NMMs and all relevant information using ELAN, a linguistic annotation software program. This material he then input gloss-by-gloss into a discourse analysis chart.[5] The chart was then examined with respect to a series of discourse analysis parameters, leading to some of the observations that will be detailed in this chapter.

For the remaining texts, he adopted a somewhat abbreviated procedure designed to confirm the discoveries from the first text. These texts were first processed by a Japanese Deaf person who, though her parents are hearing, attended a Deaf school in a class with anywhere from four to six classmates with Deaf parents, where she was exposed to JSL from pre-school age, and later received training as a JSL teacher by a Deaf advocacy group related to D-PRO. Using ELAN, she separated out each word and made a simple gloss in Japanese, then broke the text into clauses and made a free translation of each into Japanese.[6]

To locate relative clauses, Penner examined the four texts to determine for each verb whether it was in an independent or a dependent clause, and for verbs in dependent clauses, whether they were in a RC (further describing or delimiting a noun), a complement clause (further describing or delimiting a verb), or an adjunct clause. For this chapter on RCs, our two Japanese Deaf-of-Deaf team members first watched each text as a whole to ensure

overall acceptability of the signing and its suitability for analysis, as mentioned above. They then examined each RC in detail in its context, confirming grammaticality and naturalness and then determining, 1) that it was indeed a RC by our definitions,[7] 2) whether it was restrictive or non-restrictive, and 3) the grammatical relation of each head noun both in its matrix clause and in the RC.

3.2. Relative Clauses in Other Signed Languages

Much has been written about RCs in various signed languages. In ASL, work can be found as early as Liddell's unpublished manuscript *Restrictive Relative Clauses in American Sign Language* in 1975 (Coulter 1983). In earlier writing, there appears to be a good bit of overlap between topic marking and RCs, with NMMs for topic marking noted that are similar to those used in RC constructions, and RCs generally confined to sentence-initial position as points of departure (Coulter 1983: 317).[8] Pfau and Steinbach (2005) note a similar situation in German Sign Language (DGS), although recent literature also references a relative pronoun in DGS as well (Wilbur 2017: 5). In Israeli Sign Language (ISL), although the NMMs differ, again topic markers are involved (Dachkovsky and Sandler 2009). Italian Sign Language (LIS) researchers were the first to note a manual relative pronoun, but again, it is accompanied by NMMs that are very similar to topic markers (Cecchetto et al. 2006; Branchini and Donati 2009).[9] More recent work in ASL and LIS (see Wilbur 2017 for details) has found that non-sentence initial RCs are possible, and that these do not require topic marking, calling into question the designation of brow-raise as part of the RC NMM. For ASL, there is also now mention of a complementizer which is optional in some constructions but obligatory in sentence final constructions. Most recently, Kubus (2016), in his dissertation on RCs in Turkish Sign Language (TİD) uses a discourse analysis/corpus study approach and finds an optional NMM relativizer, a variety of other NMMs (of which at least one, usually "tensed eyes/squint" is present), and frequent but not obligatory use of an indexing sign. Fronting and topicalization are not required.

In terms of how the RC relates to the head noun that it delineates or further defines, there are several possibilities cross-linguistically. For externally headed RCs (EHRCs), the RC can precede or follow the head noun, so they are divided into pre-nominal and post-nominal EHRCs. For internally headed RCs (IHRCs), the head noun is found within the RC, so cannot be said to precede or follow it. This construction is also called "circumnominal." Finally, there are free RCs, also called headless RCs. These have no head noun.

With regard to signed languages, beginning with the last category, free RCs, TİD and JSL (as we hope to show below) are the only two signed languages in which they are recorded.[10] ASL, TİD, and LIS have both EHRCs and IHRCs. In Brazilian Sign Language and DGS, only EHRCs have been shown, and in Hong Kong SL, only IHRCs have been shown as of this point (Wilbur 2017: 2). After a survey of RCs in various SLs, Kubus (2016: 150) summarizes: "Sign languages are not well researched in the domain of RCs but the documentation of RCs up to now indicate that sign languages favor either post-nominal EHRCs or IHRC (circumnominal) constructions. Relative clauses are always realized with special nonmanual markers; in addition, special relative elements can also occur."[11]

We hope to show below that JSL proves to be the exception to both of these statements. It does have a commonly occurring pre-nominal EHRC, and RCs are regularly realized with no special NMMs or special relative elements. As the study of RCs in signed languages proceeds, more variety continues to emerge. For instance, early writings had RCs restricted to topic position overlapping with point of departure or other fronted elements, but recent studies (noted above) continue to show more variety. What we find in JSL adds to this increasing variety, with both pre-nominal and post-nominal EHRCs as well as headless (free) RCs.

3.3. JSL Relative Clauses

3.3.1. Pre-nominal Externally Headed Relative Clause (EHRC)

Using the definition in 3.1.2.2 above, we found three types of RCs in the JSL data. The most easily recognizable is the pre-nominal EHRC that parallels the structure of a Japanese RC. Japanese uses the standard gap strategy found in some languages that use a subject-object-verb word order, as seen in the following example:

(3)   Japanese (from Andrews 2007: 208)
   a.   Yamada-san ga   saru   o   kat-te   i-ru
      Yamada-Mr. SUBJ   monkey DO   keep-PTCPL   be-PRES
      'Mr. Yamada keeps a monkey'
   b.   [Yamada-san ga   kat-te   i-ru]   *saru*
      [Yamada-Mr. SUBJ keep-PTCPL   be-PRES] *monkey*
      'The monkey which Mr. Yamada keeps'

Andrews (2007: 208) cites this as an example of an EHRC. The RC ("Mr. Yamada keeps") is inside the noun phrase in the matrix clause, but external to and preceding the domain nominal ("monkey"). As there is no relative pronoun, article, or other indicator of a noun phrase showing in the RC itself to replace the "missing" noun, this kind of RC is said to use the "gap strategy." The clause-final verb of the RC immediately precedes the head noun, which then in turn takes various case markers to function as any noun might in the larger sentence.

The pre-nominal RC in JSL follows the same strategy, as the following example illustrates:

(4)   JSL Signer A2
     Data presented in this paper are presented a table in Appendix B. The ID numbers of each sentence example correspond to those give in the table.

topic		ynq
[YOU-ALL KNOW] *MOVIE,* [10-LAWS SAY] *MOVIE,*		HEAR KNOW. SEE.
The movie that you all know, the movie called 10 Laws—you		heard of it? Seen it?[12]

This is a typical instance of the gap strategy with the RC preceding the head. In JSL, as in Japanese, there are no relative particles or other overt noun phrases that function within the RC to assign a grammatical role to the referent of the head noun. The position of the clause immediately preceding the head noun with nothing between them signals the RC.[13] In this example—a point of departure in the narrative—we see topicalizing NMMs, but these are not required, as can be seen in the example below:

(5)   JSL Signer C8:12

    [BEFORE USE] *PEOPLE*
    The people [who used (it) before]

This example occurs as part of the ongoing narrative, with no special interest in the "previous users" referred to. (It is just assumed that in the history of "it," many had used it in the past, and the point of the narrative is to explain the effects of the previous users on those who might use it today.) There are affective facial expressions, but no topicalizing or other grammatical NMMs. Nothing apart from word order (juxtaposition of final verb to head noun) is needed to designate this as a RC. In our data for this type of RC, NMMs co-occur in three out of seven instances, or half of the time, usually over the whole RC and the head noun. Topicalized instances are used for introducing new characters, objects, or ideas to a discourse, or to serve as points of departure. It seems reasonable to expect that additional information to distinguish or clarify to whom the narrator is referring would be needed in these settings more than in others, so three out of seven instances are not surprising. What might be a surprise, given what we know of RCs in other signed languages, are the four instances with no NMMs at all, and none of the lexical elements (e.g. indexing, buoys) that are sometimes associated with RCs in other signed languages.

    To be thorough, one might consider making the argument that since the clause final head nod usually accompanying the final verb of an independent clause is not present in a pre-head noun RC, it is therefore not strictly true that no nonmanual markers are involved. Where the sentence final nod would be expected with the final verb of the clause (if it were a main clause verb), instead one finds an uninterrupted continuation to the head noun that follows, "signaling," if we can call it a signal, that the clause is not finished yet, and that the verb and the head noun comprise a single prosodic unit. This head noun then functions as any noun might in any sentence, and the sentence will eventually end with an overt clause-final marker. However, only if one is willing to call the lack of any overt NMM a "marker" can we say that NMMs are involved. This is not what most researchers would consider a NMM.

    Because this kind of RC is determined by word order and prosody alone, not by any other particles, words, or NMMs, and because the key component is that the head noun must always immediately follow the final verb of the RC, it cannot be said to be head internal. With IHRCs, ambiguity is possible, and various strategies must be employed to disambiguate the head noun. For instance, in the ASL IHRC the head noun can occupy a number of positions within the RC, and disambiguation is achieved by "doubling of the

head, special marking of the head for what might be focus or specificity, and clause external determiners" (Wilbur 2017: 3).[14] In JSL, because the head noun is always juxtaposed to the RC in the same order, it is not possible to confuse it with another noun in the RC. The head is clearly outside of the RC, always following it. Thus, we find that the pre-nominal RC of JSL is an EHRC. The existence of pre-nominal EHRCs in JSL is also confirmed in Ichida (2010) as noted by Wilbur (2017): "However, Ichida (2010) indicates that Japanese Sign Language…has both postnominal and prenominal RCs, and that the typical EHRC is prenominal." Since we have found multiple examples of what Ichida calls the "typical EHRC" naturally occurring in our data, we assert that at least one signed language does have pre-nominal EHRCs.

A few other characteristics of this kind of RC can be described here. At least in our small data set, all occurrences are restrictive. That is, the head noun is non-specific, and the RC forms a constituent with it to narrow its scope. In our data, the head noun can have the grammatical function of both subject and object of the verb in both the matrix clause and the RC.[15]

3.3.2. Post-nominal Externally Headed Relative Clause (EHRC)
JSL also has RCs that follow the head noun instead of preceding it.[16]

(6)   JSL Signer C5:00

   COMPANY *YOUNG* [CL-PEOPLE-LINED-UP(m)-FACING-1 EXIST] PT.1 1.EXPLAIN.mP
   I'll explain (things) to *the young people* of the company, [who are there lined up in front of me].

In this example, additional information is provided about the referents (that they are lined up facing the main character who is addressing them), but this information does not restrict the identity of the referents to a specific subset (for instance, out of all the young people in the company, he will only address the ones who are standing there). He simply provides additional information about them, making this is a non-restrictive RC. This is representative of how the post-nominal RC tends to function. Unlike pre-nominal RCs, all but two of the examples in our data are non-restrictive,[17] and the two exceptions are debatable. Also, all but one of the RCs of this kind in our data either consist entirely of or at least include a depictive expression.[18] The one exception consists of the verb KNOW.[19] No instances of this kind of RC have a separate noun in the RC itself,[20] though of course nominal elements are included within the depictive expressions (for example, "PEOPLE" in CL-PEOPLE-LINED-UP(m)-FACING-1 above). As for grammatical relations, in the matrix clause, head nouns functioned mainly as direct objects, but we also have one example each of subject, indirect object, and adjunct. In the RC, subject was most common, though both subject and object were represented.

In general, NMMs and lexical relativizing elements are more prevalent in post-nominal RCs. With these constructions, topicalization by brow raise occurs in six out of eleven instances, and squint, another possible topicalizing NMM, occurs twice.[21] With one overlap, possible topicalizers are connected with 7 out of the 11 instances. Nine out of eleven tokens

(82%) have at least one accompanying NMM or lexical relativizing element,[22] whereas for the pre-nominal RCs, only 50% had these. Besides "brow raise" and "squint" mentioned above, we saw a head-nod after the head noun, a stop after the head noun, three buoys and three indexes. Of the buoys and indexes, four followed and two preceded the RC.

Because the head noun always precedes the RC, never occurring within it, because there is never any ambiguity as to which noun is the head, and because they are in appositional relation (instead of one further defining the other) we are analyzing these also as head-external RCs.

One side issue we have faced is the question as to whether depictive expressions can function as RCs. Looking at the examples in our data, it seems that in JSL, RCs by the definitions we found in the literature do co-exist with depictive expression—that is, depictive expressions do sometimes further define a head noun, and are expressed such that they cannot stand alone as an independent clause, and that the head noun has a role in both the matrix clause and the RC. JSL is not the only signed language to include depictive expressions in RCs. Kubus (2016) has examples as well.[23] The widest variety of grammatical relations in our data occur in this type of RC.[24] Unless our definitions are wrong, we see no reason to treat these as anything but RCs, mostly non-restrictive RCs. It does seem to be the case that the structure of a RC which includes a depictive expression is (usually, if not always) different from a RC without one,[25] but again, this does not mean that in JSL depictive expressions cannot be subordinate to a head noun. Conversely, perhaps our preconceived idea of what RCs look like precludes our seeing them in everyday conversation all around us. It was only a careful classification of each verb in our small corpus (independent or dependent, and if dependent, dependent upon what) that brought these to light.[26]

3.3.3. Headless (Free) Relative Clauses
JSL has a third strategy, that of a "headless RC."

(7)   JSL Signer B4:41

<u>   eyebrows furrowed</u>
[BEFORE MEET] Ø NEG LOOK.FOR; FRIEND NOT-EXIST,   LOOK-FOR
CL-FISH-SWIM-AWAY
(Those) [met before] not being (there), he looked for (them); (his) friends not being (there), he swam away to look for (them).

This example is shown full-length to give context and show the extent of the affective NMMs, but the RC in question is right at the beginning: BEFORE-MEET. The signing is very fast— "(*Those*) [met before] not being (there), he looked for (them)" happens in just over one second. In the larger narrative, this phrase can only refer to a group of characters that the main character had been with earlier in the discourse and now realizes are gone. JSL allows implicit (null) pronominal elements in a wide range of contexts, and nothing besides the RC itself is needed in this context to identify the referents. With no overt head, this is called a "headless RC," also known as a free RC.

These occur seven times in our data. They are all restrictive—expected, since there is

no head noun to which the RC could be in apposition as would be the case with a non-restrictive RC. Also notable is that there is no NMM involvement for any of the tokens, nor are there any indexes or buoys. The head noun has the grammatical function of both subject, object, and indirect object of the verb in the matrix clause and both subject and object of the verb in the RC.

One example is of particular interest. It seems at first glance that it could be analyzed either as a non-restrictive post-head noun RC or as a headless RC.

(8)   JSL Signer B2:20

<div style="border-top:1px solid; display:inline-block">topic</div>

URASHIMATARO$_x$ TURTLE$_y$ $_x$HELP$_y$-PT$_x$,   [$_z$BULLY$_y$] $_x$HELP$_y$ …

As for Urashimataro, he helped a turtle, (he) helped *(him)* [who someone was bullying] . . .

This cannot be analyzed as two separate clauses in apposition to one another ("Urashimataro helped a turtle—someone was bullying it—he helped it . . ."), because there is no pause following $_z$BULLY$_y$ as would normally be the case with two appositional clauses in JSL. The remaining question is how to interpret the pause preceding [$_z$BULLY$_y$]. It might be that the pause between the clauses signals a non-restrictive RC interpretation, with the RC modifying TURTLE. In this case, the translation would read: "As for Urashimataro, he helped a turtle, who someone was bullying." There are problems with this. Firstly, it is highly unusual to have the RC move away from the head noun in an extraposed RC. Not only that, included in the pause is a clitic pointing (PT$_x$) referencing Urashimataro,[27] the subject of the matrix clause, more evidence of a clausal break prior to the RC that would not be consistent with extraposition. Furthermore, this rendering does not deal adequately with the fact that the verb HELP occurs twice. This leaves us with the headless RC indicated in the free translation as the strongest analysis. Even if there were no other instances of headless RCs yet in the data, one might want to start looking for them based on this sentence. Since they do exist elsewhere, the simple explanation that this RC is headless would seem to be the best analysis.

3.3.4. Internally Headed Relative Clause (IHRC)

Although no examples occur in our data, Ichida (2010) references an IHRC in JSL in the following example:

(9)   JSL Signer B4:41

<div style="border-top:1px solid; display:inline-block">topic</div>   <div style="border-top:1px solid; display:inline-block">comp</div>

TANAKA   [SUZUKI *BOX-LUNCH* MAKE]   EAT

Tanaka eats *the box lunch* [that Suzuki made].

The two Deaf-of-Deaf researchers on our team had no problem reproducing this construction and verifying that it is grammatical. The head noun (BOX.LUNCH) of the RC is within

the RC itself, thus neither precedes or follows the other (this is also called a circumnominal RC by some researchers). The NMMs consist of a hold at the end of the topic clause and a hold-nod at the end of the complement clause.[28] This RC is not intelligible without the NMMs, though, unlike the examples we see in our data, indicating that a different relativizing strategy is at work. If the RC is not set apart from the rest of the sentence by these NMMs, the RC is lost.[29]

3.3.5. Double Embedding

The following example does not reference a new kind of RC, but we have included it because it shows double embedding, illustrating a case where subordination to a head noun does not make the construction a RC, and also illustrating the use of KNOW in JSL as a shared information trigger in the environment of a RC.

(10) JSL Signer B4:41

> [*TERMINATOR* KNOW [CL-WALK-LIKE-SCARY-ROBOT] PT.0+TOP SEE+ITER+TOP] HABIT GO-OVERBOARD+CAUS, MY.OWN TAP.ARM, RIGHT?
>
> My *habit* [of watching *Terminator*, (you) know, [who walks like a scary robot]], went overboard to cause my arm issue, right?

Here CL-WALK-LIKE-SCARY-ROBOT does not function as a main verb (e.g. "Terminator walks like a scary robot.") but is a dependent clause that adds information regarding the head noun TERMINATOR. As a verb-final language, for it to be a main clause verb, there would have to be some kind of prosodic break afterward to indicate this. There is no prosodic break here, and this lack of prosodic break ties it directly to the head noun. In fact, there is no prosodic break in the example at all until GO-OVERBOARD+CAUS (notice the comma) where the break combines with NMMs to form a causal conjunction connecting it to the final clause of the sentence.[30] With no prosodic breaks, everything in the prosodic unit before SEE+ITER+TOP refers to what is seen/watched repeatedly, and the seeing/watching is what delimits HABIT. It is the habit, then, that went overboard, got out of control, and created the arm problem that the narrative is about. Thus, SEE+ITER, along with the clauses that are subordinated to it, is subordinate to HABIT.

While it is true, then, that we have double subordination—two clauses that are subordinate to two nouns, one clause within the other, it is not true that both clauses are RCs. The noun HABIT or its anaphor does have a place in both clauses, but not in the same sense. Carpio and Censabela (2012: 179) summarizing Creissel's argument, put it this way:

> A purely syntactic definition of relative clauses is not enough to distinguish them from noun complement clauses. For example, . . . "the idea that/which you defend" (RelCL) and . . . "the idea that you are leaving" (noun complement) cannot be distinguished only on a syntactic basis, rather the semantic status of the subordinate clause must be taken into account.

In our example, it is not the habit that is sitting in front of the TV watching episode after

episode of 'Terminator', it is the person with the habit. In this case, HABIT takes an argument, a noun complement that further defines it, but without co-reference in both the matrix and RC. In the one clause, the reference is to the person, in the other, the reference is to the habit. Thus it fails to meet the requirements of the definitions we established in 3.1.2.2 above. It does not describe the referent of the head noun, nor does it modify the head noun per se.

KNOW here is a quick sign coming between the head noun and the clause that describes it, and serves as a shared information trigger, much like "you know" might in English ("Terminator, you know, who…"). This is different from example (4), where KNOW is signed slowly as a full clause with an overt pronoun. It is of interest because Kubus (2016: 184, 275), in his work with RCs in TİD connects KNOW with the relativizing device "squint." Though he does not label KNOW as a RC marker, it does occur with several of his RC examples as a shared information trigger. With our small data set, it is still too early to form a full picture of the various ways in which KNOW might function. With more examples, we may see that this use of KNOW as a shared information trigger is more common around RCs in JSL, but it is still too early to make that judgment.

3.4. Conclusions

3.4.1. Summary of Findings

We have shown from our data three kinds of RCs in JSL, a pre-nominal EHRC, a post-nominal EHRC, and a headless (free) RC. We also confirm the possibility of an IHRC in JSL, though no examples were found in our data. The pre-nominal EHRC may be of greatest significance to the wider research community, since the existence or possibility of these in sign languages had been in question (Kubus 2016: 150). Also significant are the headless RCs, not noted in other signed languages until Kubus (2016) documented them in his corpus-based study of TİD RCs.

One other departure from the other sign language studies of RCs is that for some kinds of RCs in JSL, NMMs and/or other relativizing devices are not required. Kubus (2016: 150), after a detailed study of TİD and a close survey of the literature on RCs in other signed languages states categorically: "Relative clauses are always realized with special nonmanual markers; in addition, special relative elements can also occur." This is not true of JSL. The most striking departure is the headless RC, where in all seven examples, we see no relative pronoun, NMM, indexer, buoy, or any other relativizing lexical items involved. The head noun is simply assumed unmarked from previous context. With the pre-nominal EHRCs, we have a similar situation. These markers are absent in fully half of the cases, and when present, are motivated by the need for the NMM (e.g. topicalization) itself, not as a relativizer. Even in post-nominal EHRCs, though these markers occur commonly, they are occasionally missing as well.

Two other observations are: 1) Some RCs either contain or consist entirely of depictive expressions. 2) The head noun or its token plays a variety of grammatical roles. We see the head noun functioning in the matrix sentence as the subject, object, indirect object or

adjunct of the main verb, and within the RC itself as either subject or object.

3.4.2. Limitations

This chapter is only valid for the specific genre that we examined; publicly told stories and retellings of movies with a small amount of explanatory information.

Though the use of publicly available data has the advantage of giving a broad cross-section of signers in a natural Deaf setting, the single camera angle and lack of facial detail sometimes made analysis difficult. Further studies could profit from texts recorded with multiple cameras and under more controlled conditions to capture fine details of facial expression. A larger corpus of glossed and translated material would of course be helpful.

3.4.3. Areas for Further Study
3.4.3.1. Nominalization vs Relativization

In our research, although we saw multiple overlapping definitions of a RC, we noticed one core disagreement over what exactly a RC is. Shibatani (2009; 2016) argues that both the Japanese pre-nominal EHRC and the Japanese free relative should be rather analyzed as nominalizations, and from there argues more broadly that all RCs cross-linguistically can be better explained by the process of entity or event nominalization. Matsumoto *et al.* (2017) take a more nuanced view, describing certain languages of Eurasia that "exhibit a General Noun-Modifying Clause Construction (GNMCC)—a single construction covering a wide range of semantic relations between the head noun and the clause." Following these classifications, structures that in JSL serve the function of a relative clause would be analyzed as nominalizations. Andrews (2007: 232), on the other hand, starts with RCs as commonly defined, and then talks of how nominalization strategies sometimes intersect with them. The fact that in every case of headless RCs, the RC is simply assumed to act as a noun, with no NMMs or other relativizing elements involved does perhaps lend credence to Shibatani's thesis, or at least suggest that JSL be placed in the category of languages exhibiting what Matsumoto *et al.* (2017) name GNMCCs. Whether or not what we see happening in JSL RCs can be analyzed as nominalization is a fascinating question. Though beyond the scope of this basic and exploratory endeavor, it appears to be a fruitful line of inquiry for further study.

3.4.3.2. Discourse Studies and Elicitation Studies

Our aim in this chapter was mainly exploratory, and we of necessity had to paint with rather broad strokes. We chose to limit ourselves to analyzing the data we had rather than determining all of the possibilities that might be grammatical. Ichida's (2010) findings came from a different direction—testing various juxtapositions of non-directional lexical items to see if a given string of words could be signed as a coherent clause or sentence, and if so, what was necessary (NMMs, etc.) to make that happen. This approach added information on a kind of RC that did not show up in our own chapter, pointing to one of the limits of our approach, particularly with our small data-set. We hope, though, that what we have found (some of which would be difficult to elicit outside the context of a rich natural text) will pave the way for further studies in this area. We welcome comments, questions, and further discussions.

Appendix A: Data Charts

Data Summary

	A	B	C	D	Total
All signs	497	557	486	470	2,010
All verbs (narrow definition)	287	332	223	274	1,116
All verbs (incl. "adjectives")	295	360	273	322	1,250
Comp. & adjunct verbs	13	17	63	16	109
Relative clause V	13	9	11	7	40

Note that in this chart we allow for two different definitions of verb. It boils down to a question of whether JSL has adjectives, as is commonly assumed, or whether these would be better analyzed as stative verbs. Although this is an interesting problem, we chose to take what might be adjectives out of the data and focus on the non-controversial.

Head Noun Function in Matrix Clause

	Subject	Object	Ind. Object	Adjunct
Pre-HN	3	4		
Post-HN	1	8	1	1
No HN	3	3	1	

Head Noun Function in Relative Clause

	Subject	Object	Ind. Object	Adjunct
Pre-HN	4	3		
Post-HN	8	3		
No HN	4	3		

Restrictive/Non-restrictive Relative Clauses

	Restrictive	Non-Restrictive
Pre-HN	7	
Post-HN	2(?)	9
No HN	7	
Standard V	14(1?)	
CL/MIME	2(1?)	9

Verb Types and Positions

	Pre-HN	Post-HN	No HN
Standard V	6	1	7
CL/MIME	1	10	

Comparison of Relative Clauses

	Restrictive	Non-Restrictive	Pre-HN	Post-HN	No HN
Pre-HN	7				
Post-HN	2(?)	9			
No HN	7				
Standard V	15(1?)		6	1	7
CL/MIME	2(1?)	9	1	10	

Comparison of Relative Clauses

Post-HN, CL/MIME, Non-restrictive RC	9
No HN, Standard V, Restrictive RC	7
Pre-HN, Standard V, Restrictive RC	7
Post-HN, Standard V, Non-restrictive RC	1
Post-HN, CL/MIME, Restrictive RC	1
Pre-HN, CL/MIME, Restrictive RC	1

Non-manual Marker, Index, and Buoy Involvement

	br	sq	bl	hn	stop	IX, Buoy	Ø
Pre-HN	3			1	1		3
Post-HN	6	2		1	1	6	2
No HN							7

Appendix B: Chart of All Relative Clauses in Our Data

The chart below lists all of the RCs found in the four texts that we examined. The left-most column shows where in the data the example may be found (Signer A's text has sentence numbers, all others are referred to by time-code). Following that in column two is a gloss and free translation of the RC. For ease of use in discourse studies, Leipzig glossing conventions are followed with the following adjustments. "-" as in standard notation, indicates sequential morphemes, "+" has been added to the standard conventions to indicate simultaneous morphemes co-occurring with the manual sign. For details on abbreviations, see the index below. For ease of distinguishing, bold type is used to indicate the manual sign portion of the gloss and regular type shows the non-manual information also included in the gloss. For this data, one further adjustment is that italics are used only to indicate RC heads. In column three is a note as to where the RC is located relative to the head noun. "Pre" means that the RC precedes the head noun, "post" means that the RC follows the head noun, and "none" indicates a "headless RC," where the head noun is only implied. In column four is listed in sequence: (1) What role the head noun plays in the matrix clause, (2) what role the head noun plays in the RC, and (3) whether the RC is restrictive or non-restrictive. In the final column is an indication of whether relativizing NMMs, indexing, or buoys are present.

Chart Abbreviations

0	Toward or referencing nothing, no one, or nowhere in particular
1	Toward or referencing signer (1st person)
2	Toward or referencing 2nd person
3	Toward or referencing 3rd person
An	Animate
CAUS	Causal NMMs
CL.XXX	Classifier construction/depicting verb[31)] (XXX describes the expression)

COH	Cohortative
COND	Conditional
d	Lower (signing space reference)
DO	Direct object
DUR	Durative aspect
EYGZ	Eyegaze
HN	Head noun
InAn	Inanimate
InMC	RC contained in main clause
INTS	Intensity (adverbial NMMs)
IO	Indirect object
l	Left (signing space reference)
m	Middle (signing space reference)
MIME.XXX	Mimetic expression/constructed action[32] (XXX describes the expression)
narr	Narrator
NEG	Verb of non-existence or verb of negation
NOD	Head nod
P	Plural
PreMC	RC precedes main clause
PT	Indexical fingerpoint
r	Right (signing space reference)
RefS	Reference shift
RS	Role shift
S	Subject
TOP	Topic (usually topicalizing NMMs in sign language studies)
u	Upper (signing space reference)
YNQ	Yes/No question (polar question) NMM

Data	Relative Clause	Type, Animacy	Matrix, RC, Kind	Marker
A2	[RefS.2+**PT.2Pm**+TOP **know**+TOP+EYGZ.2] *movie*+TOP+EYGZ.2 *The movie* [you know]	Pre-HN PreMC InAn	*DO, DO, Restrictive*	Yes
A2	[**10**+TOP+EYGZ.2 **commandments**+TOP+EYGZ.2 **say**+TOP+EYGZ.2] *movie*+*TOP*+*EYGZ.2* **hear**+TOP+EYGZ.2 **know**+YNQ+EYGZ.2 . . . *the movie* [called "Ten Commandments,"] you've heard (of it), you know (it), right?	Pre-HN PreMC InAn	*DO, DO, Restrictive*	Yes
A6	[RSnarrator+**gods**+TOP **don't.need**+TOP be.**above**+TOP] *God*+*TOP* RSGod+**Hear** *The God* [who is above the unneeded Gods] hears	Pre-HN PreMC An	*S, S, Restrictive*	Yes

ID				
A8	**Mo- - - se**, [**CL.fluffy.beard**, **CL.strike.pose-say+TOP**] *man* Moses, *the man* [who has a beard and strikes the pose with the staff] (say=nominalizer)	Post-HN InMC An	*DO, S, Restrictive*	Yes
A19	*ocean*+TOP [**know**+EYGZ.2+TOP] **sweep**.away+EYGZ.2+surprise Scrap *the ocean* [that you know]	Post-HN InMC InAn	*DO, DO, Restrictive*	Yes
A30a	**time**+TOP+NOD **PT.ahead ocean** [**CL.walls.straight.up.high**+sq] RS.God+**look.md**+EYGZ.md+DUR **1.command.md** At the time, as for sea ahead that has walls straight up, God looks at them, commands,…	Post-HN InMC InAn	DO, S, Non-restrictive	Yes
A38a	RefS.ld+**PT.man.ld**+concern **mo- - - se**+EYGZ.ld+concern **PT.man.ld**+EYGZ.ld+concern [**1.commission.l**+EYGZ.ld+concern CL.**fluffy.beard**+EYGZ.ld+concern RS.Moses+CL.**strike.pose] PT.ld** RS.God+**ru.command.man**.l+EYGZ.man.ld+ INTS He commanded and commissioned Moses, *the one* [he had commissioned], *the one who* [had the big fluffy beard and did the staff-pose].	Post-HN InMC An	*DO, DO Non-restrictive*	Yes
B1:21	RS.TV.narrator+**bad** *gangster*-**PT3** [**CL.scar.on.face**+TOP] **three.people** three bad gangsters who had scarred-up faces . . .	Post-HN InMC An	S, S, Non-restrictive	Yes
B2:21	RS.narrator+**Urashima.Taro**(ru)+TOP **turtle**(m) ru.**help**.m-PTru [r.**bully**.m] ru.**help**.m As for Urashimataro, he helped a turtle, helped (*the turtle*) [who someone was bullying].	No HN PreMC An	*DO, DO, Restrictive*	No
B2:53	[**2.explain.1**] Ø **hear thing/matter NEG** (What) [you.explained.to.me] is *a thing* not [heard] (of)	No HN PreMC InAn	*S, S, Restrictive*	No
B3:02	**today PT2** [**every.year.x2 have.a.match.x2**] *soccer* **come.on** Today, let's do the *soccer* [that (we) have a match (at) every year].	Pre-HN PreMC InAn	DO, DO, Restrictive	No
B3:52	[**little.while.ago not.there-disappeared**] Ø **where** Where are (*those who*) [disappeared a little while ago]?	No HN PreMC An	DO, S, Restrictive	No
B4:41	[**before meet**] Ø **NEG look.for**, (*Those who*) [he met before] not being there, he looked for them.	No HN PreMC An	S, DO, Restrictive	No
B5:38	[**deceive be.able**] Ø **make be.good**+COH Let's make (*something*) [that can deceive] . . .	No HN PreMC InAn	*DO, DO, Restrictive*	No
C5:00	**today company go-pt1 company** *young* [**CL.people.lined.up(m). facing.1 exist] pt.1-1.talk.to.mP** I'll explain (things) to the *young (ones)* [who are there lined up in front of me] of the company,	Post-HN InMC An	IO, S, Non-restrictive	No
C5:55	**child**+br **face**+br [**MIME.smile.like.baby**+br], *face* **refuse wrong** (One) has to refuse as wrong a child's *face* [that is smiling like a baby].	Pre-HN InMC InAn	DO, S, Non-restrictive	Yes
C7:51	**reason**+TOP **before**+TOP *family*+TOP *everyone*+TOP [**CL.look. at.mirror.x2**]+TOP **among.them** Because among *all the family members* [who used to stand in front of the mirror] . . .	Post-HN InMC An	Adjunct, S, Non-restrictive	Yes

C7:54	(Cont. from above) **among.them** [**kill.self accident be.sick** die] Ø **exist** . . . are (*those*) [who killed themselves or were in an accident or died from sickness], ..	No HN PreMC An	*S, S,* *Restrictive*	No
C8:12	**Reason**+TOP [**before used**] *people*, NOD **CL.face.reflecting. multiple.times CL.show.face.in.mirror it.seems** This is because the reflections of the faces of *people* [who have used the mirror before] still remain in the mirror, they say.	Pre-HN PreMC An	*S, S,* *Restrictive*	Yes
C8:36	**Japan**+TOP **god way** (Shinto religion) [**CL.put.up.circular. object.overhead**] *mirror* **exist**+TOP **pt.circle.mu**+TOP **meaning** In Japan the Shinto [circular / placed overhead] *mirror* that exists--this is what it means.	Pre-HN InMC InAn	S, S, Restrictive	No
C10:48	**after**+<u>ato</u> *mirror*+<u>kagami</u> [**three**+<u>san</u> **CL.fold.two.flat.surfaces. in.together**+<u>men</u>] **throw.away be.unable**+fear Afterward, (you) won't be able to throw away the *mirror* [that is long and flat and has three surfaces folded together].	Post-HN InMC InAn	*DO, S,* *Non-* *restrictive*	No
C11:05	**be.OK**+COND **next** RS.descendant+**receive**+don't.know.what. to.do [**die**] Ø CL.**hold.three.fold.mirror**+worried **be.perplexed** If not, the next generation will receive it and be stuck with a mirror from (*a person*) [who died].	No HN PreMC An	IO, S, Restrictive	No
D9:54	**MIME.notice.on.right** RS.Narr+**supercool guy**, [**supercool, CL.hair.swoop, CL.big.shoulder.cuts.to.waist**, RS.guy+**CL. stands.cool.pose**], RS.Self+**reason**+YNQ+exited She looks to the right and notices a supercool *guy,* [who is supercool, with hair swooping down over his forehead, a muscular v-shaped torso, and standing in a cool-looking pose], and excitedly thinks, is this the reason!?	Post-HN (Post?) / InMC An	DO, DO, Non- restrictive	Yes
D12:48	**well**, [**friend meet**] *promise* **keep** well, (I will) keep a *promise* [to meet a friend],	Pre-HN PreMC InAn	DO, S Restrictive?	No
D14:41	*Terminator* **know** [**CL.walk.like.scary.robot**] PT0+TOP **see**+ITER+TOP **habit go.overboard**+CAUS My habit of watching *Terminator*, (you) know, [who walks like a scary robot], went overboard to cause . . .	Post-HN InMC An	DO, S, Non- restrictive	Yes

Notes

1) "Depictive expression" is intended to include both mimetic whole body constructed action and expressions known variously as classifier constructions, classifier predicates, depicting verbs, and other titles.

2) Out of deference to the Deaf community of Japan, we will be abbreviating Japanese Sign Language as JSL. Although the Japanese name for this language is "Nihon Shuwa," and thus NS has also been suggested as an abbreviation, the Deaf community in Japan almost exclusively uses JSL, as seen in Ichida (2010), for one example.

3) This is admittedly a small corpus, but these are all naturally occurring fully grammatical RCs in spontaneous JSL, so though we don't know what else might be possible, we do know something about what does happen, and some of this is likely to be of interest to the larger SL research community.

4) See Appendix A for more details.

5) Charting the text helped us to determine how words functioned in clauses, and how clauses related to each other and to the larger discourse. It also greatly simplified the process when it came time

to find RCs, complement clauses, and adjunct clauses.

6) A multilingual JSL interpreter then translated the glosses and free translation into English to make them available to a wider research community.

7) It was at this stage that we deleted from the data clauses in which the verb was subordinate to a head noun but was an argument of the head noun rather than a RC, or in which KNOW functioned as a shared information trigger rather than as a verb in a RC.

8) Coulter (1983: 306) also describes the RC marker "r" as "involving a raised upper lip, raised eyebrows, and lifted chin," whereas the TOP marker "t" has only the raised eyebrows and lifted chin.

9) Both write about an LIS manual sign that they gloss PROREL, a relative pronoun. Though they disagree about whether it is a true relative or correlative, it clearly serves the same function as examples from the other sign languages mentioned above. Cecchetto *et al*. (2006) in arguing for correlative analysis over a true RC, mentions "eyebrow raise," which they connect with topicalization, though they do not pursue it in detail. In Branchini, however, it becomes clear that these are RCs, and that the manual marker PROREL does not stand alone, but is always accompanied by NMMs that are clearly related to topicalization.

10) The fact that these are the two studies based on corpus analysis suggests that methodology may be a factor—headless RCs would seem difficult to generate in an elicitation setting. Indeed, in our case, it was only the process of categorizing each verb that brought them to light in our data—until then we didn't think to look for them.

11) Kubus is careful elsewhere to note that this does not mean they don't exist, only that they have not been documented yet.

12) In this context, the Yes/No question serves as a confirmation seeker. "you heard of it, haven't you? Seen it, haven't you?"

13) A possessive/genitive relationship between two nouns is signaled in the same way, by immediate juxtaposition with no prosodic break, much like the genitive in Hebrew.

14) She also has a more extended discussion of various detailed disambiguation strategies in ASL (Wilbur 2017: 8–10).

15) See "Head noun function" charts in Appendix A for more details.

16) It should be noted that JSL is not alone among EHRCs in allowing the RC to be either before or after the head noun. Andrews (2007: 209) points out that though it is unusual, there are other languages that allow this, and gives Tagalog as an example.

17) See Appendix B, A8 and A19.

18) See the chart "Verb types and positions" in Appendix A. Specific items can be found in Appendix B under the label "Post-HN."

19) See example A19 Appendix B. KNOW may sometimes be used as a shared information trigger (similar to "squint") between the head noun and the RC, but in this case, we included it in the data as translated, since it seemed to contrast the ocean as commonly experienced (the ocean you know) with this particular ocean in the story that was behaving differently. Still, we realize that the shared information trigger analysis is at least possible here.

20) E.g. "books" and "cats" in: The *dog* [that likes to eat books and chase cats].

21) Much work remains to be done on topicalization in JSL, so it is hard to speak with confidence here.

22) Some had multiple NMMs involved. The total number of separate NMMs for these 11 RCs was 14.

23) These can be found by searching "CL" through his data in Appendix C.

24) S and DO in the RC, S, DO, IO, and Adjunct in the matrix clause. See "Head noun function" charts in Appendix A for more details.

25) One of our seven pre-nominal RC tokens consists of a depictive expression.

26) See items in Appendix B labelled "Post-HN" for more examples.

27) This is not a separate sign, but attaches to the sign HELP such that it becomes one timing unit, and rather than a separate act of pointing at something.

28) Though the NMM, being a hold followed by a nod, does not extend over the whole phrase, it governs the whole phrase from the previous hold, and this presumably explains the "comp" (complementizer) line over the whole RC.

29) The sentence would then mean "Tanaka and Suzuki made box lunches and ate them."

30) Commas are needed to make the free translation work in English, but in JSL, it is the lack of pauses that signify the embedding.

31) These are the constructions, also known as classifier predicates and several other titles depending on the author, that incorporate handshapes representing some object with the location, orientation, and movement of the handshape depicting in the signing space what that object looks like or does. It is often accompanied by signer expression and other non-manual elements. Along with MIME, it is one of the two ways depictive expressions are formed.

32) In these constructions, part or all of the signer's body acts as if it were the body or body part of the character in the narrative whose role the signer is taking. Along with CL, it is one of two ways depictive expressions are formed.

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