

## Relative Clauses\*

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In this chapter, we examine the typology of relative clauses. We will define relative clauses as follows:

- (1) 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.

Since the NP whose reference is being delimited is in the matrix clause, we will call it  $NP_{mat}$ , and we will call the relative clause itself (which may be reduced or nominalized)  $S_{rel}$ . In the following examples,  $NP_{mat}$  is in italics, and  $S_{rel}$ , which may or may not be part of  $NP_{mat}$ , is bracketed:

- (2) a. *The book* [*I bought yesterday*] was a trade paperback.  
b. *Somebody* lives nearby [*who has a CD-burner*]

In (a),  $S_{rel}$  is contained within  $NP_{mat}$ , and constrains the referent of this NP to be something which I bought, whereas in (b),  $S_{rel}$  occurs at the end of the sentence, and constrains the referent of  $NP_{mat}$  (the subject of the whole sentence) to be the owner of a CD-burner.

In order to describe a situational role for the referent of  $NP_{mat}$ ,  $S_{rel}$  needs to have a grammatical function associated with that role, which we can call the  $NP_{rel}$  function. There may or may not be an overt NP in the RC that expresses  $NP_{rel}$  function; in (2b) there is (the ‘relative pronoun’ *who* in subject position of the RC), and in (2a) there isn’t. In the latter case we can say that the RC contains a ‘gap’ for the  $NP_{rel}$  function (direct object, in this case). Confusing the grammatical and semantic functions of  $NP_{rel}$  and  $NP_{mat}$  is a common pitfall in studying RCs. For practice, you might try to identify the grammatical relation and semantic roles of  $NP_{mat}$  and  $NP_{rel}$  in these examples:<sup>1</sup>

- (3) a. *The man* [*who the dog was biting*] was shouting  
b. The dog bit *the man* [*who was shouting*]

When formulating claims and observations, it’s a good idea to double check that you are not confusing the functions of  $NP_{rel}$  AND  $NP_{mat}$ .

The typology of relative clauses is mostly a matter of differences in:

- (4) a. the structural relationships between  $S_{rel}$  and  $NP_{mat}$  (for example whether or not  $S_{rel}$  is a subconstituent of  $NP_{mat}$ )  
b. the treatment of the  $NP_{rel}$  function (for example whether it is moved, specially marked, or omitted)

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\*I am indebted to Timothy Shopen and Matthew Dryer for useful comments on earlier versions of this paper, and it also draws heavily on Keenan (1985) in approach and content. All errors are of course due to me.

<sup>1</sup>In (a)  $NP_{mat}$  is a subject/Agent while  $NP_{rel}$  is an object/Patient; In (b),  $NP_{mat}$  is an object/Patient while  $NP_{rel}$  is a subject/Agent.

- c. constraints on the possibilities for what the  $NP_{rel}$  function can be (only subject, only core argument, etc)
- d. the treatment of  $S_{rel}$  as a whole (such as reduced or nominalized)

We will consider each of these in turn, noting linkages between these dimensions of variation as they arise. Furthermore, languages often use more than one technique, or ‘strategy’, to form relative clauses, so we need to consider what kinds of combinations of strategies occur together.

Alongside of RCs, languages normally have a variety of structures that resemble RCs in various ways, without meeting the definition (1). In English and many other languages there is for example the so-called ‘nonrestrictive’ relative clause, which makes a comment about an NP or other constituent, without delimiting its reference (Keenan 1985:168):

- (5) a. The Japanese [who are industrious] now outcompete Europe
- b. The Japanese, [who are industrious], now outcompete Europe

In the (a) example above, the bracketed subordinate clause helps to identify the superior competitors, and meets the definition of an RC, while in the (b) example it doesn’t help in the identification, and therefore does not. In English, nonrestrictive relatives, although similar to RCs, differ from them in a variety of respects, such as having pauses to set them off from their surroundings. But in some other languages, such as Japanese, the same construction seems able to function as both a relative clause and a nonrestrictive relative (Kuno 1973:235). Other structures that may have significant resemblances to RCs without meeting the definition include questions, comparative clauses and adverbial clauses. An interesting example from English is the ‘concealed question’ of (6b) below (Keenan 1985:170):

- (6) a. John always knows [which horse will win]
- b. John always knows [the horse that will win]

In (6b) the bracketed NP looks like an NP containing an RC, but has the semantic function of the ‘indirect question’ in (6a). In this survey we will only consider RCs as defined in (1), without investigating the related structures, interesting as they are.

## 1 Relationships between $NP_{mat}$ and $S_{rel}$

Our first distinction is whether  $S_{rel}$  is contained within  $NP_{mat}$ , as in (2a) above, or is outside of it, as in (2b). The possibilities when  $S_{rel}$  is within  $NP_{mat}$  will be discussed in the first subsection below. We will following Andrews (1985:11) in calling the former type ‘embedded’, Hale (1976) in calling the latter ‘adjoined’.

## 1.1 Embedded RCs

Embedded RCs have  $S_{rel}$  inside  $NP_{mat}$ . They have three major typological subdivisions, which are based on the relationship between  $S_{rel}$  and some additional nominal material, which we will call the ‘domain nominal’. The domain nominal serves the semantic function of identifying the domain of objects upon which the RC imposes a further restriction. In (2a), for example, the domain nominal is *book*.

The possibilities are that the domain nominal appears outside of  $S_{rel}$  (as in (2a)), inside of  $S_{rel}$ , or does not exist. These possibilities result in the three categories of external, internal and free (embedded) RCs.

### 1.1.1 External RCs

In English, external RCs follow the domain nominal; the other two possibilities are that they precede it, or occur in variable order. The former possibility is illustrated by Japanese. In (7b) below, based on the sentence (7a), the RC is bracketed while the domain nominal is italicized:

- (7) a. Yamada-san ga saru o kat-te i-ru  
Yamada-Mr SUBJ monkey DO keep-PART be-PRES  
Mr Yamada keeps a monkey.
- b. [Yamada-san ga kat-te i-ru] saru  
Yamada-Mr SUBJ keep-PART be-PRES monkey  
The monkey which Mr. Yamada keeps

There are various common but not invariable linkages between the relative order of RC and domain nominal and other properties of the RC. For example RCs that precede the domain nominal are more likely to be nominalized than those that follow, but don’t appear to use special ‘relative pronouns’ to express  $NP_{rel}$  function, tending rather to lack overt  $NP_{rel}$ . These tendencies will be commented on below.

Languages in which RCs precede the domain nominal are especially likely to be verb-final, such as Japanese, Korean Turkish, and Navajo, although RC-first order also occurs in SVO languages such as Chinese (Li and Thompson 1981:116):

- (8) [Zhāngsān mǎi de] qichē hěn guì.  
Zhangsan buy NOM car very expensive  
The car that Zhangsan bought was very expensive

Persian on the other hand is a verb-final language where relative clauses follow the domain nominal (Lambton 1953:75):<sup>2</sup>

- (9) *Ketab-i* [ke be mān dad-id] gom šode æst  
book-INDEF REL to me gave-2SG lost is  
The book you gave to me is lost

It is also possible, although unusual, for RCs to be able to either precede or follow the domain nominal. This occurs in Tagalog (Schachter and Otnes 1972:124):

<sup>2</sup>The suffix *-i* is normally used to mark indefiniteness, but also appears on the domain nominals of RCs, even when the interpretation is definite. See Taghvaipour (2003) for discussion.

- (10) a. *tindaha-ng* [pinuntahan ko]  
store-LNK PERF.go I
- b. [pinuntahan ko]-ng *tindahan*  
PERF.go I-LNK store

The store I went to

Here the RC is separated from the domain nominal by a so-called ‘linker’,<sup>3</sup> which appears between the RC and the domain nominal, regardless of what order these appear in.

External RCs sometimes appear in the same position as ordinary adjectives. This is the case in Tagalog, where adjectives can precede or follow the heads in the same way that RCs do, and take the same linker (Schachter and Otones 1972:122-124):

- (11) a. *mayama-ng tao*  
rich-LNK man
- b. *tao-ng mayaman*  
man-LNK rich

Relative clauses in Tagalog thus appear to simply be clauses that are functioning as adjectives, in terms of their positional properties as well as their meanings.

In other languages there are significant differences between relative clauses and ordinary adjectival modifiers. In English for example the normal position for adjectives is in front of the head N, while relative clauses come after.<sup>4</sup> In Japanese on the other hand, both adjectives and relative clauses precede the head nominal, but there is a difference: adjectives must follow a demonstrative, but at least multi-word relative clauses prefer to precede it, although following is also possible:<sup>5</sup>

- (13) a. *ano yasui konpyuutaa*  
that cheap computer
- b. *\*yasui ano konpyuutaa*  
cheap that computer
- that cheap computer*

- (14) a. [boku ga sonkeisite iru] kono hito  
I NOM respecting be this person

<sup>3</sup>Which takes the form *-ng* after a word ending in a vowel or a nasal, *na* otherwise, replacing the nasal in the latter case.

<sup>4</sup>However in English, phrasal adjectival modifiers appear after the head NP:

- (12) a book yellow with age

These have sometimes been analysed as reduced RCs.

A further difference between prenominal and postnominal modifiers in English is that while postnominal modifiers always pick out a subset of the potential referents of the head nominal, prenominal modifiers can perform other semantic operations as well. E.g. if something is ‘a book yellow with age’, it must be ‘a book’, but if something is ‘a supposed Intel processor’, it isn’t necessarily ‘an Intel processor’.

<sup>5</sup>Thanks to Misako Ishii and Peter Hendricks for checking these examples. Matthew Dryer (p.c.) find that single-word relative clauses on the other hand prefer to precede the demonstrative.

- b. kono [boku ga sonkeisite iru] hito  
 this I NOM respecting be person  
 this person who I respect

This appears to be an instance of a general tendency for RCs to appear further away from the head N than adjectives. Since both adjectives and RCs precede the head in Japanese, the effect here is that the RCs appear closer to the beginning of the NP.

In Lango, on the other hand, where both adjectives and RCs follow the head, RCs appear closer to the end (Noonan 1992:154-156). In this language, demonstratives and other determiners normally appear suffixed to the last word of the NP, including adjectives:

- (15) a. gwók-kì  
 dog-this  
 this dog
- b. gwòkk à dwóŋ-ŋì  
 dog ATT big.SG-this  
 this big dog

RCs on the other hand can appear either before or after the determiner, or sandwiched between two instances of the (same) determiner:<sup>6</sup>

- (16) gwóggî à dđŋò àryʒ-nì [ámê lóca ònèkò]-nì  
 dogs ATT big two-this REL.PART man 3s.kill.PERF-this  
 these two big dogs that the man killed

It usually appears to be the case that when RCs appear in a different position than ordinary adjectival modifiers, they either appear after the head rather than before, or further away from the head. In some languages however, especially Tibeto-Burman, RCs precede the head N, but adjectives follow (Matthew Dryer, p.c.).

There is however a further factor, which is that external RCs often appear in two different forms, commonly called ‘reduced’ and ‘unreduced’. The former are less like full clauses, typically having reduced tense-mood marking, and greater restrictions on the NP<sub>rel</sub> function (typically, NP<sub>rel</sub> in reduced RCs must be subject or absolutive in grammatical function). The verbs of reduced RCs furthermore often have features of adjectival or nominal morphology.

When there is such a distinction, the reduced RCs may appear in the positions appropriate for adjectival modifiers while the unreduced ones appear in a different and typically more external position. This is illustrated by German and Finnish, respectively, below, where the (a) examples contain prenominal reduced RCs, and the (b) examples are postnominal unreduced (Keenan and Comrie 1977):

- (17) a. [Pöydällä tanssinut] poika oli sairas  
 on table having danced boy was sick  
 The boy who danced on the table was sick

<sup>6</sup>Unfortunately Noonan only cites an example with the determiner appearing both before and after the RC, although he says that it can appear in either position, as well as both.

- b. John näki veitsen [jolla mies tappoi kanan]  
 John saw knife with which man killed chicken  
 John saw the knife with which the man killed the chicken

- (18) a. der [in seinem Büro arbeitende] Mann  
 the in his study working man  
 the man working in his study
- b. der Mann, [der in seinem Büro arbeitet]  
 the man who in his study works  
 the man who is working in his study

It always appears to be the case that when reduced RCs appear in a different position than unreduced ones, they appear in a position shared with ordinary adjectival modifiers, and that the unreduced ones will be either postnominal, or further from the domain nominal. This indicates that reduced RCs are phrasal in nature, as opposed to the full RCs, which are clausal.

### 1.1.2 Internal RCs

Internal RCs have the domain nominal within the RC itself, either in the position that would be expected on the basis of the NP<sub>rel</sub> function, or perhaps displaced from that position.<sup>7</sup> Below are some internal RCs from Navajo (Platero 1974), illustrating internal RCs with NP<sub>rel</sub> as subject, object, object of preposition and possessor:

- (19) a. [(Tl'éeédáá) ashkii ałhą́á'-ą́ą] yádooh̄tih  
 last night boy 3SG.IMPF.snore-REL.PAST FUT.3SG.speak  
 The boy who was snoring last night will speak
- b. [Ashkii at'éeéd yiyiiltsá-n̄ęę] yáłti'  
 boy girl 3SG(O).PERF.3SG(S).speak-REL.PAST IMP.3SG.speak  
 The boy who saw the girl is speaking  
 The girl who the boy saw is speaking (ambiguous)
- c. [(Shi) łééchéąą'í bá hashtaal-ígíí] nahat'in  
 I dog for.3SG IMPF.1ST.sing-REL.NONPAST IMPF.2SG.bark  
 The dog that I am singing for is barking
- d. [Eł́í' bi-tsiigha' yishéé-éę] naalgeed  
 horse its-mane 3SG(O).PERF.1SG(S).shear-REL.PAST IMPF.3SG.buck  
 The horse whose mane I sheared is bucking

The possibility of a time-adverbial appearing initially in the RC in (a) shows that the domain nominal is appearing within S<sub>rel</sub>, rather than before it. Likewise the existence of a reading of (b) in which *at'éeéd* 'the girl' is NP<sub>rel</sub> indicates that the domain nominal is inside S<sub>rel</sub> in this case also. Since Navajo lacks postnominal embedded relatives, both (a) without the initial time adverbial, and the other reading of (b) must also be examples

<sup>7</sup>As discussed by Basilico (1996) and below.

of internal RCs. The remaining examples illustrate some additional possibilities for the function of NP<sub>rel</sub> and the domain nominal in such examples, although there are also positions that are blocked.<sup>8</sup>

Like many languages with internal RCs, Navajo also allows the domain nominal to appear after the RC, yielding alternates such as these to the sentences of (19):

- (20) a. [(Tl'éeédáá) alháá'-áá] ashkii yádooh'tih  
 last night 3SG.IMPF.snore-REL.PAST boy FUT.3SG.speak  
 The boy who was snoring last night will speak
- b. [Ashkii yiyiitsá-néé] at'éeé yáhti'  
 boy 3SG(O).PERF.3SG(S).speak-REL.PAST girl IMP.3SG.speak  
 The girl who the boy saw is speaking
- c. [(Shi) bá hashtaał-ígíí] lééchaa'í nahał'in  
 I for.3SG IMPF.1ST.sing-REL.NONPAST dog IMPF.2SG.bark  
 The dog that I am singing for is barking
- d. [Bi-tsiigha' yishéé-éé'] híí' naalgeed  
 its-mane 3SG(O).PERF.1SG(S).shear-REL.PAST horse IMPF.3SG.buck  
 The horse whose mane I sheared is bucking

Basilico (1996) reviews and proposes an analysis of a number of recurrent characteristics of internal relative clauses, first, that NP<sub>rel</sub> be formally indefinite, second, that in many languages, ambiguous internal RCs can be disambiguated by preposing NP<sub>rel</sub> (but keeping it within the RC, and not necessarily moving it to the front). These issues will be considered when we discuss the treatment of NP<sub>rel</sub>.

## 1.2 Free RCs

A final type which at least superficially resembles internal RCs are the so-called 'free relatives' which arguably lack a domain nominal:

- (21) a. The dog ate [what the cat left in its bowl]  
 b. Let [whoever is without sin] cast the first stone

In (a) the bracketed sequence is a free RC with NP<sub>rel</sub> in object function, in (b) it is one with NP<sub>rel</sub> in subject function. In examples such as these from English there is uncertainty as to whether the *wh*-marked form is appearing inside S<sub>rel</sub> as NP<sub>rel</sub>, or outside of it as head of NP<sub>mat</sub>. The latter is argued by Bresnan and Grimshaw (1978); however a difficulty with this is the apparent acceptability of examples such as:

- (22) [Whoever's woods these are] is a good judge of real estate

Here NP<sub>mat</sub> is coreferential with *whoever*, but *whoever* is embedded in the larger NP *whoever's woods*. This is not problematic if this is a preposed NP within S<sub>rel</sub>, but if it

<sup>8</sup>Such as 'object' of a locational enclitic (Platero 1974:224-226).

is external to  $S_{rel}$  as the head of  $NP_{mat}$ , the result would be a bizarre situation in which the head of an NP wasn't coreferential with the NP.

Free relatives coexist with other types of RC in many languages. In Navajo, for example, free relatives exist alongside of internal and prenominal embedded relatives, and are expressed with neither a domain nominal nor any overt material in  $NP_{rel}$  position (Kaufman 1974:527):

- (23) [Kinlání-góó deeyáh-ígíí] bééhonisin  
 Flagstaff-to 2SG.go-REL.NPAST 3SG(O).IMPF.1SG(S).know  
 I know the person who is going to Flagstaff

Free relatives appear to be semantically similar to structures with pronouns or demonstratives in  $NP_{mat}$  head position:

- (24) Let he who is without sin cast the first stone

In some languages, such as Icelandic, free RCs do not exist; pronominally headed ones similar to (24) are used instead.

### 1.3 Adjoined RCs

Adjoined RCs have  $S_{rel}$  appearing outside of  $NP_{mat}$ . Such RCs appear to be restricted to appearing at the beginning or the end of the clause; I am aware of no languages in which there is a fixed position for non-embedded RCs that is internal to the clause. Languages frequently allow both clause-initial and final position for adjoined RCs, as illustrated by these examples from Hindi (Srivastav 1991):

- (25) a. [Jo laṛkii khaṛii hai] vo lambii hai  
 WH girl standing is DEM tall is  
 b. Vo laṛkii lambii hai [jo khaṛii hai]  
 DEM girl tall is WH standing is

The girl who is standing is tall

Superficially, these structures look like minor variants, but Srivastav shows that the left-adjoined (clause-initial)  $S_{rel}$  have significantly different properties than the right-adjoined (clause-final ones), which share various properties with RCs appearing in the third possible position for RCs in Hindi, embedded postnominally.

One of these properties is that with a left-adjoined RC,  $NP_{mat}$  must be definite and marked with the demonstrative *vo*, which is not required for the other two types:

- (26) a. \*[Jo laṛkiyāā khaṛii hāī] do lambii hāī  
 WH girls standing are two tall are  
 b. Do laṛkiyāā lambii hāī [jo khaṛii hāī]  
 two girls tall are WH standing are  
 c. Do laṛkiyāā [jo khaṛii hāī] lambii hāī  
 two girls WH standing are tall are

Two girls who are standing are tall

A more striking property of left-adjoined RCs is that they can specify two NPs in NP<sub>rel</sub> function, each with a corresponding demonstrative in the main clause. This is not possible for the right-adjoined clauses, and not able to even be envisioned with the embedded ones:

- (27) a. [Jis lar̥ki-ne<sub>i</sub> jis lar̥ke-ko<sub>j</sub> dekhaa] us-ne<sub>i</sub> us-ko<sub>j</sub> passand kiyaa  
 WH girl-ERG WH boy-ACC saw DEM-ERG DEM-ACC liked
- b. \*Us lar̥ki-ne<sub>i</sub> us lar̥ke-ko<sub>j</sub> passand kiyaa [jis-ne<sub>i</sub> jis-ko<sub>j</sub> dekhaa]  
 DEM girl-ERG DEM boy-ACC liked WH-ERG WH-ACC saw
- Which girl saw which boy, she like him (you know the girl who saw the boy? Well, she liked him)

In this case, the left-adjoined clause is constraining the reference of two NPs at the same time, by presenting a situation in which both are participants. The interpretation requires that there be a unique pair, a boy and a girl, such that the boy saw the girl, and then states that the boy liked the girl. On the basis of this and additional evidence, Srivastav concludes that the left-adjoined clauses are an essentially different type of construction than the other two. This conclusion is supported by the fact that right-adjoined RCs frequently occur in languages such as English (c.f. (2b)), which lack left-adjoined RCs.

The distinctive properties of the left-adjoined clauses support the use of a special term for them; they are often called ‘co-relatives’, and classified as different from relative clauses (Keenan 1985). On the other hand, the fact that they use the same kind of special marking for NP<sub>rel</sub>, different for example from interrogative marking, suggests that they should be treated as a kind of relative clause; since they meet the definition (1), I will here treat them as a type of RC. It is reasonable to use the term ‘co-relative’ for RCs with properties similar to those of Hindi left-adjoined RCs. Right-adjoined RCs in English are traditionally called ‘extraposed’, and this would appear to be an appropriate terminology for Hindi as well.

Downing (1973) finds that co-relative RCs tend to occur in ‘loose’ verb final languages, which allow some NPs, especially heavy ones, to appear after the verb without a special pragmatic effect. However there have not been detailed studies of the kinds of differences between left- and right- adjoined varieties discussed by Srivastav. For example Andrews (1985:67-68) finds that in Marathi, a right-adjoined RC can modify two NPs with different syntactic functions, but this issue has not been investigated for other languages.

Hindi has both embedded and adjoined RCs, but it is possible for the former to be lacking. Warlpiri for example (Hale 1976:79) has both left- and right- adjoined RCs, but no embedded ones:

- (28) a. Ngatjulu-rlu kapi-rna wawirri purra-mi [kutja-npa parntu-rnu  
 I-ERG FUT-1SG kangaroo cook-NPAST REL-2SG spear-PAST  
 nyuntulu-rlu]  
 you-ERG

- b. [Nyuntulu-rlu kutja-npa wawirri pantu-rnu] ngatjulu-rlu kapi-rna  
 you-ERG REL-2SG kangaroo spear-PAST I-ERG FUT-1SG  
 purra-mi  
 cook-NPAST

I will cook the kangaroo that you speared

It is not known whether or not the two RC positions differ in Warlpiri in ways comparable to Hindi.

Other than the absence of embedded RCs, Warlpiri RCs also differ from those of Hindi in that there is no special marking of NP<sub>rel</sub>. But whichever of NP<sub>rel</sub> or NP<sub>mat</sub> comes second can be marked with the demonstrative *ngula*, which is preferentially placed last if it represents NP<sub>rel</sub> in a (right-adjoined) RC, or first if it represents NP<sub>mat</sub> in a main-clause with a left-adjoined RC:

- (29) a. Ngatjulu-rlu ka-rna-rla makiti-ki warri-rni yangka-ku,  
 I-ERG PROG-1SG(S)-3SG(DAT) gun-DAT seek-NONPAST that-DAT  
 [kutja-rna wawirri rluwa-rna (ngula-ngku)]  
 REL-1SG(S) kangaroo shoot-NPAST it-INSTR  
 I am looking for the gun that I shot the kangaroo with

- b. [Makiti-rlu kutja-npa nyuntulu-rlu wawirri rluwa-rnu yangka-ngku],  
 gun-INST REL-2SG(S) you-ERG kangaroo shoot-PAST that-INST  
 ngula-ku ka-rna-rla warri-rni  
 it-DAT PROG-1SG(S)-3SG(DAT) seek-NONPAST  
 That gun you shot the kangaroo with, I'm looking for it

It is also possible to repeat the nominal in both clauses.

When the two clauses have the same tense, an additional interpretation becomes possible, in which the subordinate clause is giving the time of the event of the main clause. Hence for a sentence such as (30) below, there are two interpretations:

- (30) [Yankirri-rlu kutja-lpa ngapa nga-rnu], ngatjulu-rlu-rna pantu-rnu  
 Emu-ERG REL-PAST.PROG water drink-PAST I-ERG-1SG(S) spear-PAST  
 I speared the emu which was drinking water  
 While the emu was drinking water, I speared it

These two interpretations are called the 'NP-relative' and 'T-relative' interpretations. The latter kind of interpretation is unavailable for the earlier examples above because the tenses of the clauses are different, whereas if the clauses have no potentially coreferential NPs, then only the T-relative interpretation will be available.

Although the Warlpiri adjoined relatives resemble the Hindi constructions in certain respects, the absence of formal marking makes it difficult to tell how similar the constructions really are. Hale (1976:92) for example cites an example which might be relativization on two NPs at once, but it is impossible to be sure.

Left-adjoined RCs, whether of truly co-relative type or not, are widely distributed, being clearly found in Australia and the Americas, as well as in many Indo-European languages. In addition to South Asian, they appear in various other older IE languages,

such as Sanskrit, Old Latin, and Medieval Russian. Andrews (1985:54-56,170-172) notes what appears to be a historical residue of the co-relative clause in English, the ‘indefinite comparative’ construction of sentences such as *the more you eat, the hungrier you get*. Adjoined RCs always appear to be full, never reduced.’

## 2 The Treatment of NP<sub>rel</sub>

NP<sub>rel</sub> is often treated in a special way, with some combination of distinctive marking, movement, omission or reduction to a pronoun. There are furthermore correlations between the treatment of NP<sub>rel</sub> and other aspects of the construction: special marking is for example unusual for internal relatives, if it occurs at all, and omission of NP<sub>rel</sub> does not seem to be possible for clause-initial adjoined RCs (co-relatives). In this section we look at the major techniques in turn.

### 2.1 Marking

Special marking of NP<sub>rel</sub> occurs in English, in the form of the ‘WH’ pronouns *who* and *which* that can be used to express NP<sub>rel</sub>. Evidence that these are pronouns expressing NP<sub>rel</sub> rather than invariant markers introducing the RC is provided by the phenomenon of ‘pied piping’ wherein they appear inside a larger constituent of the relative clause which is preposed to the front of the RC (RC in brackets, moved NP containing NP<sub>rel</sub> italicized):

- (31) a. The aspect of the proposal [*to which* I object most strongly] is that it cuts library funds by 70%
- b. The students [*whose exams* we reviewed] seem to have been marked fairly

In (a), the specially marked NP<sub>rel</sub> is preceded by a preposition, while in (b), it is in genitive case.

English relative clauses can also be introduced by *that*, but pied piping is not possible:

- (32) a. The aspect of this proposal [that I object most strongly to]
- b. \*The aspect of this proposal [to that I object most strongly]

It is generally assumed *that* in relative clauses is not a relative pronoun.

The English relative pronouns are also used as interrogatives, but this is not the case in general. Russian for example has a relative pronoun *kotorij* used in postnominal RCs, which is different from the interrogative pronouns. It is a relative pronoun rather than a clause-introducer because it is case-marked for the function of NP<sub>rel</sub> rather than NP<sub>mat</sub>:

- (33) Kn,iga [kotoruju ja načital] na stol,e  
 book(NOM) which(ACC) I read on table  
 The book which I read is on the table

The *j*-determiners and pronouns used to express NP<sub>rel</sub> in Hindi are likewise used only in RCs, but not for example as interrogatives. The fact that distinctive morphological forms are used for NP<sub>rel</sub> in co-relative, embedded and extraposed RCs is motivation for identifying all of these constructions as (different kinds of) relative clauses rather than fully distinct constructions.

A rather interesting restriction on special marking of NP<sub>rel</sub> is that it never seems to occur with embedded prenominal RCs, although it does with all the other types, postnominal embedded, corelative, and arguably internal, if English examples such as (22) are accepted, and similarly English ‘paucal relatives’ (Andrews 1985:48-49), if the *who*-marked NPs are taken as within the RC rather than as specially marked domain nominals along the lines of Bresnan and Grimshaw (1978):

- (34) a. What beer we found was flat  
 b. What few people survived were unable to give a coherent account of what happened

We will also consider under the heading of marking the issue of whether NP<sub>rel</sub> is definite or indefinite. Internal relatives appear to be formally indefinite, in languages where this is marked, as first noted for by Williamson (1987) for Lakhota:

- (35) a. Mary [owįža wą kaḡe] ki/cha he opehewathų  
 Mary quilt a make the/a DEM I-buy  
 I bought the/a quilt that Mary made.  
 b. \*Mary owįža ki kaḡe ki he ophewewathų  
 Mary quilt the make the DEM I-buy

Williams establishes that the NP<sub>rel</sub> in these constructions must belong to the class of ‘cardinality expressions’ identified in Milsark (1974), making them semantically indefinite.

In prenominal embedded RCs, NP<sub>rel</sub> usually seems to be definite when it is not omitted, as in these examples from Japanese, where NP<sub>rel</sub> is a full NP of greater semantic generality than the domain nominal (Kuno 1973:237):

- (36) watakushi ga so/kare/sono hito no namae o wasuretesimat-ta  
 I NOM that/he/that person GEN name ACC forget-PAST  
 okyaku-san  
 guest  
 the guest whose name I have forgotten

But indefinite also seems to be possible, as in this example from Tibetan, where NP<sub>rel</sub> is a copy of the domain nominal, without the definite determiner (Keenan 1985:152, Mazaudon 1976):

- (37) [Peemecoqtse waa-la kurka thii-pe ] coqtse the  
 Peeme(ERG) table(ABS) under-DAT cross(ABS) table(ABS) the(ABS)  
 na noo-qi yin  
 I(ABS) buy-PRES be  
 I will buy the table under which Peem made a cross

I am aware of no cases where NP<sub>rel</sub> in a postnominal embedded RC appears to be formally indefinite.

## 2.2 Pronominalization

Independently of whether it is specially marked or moved, NP<sub>rel</sub> is often reduced to some sort of pronoun. English NP<sub>rel</sub> in postnominal RCs are always reduced to pronouns in addition to being moved and marked, although full NPs have some capacity to appear as NP<sub>rel</sub> in nonrestrictive relatives, which we do not here regard as true RCs:

- (38) Then we went to Canberra, which putative city was attractive in its way, but not very much like a real city

The paucal relatives of (34) above also have either non-pronominal NP<sub>rel</sub>, or a *wh*-marked head.

For NP<sub>rel</sub> to appear as an ordinary pronoun, with no further special treatment, is an especially common strategy for embedded postnominal RCs when NP<sub>rel</sub> is not the subject, and often appears as an alternative to omission of NP<sub>rel</sub>, especially when the function of NP<sub>rel</sub> is ‘more oblique’ on the Accessibility Hierarchy, to be discussed later. This format of NP<sub>rel</sub> is often called a ‘resumptive pronoun’.

A typical example is Modern Hebrew (Borer 1984), where the NP<sub>rel</sub> object can either be omitted or expressed as a resumptive pronoun:

- (39) raʔit-i ʔet ha-yeled she-ʔasher rina ʔohevet (ʔoto)  
 saw-I ACC the-boy REL Rina loves him  
 I saw the boy that Rina loves

The RC is introduced either by *she-* procliticized to the following word or by *ʔasher*, and there is another possibility, movement of NP<sub>rel</sub>, that we’ll look at in the next section.

It also seems appropriate to recognize as resumptive pronouns cases where the pronoun is incorporated into prepositions, etc., if this also occurs with ordinary anaphoric pronouns. This can also be illustrated from Hebrew, with objects of prepositions, where omission of NP<sub>rel</sub> is not possible:

- (40) raʔit-i ʔet ha-yeled she-ʔasher ʔRina xashva ʔalay/\*ʔal  
 saw-I ACC the-boy REL Rina thought about-him/\*about  
 I saw the boy that Rina thought about

For a recent formal analysis of resumption in a number of languages, see Asudeh (2004).

## 2.3 Movement

In many of the examples we have already seen with specially marked NP<sub>rel</sub>, there is also movement to the beginning of the clause. In English, relative pronouns (specially marked NP<sub>rel</sub>) move obligatorily to the beginning of the relative clause:

- (41) a. The person who(m) I spoke to was angry

- b. \* The person I spoke to who(m) was angry

In Hebrew, movement of NP<sub>rel</sub> (expressed as an ordinary pronoun) is optional, so that (42) is an alternative to (39) (the clause introducer becomes optional when NP<sub>rel</sub> is preposed):

- (42) Raʔit-i ʔet ha-yeled (she-/ʔasher) ʔoto rina ʔohevet  
 saw-I ACC the-boy REL him Rina love  
 I saw the boy that Rina loves

How do we know that these putatively preposed items are expression of NP<sub>rel</sub> rather than for example some sort of reduced copy of the domain nominal? The answer is that they show, or can show, properties associated with NP<sub>rel</sub> rather than NP<sub>mat</sub>. In the case of (42) (Hebrew), the form ʔoto ‘him’ expresses direct object function, which is the function of NP<sub>mat</sub> also, but below in (a) we see this form when NP<sub>mat</sub> is subject (and would be expressed pronominally as *hu*), and in (b), where NP<sub>rel</sub> is object of a preposition:

- (43) a. Ze ha-ʔish (she-/ʔasher) ʔoto raʔit-i  
 this the-man REL him saw-I  
 This is the man who I saw
- b. Raʔit-i ʔet ha-yeled (she-/ʔasher) ʔalav rina xashva  
 saw-I ACC the-boy REL about him Rina thought  
 I saw the boy that Rina thought about
- c. Raʔit-i ʔet ha-yeled (she-/ʔasher) rina xashva ʔalav  
 saw-I ACC the-boy REL Rina thought about him  
 I saw the boy that Rina thought about

(c) illustrates that the preposing is optional with a prepositional NP<sub>rel</sub> just as it is with direct objects.

The ‘pied piping’ construction discussed at the beginning of 2.1 is a further indication of movement, and might be taken as an extreme case of NP<sub>rel</sub> showing markers of its function within S<sub>rel</sub>. Pied piping often occurs when it isn’t possible to move anything from the NP<sub>rel</sub> position. In English possessors can’t be moved alone, but objects of prepositions can be:

- (44) a. \* the man [who I met ’s dog] (grammatical on a different bracketing, where you meet the man rather than the dog)
- b. \* the man [whose I met dog]
- c. the man to who(m) I spoke

In German, movement isn’t possible from either position:

- (45) a. der Mann, dessen Hund ich gefüttert habe  
 the man, whose dog I fed have  
 The man whose dog I fed

- b. \*der Mann, dessen ich Hund gefüttert habe  
the man, whose I dog fed have
- c. der Mann, mit dem ich gestern gesprochen habe  
the man, with whom I yesterday spoken have  
the man who I spoke with yesterday
- d. \*der Mann, dem ich mit gestern gesprochen habe  
the man, whom I with yesterday spoken have

I am not aware of any languages which allow movement of direct object NP<sub>rel</sub>, but pied piping of PP and NP containing possessive NP<sub>rel</sub> isn't possible, although colloquial English is approaching this condition, since pied piping of PP is rather stilted.

Like marking, movement is absent with prenominal embedded RCs, but found with all the other types. This is a rather interesting correlation in behavior.

## 2.4 Omission

Omission is another extremely popular treatment of NP<sub>rel</sub>. Many languages, such as English and Modern Hebrew, have omission as an alternative to other strategies, under conditions that vary from language to language. English allows omission for NP<sub>rel</sub> that are not the subject of the relative clause itself, or possessives:

- (46) a. The representative [I met  $\emptyset$ ] was polite
- b. The candidate [John thinks  $\emptyset$  will win] is Tony
- c. The people [we spoke with  $\emptyset$ ] were sympathetic
- d. \*The person  $\emptyset$  talked to me was rude
- e. \*The person [Mary showed  $\emptyset$ (’s) book to me] was interesting

Modern Hebrew requires omission of the subject of a relative clause, if it is NP<sub>rel</sub>, and allows but does not require omission of objects, and does not allow omission of objects of prepositions:

- (47) ha-ʔarie<sub>i</sub> she-/ʔasher (\*hu<sub>i</sub>) taraf ʔet ha-yeled barax  
the-lion REL he ate ACC the-boy escaped  
The lion that ate the boy escaped

- (48) a. raʔit-i ʔet ha-yeled she-/ʔasher ʔRina ʔohevet (ʔoto)  
saw-I ACC the-boy REL Rina loves him  
I saw the boy that Rina loves
- b. raʔit-i ʔet ha-yeled she-/ʔasher ʔRina xashva ʔalav/\*ʔal  
saw-I ACC the-boy REL Rina thought about-him/\*about  
I saw the boy that Rina thought about

When movement and omission are both available in a language, it is usually the case that either or both are possible, or impossible, from environments such as PP or possessive position, with pied piping being a common alternative to movement. For example in Modern English, movement and omission are both possible out of PP, but not out of possessive position in NP, while in Modern Hebrew, they are both impossible out of PP. And in both languages, the effects of the restriction are mitigated by the possibility of pied-piping the entire constituent. But sometimes there is divergence, for example Allen (1980) shows that NP<sub>rel</sub> could be moved but not deleted out of PP in Old English.

## 2.5 Other Possibilities

Marking, movement, omission and reduction are the overwhelmingly most common treatments of NP<sub>rel</sub>, but these are not the only options, as seen above for Tibetan and Warlpiri, where it is possible for nothing to be done to NP<sub>rel</sub>. There is an unclassifiable range of further possibilities. In Swahili, for example, NP<sub>rel</sub> are manifested as agreement markers on the verbs and prepositions governing them (functionally equivalent to resumptive pronouns), but there is in addition a special relative agreement marker appearing either on the verb, or on an RC-introductory particle *amba* (Keach 1985:89):

- (49) a. m-tu            a-li-ye-kwenda            sokoni  
           CL1-person CL1(SUBJ)-PAST-CL1(REL)-go to school  
           The person who went to school.
- b. m-tu            amba-ye            a-li-kwenda            sokoni  
           CL1-person AMBA-CL1(REL) CL1(SUBJ)-PAST-go to school  
           The person who went to school.

The possibilities that we have enumerated should therefore be taken as indications of what is most likely to be encountered, not as absolute limits.

## 3 Constraints on the function of NP<sub>rel</sub>

Constraints on the function of NP<sub>rel</sub> have been of great theoretical interest from the early days of modern syntax for two reasons. One is that early syntactic theories did not actually contain mechanisms for implementing such constraints, so that additional devices had to be added (Ross 1967), or the structure of the theories drastically revised (Chomsky 1973 and a vast body of subsequent work). The other is that many constructions other than just relative clauses seemed to be subject to the constraints (Ross 1967), indicating that it would be wrong to pursue a purely ‘construction-based’ view of grammar whereby one could describe relative clauses, questions, etc. in isolation from each other; rather there are common constraints holding across many different traditionally recognized constructions. The significance of this for fieldwork and typology is that it is important not to look at constraints on NP<sub>rel</sub> in isolation, but in comparison with constraints on questioning, focus and other information-structuring constructions. The constraints that have been proposed and investigated fall into two major groups, ‘Island Constraints’, and the ‘Accessibility Hierarchy’.

### 3.1 Island Constraints

Island Constraints limit the region within  $S_{rel}$  in which  $NP_{rel}$  can appear. For example the most famous of these, the ‘Complex NP Constraint’ of Ross (1967) says that it is impossible to relativize<sup>9</sup> an NP contained within an S that modifies another NP. So the ungrammatical examples of (50) below are CNPC violations, while the acceptable ones of (51) are not:

- (50) a. \*The people who John denied the claim that Mary had insulted got angry  
b. \*The paper that Mary sued the professor who wrote was published
- (51) a. The people who John denied that Mary had insulted got angry  
b. The paper that Mary sued the author of was published

Ross proposed that the CNPC and other similar constraints were universal. Subsequently, it was discovered that languages didn’t obey them uniformly. For example, Kuno (1973:238-240) argued that the CNPC did not apply to Japanese (preposed RCs,  $NP_{rel}$  omitted), as in this example of relativization out of a complex NP containing a relative clause:

- (52) [[ $\emptyset_i$  kite iru] yoohuku ga yogurete iru] sin*i*<sub>i</sub>  
wearing is suit NOM dirty is gentleman  
The gentleman who the suit that (he) is wearing is dirty.

Anderson (1974) and others showed that this could also happen in languages such as Swedish, with postnominal RCs and deletion of  $NP_{rel}$  (Engdahl 1997:57):

- (53) här är en fråga<sub>i</sub> [som jag inte känner någon [som kan svara på  $\emptyset_i$  ]]  
here is a question that I not know no one that can answer to  
Here is a question that I don’t know anyone who can answer (it)

Relativization from positions prohibited by the CNPC and other constraints proposed by Ross is particularly likely to be possible when  $NP_{rel}$  is expressed as a resumptive pronoun. We illustrate with relativization from a relative clause in Welsh (54), and from a coordinate structure in Egyptian Arabic (55) (Keenan 1985:156); the English counterparts of both are clearly ungrammatical:

- (54) ... 'r het y gwn y dyn a' i gadewodd ar y ford  
the hat the I know the man that it left on the table  
the hat that I know the man who left it on the table
- (55) al-rajul allathi hua wa ibna-hu thahabu ille New York  
the-man who he and son-his went to New York  
The man who he and his son went to New York.

---

<sup>9</sup>The original statement was in terms of more general but theory-laden terms, restricting the possibilities for ‘movement’ and ‘deletion’.

When a language allows both movement or deletion and resumptive pronouns, it is often the case that the former but not the latter obey the constraints, as in these examples from Modern Hebrew (Borer 1984:221,226):

- (56) a. raʔit-i ʔet ha-yeled she-ʔasher Dalya makira ʔet ha-ʔisha  
 saw-I ACC the-boy REL Dalya loves ACC the-woman  
 she-ʔohevet \*(ʔoto)  
 REL-loves him  
 I saw the boy who Dalya knows the woman who loves him.
- b. raʔit-i ʔet ha-yeled she-ʔasher Rina ʔohevet (\*ʔoto) ve- ʔet  
 saw-I ACC the-boy REL Rina loves him and- ACC  
 ha-xavera shelo  
 the-girlfriend his  
 I saw the boy who Rina loves him and his girlfriend

Although Island Constraints have been extremely important for the development of syntactic theory, they tend to involve rather delicate judgements about complex structures, and exceptions to them appear to be relatively rare. Therefore they have not played such a prominent role in linguistic typology and the investigation of little-known languages.

### 3.2 The Accessibility Hierarchy

For typology and basic linguistic description, much more important has been the Accessibility Hierarchy introduced by Keenan and Comrie (1977), which states implicational universals governing what kinds of grammatical functions  $NP_{rel}$  can bear in the relative clause. The relevant sentences are much simpler, and the judgements typically more robust, than is the case for the Island Constraints. The basic claim is that the grammatical functions of a language are arranged in a hierarchy such that if, in that language,  $NP_{rel}$  can bear a given grammatical function, it can also bear all functions that are higher on the hierarchy. The original formulation of the Accessibility Hierarchy is:

- (57) Subject > Direct Object > Indirect Object > Obliques > Genitives > Objects of Comparison

Some consequences are that if a language can relative anything, it can relativize subjects, and that if it can relative genitives, it can also relativize direct and indirect objects, and obliques.

The hierarchy has held up pretty well under subsequent research, although some clarifications are necessarily, and some potential counterexamples have been found. Clarifications are needed for the notions of ‘Subject’ and ‘Indirect Object’, since it turns out that these concepts can’t be taken for granted in all languages (chapter I.3, The Major Functions of the Noun Phrase, Andrews).

### 3.2.1 Subjects

In most languages there is no substantial controversy about what the subject is; it is a grammatical function that is the normal means used for expressing NPs in A and S function. NPs bearing this function can always be relativized, and are in some languages the only NPs that can be relativized. An example of such a language is Malagasy (Keenan 1972:171):<sup>10</sup>

- (58) a. Manasa ny lamba ny vehivahy  
wash the clothes the woman  
The woman is washing the clothes
- b. ny vehivahy (izay) manasa ny lamba  
the women that wash the clothes  
The woman who is washing the clothes
- c. \*ny lamba (izay) manasa ny vehivahy  
the clothes that wash the women  
The clothes that the woman is washing

(58a) is a normal main clause, while (58b) is a postnominal relative in which NP<sub>rel</sub> functions as subject. (58c) is an attempt to produce a relative clause where NP<sub>rel</sub> is the object, but the result is rejected by informants as nonsense meaning ‘the clothes which are washing the woman’. Furthermore, if *ny vehivahy* in (58c) is replaced with the nominative pronoun form *izy*, ‘she’, the result is completely ungrammatical and has no interpretation at all.

One might imagine that this restriction would yield a very unexpressive system of relative clauses, but the language avoids this by having a rich assortment of passive-like constructions whereby NPs with various semantic roles can be made subject. So to relativize on a Patient we can use an ordinary passive:

- (59) a. Sasan-’ny vehivahy ny lamba  
wash(PASS)-the woman the clothes  
The clothes are washed by the woman.
- b. ny lamba (izay) sasan’ny vehivahy  
the clothes (that) wash(PASS)-the woman  
the clothes that are washed by the woman.

To relativize on an Instrument, we can use an ‘instrumental voice’ passive, where an Instrumental appears overtly as subject in the main clause (60b), omitted as NP<sub>rel</sub> in (60c):

- (60) a. Manasa lamba amin-’ny savony Raso  
wash clothes with-the soap Raso  
Raso is washing the clothes with the soap.

---

<sup>10</sup>See also Keenan (1976a).

- b. Anasan-dRasoa            lamba ny savony  
 wash(INST.PASS)-Rasoa clothes the soap  
 The soap was used to wash clothes by Rasoa
- c. ny savony (izay) anasan-dRasoa            lamba  
 the soap (that) wash(INST.PASS)-Rasoa clothes  
 the soap that Rasoa washed clothes with

The Australian language Dyirbal and the Philippine language Tagalog resemble Malagasy in that only one grammatical relation can be relativized, but differ in that there is some controversy as to whether this grammatical relation should be identified as ‘subject’. The problem in Dyirbal is that the relativizable grammatical relation is the normal expression for S and P function, sometimes called an ‘absolutive’, rather than S and A function, which would be uncontroversially subject (Dixon 1972:99-105). So we can form relative clauses where NP<sub>rel</sub> is S (61a) or P (61b) by merely adding the relativizing affix to the verb in place of the tense-marker:<sup>11</sup>

- (61) a. ŋaɖa bani-ŋu baŋumbalbulu            ɲina-ɲ  
 I.NOM come-REL a long way downriver sit-FUT  
 I, who have come a long way downriver, will sit down
- b. balan ɖugumbil ŋaɖa buɕa-ŋu            ɲina-ŋu  
 CLASS woman(ABS) I.NOM watch-REL sit-NONFUT  
 The woman who I am watching is sitting down

But to relativize on A, we must first form the antipassive of the verb, which in a main clause would express A as an absolutive rather than an ergative, and express P as a dative rather than an absolutive:

- (62) a. bayi yaɕa            bagal-ŋa-ɲu            bagul yuɕi-gu  
 CLASS man(ABS) spear-ANTIP-NONPAST CLASS kangaroo-DAT  
 The man speared the kangaroo
- b. bayi yaɕa            bagal-ŋa-ŋu            bagul yuɕi-gu            banaga-ɲu  
 CLASS man(ABS) spear-ANTIP-REL CLASS kangaroo-DAT return-NONPAST  
 The man who speared the kangaroo is returning

Similarly to Malagasy, Dyirbal also contains techniques for expressing instrumentals and other semantic roles as absolutive (derived S), so that they can serve as NP<sub>REL</sub>.

The problem afforded by Dyirbal can be dealt with by saying that for the purposes of the Accessibility Hierarchy, ‘subject’ will be defined as the grammatical relation that is normally borne by NPs in S function, regardless of whether this grammatical relation is also the normal expression of A function (the usual situation) or of P function (unusual). See Fox (1987) for relevant discussion.

<sup>11</sup>Pronouns in Dyirbal inflect with a nominative case in A/S function and accusative in P, while common nominals have ergative in A function and absolutive in S/P. The relative and nonfuture verb-forms are sometimes identical but not always. Common nouns also normally appear with a classifier, here glossed CLASS. The example (61a) has a nonrestrictive interpretation, and so might be judged irrelevant to the typology of RCs as judged here, but the construction of which it is an instance appears to have both restrictive and nonrestrictive interpretations. Since the construction isn’t distinctively nonrestrictive, we’ll include it.

But this formulation won't work for Tagalog, because it can be argued that there are two grammatical functions that normally express S function, an 'a-subject' or 'Actor', which is always associated with the NP in A/S function, and a 'p-subject' or 'pivot', which can be associated with either A or P function, depending on the verb form (chapter I.3, The Major Functions of the NP, section 5.2). We can address this problem by saying that the relativizable grammatical functions will always include one that is normally associated with S function (for intransitive verbs, it is clear that the S is the unmarked choice for pivot, although others are possible). One can go on to add that if there are multiple possibilities, the relativizable one will be the one that also shows the topic-related subject properties such as a tendency to be definite, and the ability to launch floated quantifiers (Keenan 1976b). In terms of the discussion of section 5 of chapter I.3 (The Major Functions of the Noun Phrase, Andrews), we can say that the p-subject will always be relativizable, if it exists. What about languages that lack a p-subject? Such languages, such as Warlpiri, appear to be quite liberal in their possibilities for the grammatical function of NP<sub>rel</sub>; therefore they don't provide evidence about the top of the Accessibility Hierarchy.

### 3.2.2 Objects, Indirect Objects, and Obliques

After subject-only relativization, the next least restrictive kind of relativization allows relativization of subjects and objects. Bantu languages such as Luganda provide an example (Keenan 1972:186):<sup>12</sup>

- (63) a. omukazi e-ye-basse  
           woman SUBJ.REL-CL1.SG.SUBJ-sleep  
           the woman who sleeps
- b. omussaja omukazi gwe-ya-kuba  
           man woman OBJ.REL-CL1.SG.SUBJ-hit  
           The man who the woman hit

Obliques such as instrumentals cannot be directly relativized:

- (64) a. John ya-tta enkonko n' ekiso  
           John he-killed chicken with knife  
           John killed a chicken with a knife
- b. \*ekiso John kye-ya-tta enkonko na  
           knife John REL-he-killed chicken with  
           The knife that John killed the chicken with

Rather the instrumental must be first promoted to object, and then it can be relativized as a syntactic object<sup>13</sup>:

- (65) a. John ya-tt-is-a ekiso enkonko  
           John he-kill-INSTR-TA knife chicken  
           John killed a chicken with a knife

<sup>12</sup>In a Luganda relative clause, the verb is preceded by a relative marker indicating the gender (noun class), number and case (subject vs. object) of NP<sub>rel</sub>.

<sup>13</sup>TA stands for 'tense-aspect'.

- b. ekiso John kye-ya-tt-is-a            enkoko  
 knife John REL-he-kill-INSTR-TA chicken  
 the knife John killed a chicken with

A more common situation than prohibition of relativization below direct object is to limit the omission strategy for treating NP<sub>rel</sub> (section 2.4) to subject and object, with NP<sub>rel</sub>s bearing functions lower on the AH handled by a different strategy, such as resumptive or relative pronouns. Keenan and Comrie (1977) present Welsh and Finnish as examples of this kind of language.

Below direct object come indirect object and oblique. But a difficulty arises from the somewhat controversial nature of the ‘indirect object’ concept, and its unclear relations to direct object and oblique, discussed in chapter I.3 (The Major Functions of the Noun Phrase, Andrews; see also Dryer 1986). In traditional grammar, indirect object is often used to refer to Recipients, however the overt expression of Recipients may be different from both direct objects and obliques (Warlpiri, Romance languages), or resemble one or the other, and even appear in multiple forms in a single language, such as for example English, where Recipients can resemble either obliques or direct objects:

- (66) a. Susan handed Paul the shovel  
 b. Susan handed the shovel to Paul

Keenan and Comrie did not distinguish between the various ways of expressing Recipients, and the concomitant possibilities for Themes (the argument that is transferred), and it remains somewhat unclear what the true generalizations are.

A language where indirect object is a plausible grammatical relation is Basque, where in some dialects, relativizing is restricted to subjects, objects and indirect objects, which carry distinct marking and are cross-referenced on the verb. Below are a basic sentence (a) and three possible relative clauses, placed preminally with the verb marked with a suffix *-n* (Keenan and Comrie 1977:72).

- (67) a. gizon-a-k    emakume-a-ri    liburu-a    eman dio  
 man-DEF-ERG woman-DEF-DAT book-DEF give has  
 the man has given the book to the woman
- b. emakume-a-ri    liburu-a    eman dio-n    gizon-a  
 woman-DEF-DAT book-DEF give has-REL man-DEF  
 the man who gave the book to the woman
- c. gizon-a-k    emakume-a-ri    eman dio-n    liburu-a  
 man-DEF-ERG woman-DEF-DAT give has-REL book-DEF  
 The book the man gave to the woman
- d. gizon-a-k    liburu-a    eman dio-n    emakume-a  
 man-DEF-ERG book-DEF give has-REL woman-DEF  
 The woman the man gave the book to

For relativization on an oblique NP in Basque, there are different possibilities in different dialects. In some dialects, relativization is impossible, whereas in others, different

strategies may be employed, such as placing the RC postnominally, and expressing NP<sub>rel</sub> with a resumptive pronoun. Since, in Basque, the consistently relativizable NPs are the same as those cross-referenced on the verb, we can say that core NPs include indirect objects, and are always relativizable with prenominal RCs and omission of NP<sub>rel</sub>. If these conditions are not satisfied, relativization may not be possible, or a different strategy may be used, depending on the dialect.

In Basque, we could plausibly say that it is core NPs that relativize, but in Roviana (Keenan and Comrie 1977:63; Melanesian, New Georgia), Recipients look like obliques, being marked with a preposition, but relativize with the subject-object strategies of omission, rather than retaining a role-marking word in the manner of obliques. It may be that indirect objects are core NPs that only superficially resemble obliques, or that the original characterization of the AH in terms of indirect objects is indeed correct. It remains to be seen what kind of analysis would be motivated by further investigation of this language.

Some modifications to the AH are suggested by Maxwell (1979), and relevant observations are scattered through many grammars and articles that have appeared since the 1970s; the subject appears to be due for a careful rethink.

## 4 The treatment of S<sub>rel</sub>

The next topic we will consider is the treatment of S<sub>rel</sub> itself. An obvious point is that RCs often begin with some kind of marker, which may be unique to RCs, or appear in a wide variety of subordinate clauses. The former possibility has already been illustrated by Modern Hebrew, with the RC-introducer *she-/šasher*; the latter can be exemplified by English, where RCs can be introduced by the marker *that*, also used to introduce complement clauses and some other types, such as *so-that* resultatives. The relative marker may also appear as part of the verbal morphology, as illustrated by Basque above (67). Marking of the verb is most frequent when the verb is clause-final, but can happen when it isn't, as seen in Swahili (49 above). The *kutja* of Warlpiri RCs seems to be a marker for adjoined RCs, while the *éé/áá* marker of Navajo (20) is for internal RCs. Such markers therefore seem to occur with all types of RC.

More interesting than mere marking are cases where something with syntactic ramifications happens to S<sub>rel</sub>; the most prevalent occurrences are forms of reduction and nominalization, of S<sub>rel</sub> discussed in the next section below, and marking that codes the syntactic function of NP<sub>rel</sub>, as discussed in section 4.2.

### 4.1 Reduction and Nominalization

Nominalization occurs when the structure of a clause gives some evidence of at least a partial conversion to nominal type. Typical indicators would be marking the subject like a possessor, attaching possessor morphology to the verb as cross-referencing with the subject, or attaching other typical nominal morphology such as determiners or case-marking to the verb. In Japanese, for example, the subjects of relative and certain other kinds of subordinate clauses may be optionally marked with the genitive case-marker *no* instead of the *ga* that normally appears on subjects (Andrews 1985:27):

- (68) kore wa [ano hito ga/no kai-ta] hon desu  
 this THEME that person NOM/GEN write-PAST book is  
 This is the book which that person wrote

Nominalization is commonly found with internal relatives, in Lakhota for example (35 above) we find the relative clause being directly followed by determiners, an indication of nominal status.

Reduction is another frequent characteristic of  $S_{rel}$ . Reduced clauses have a restricted range of tense-aspect-mood marking, using different forms than ordinary unreduced clauses, and may furthermore have some participant obligatorily missing. In English, for example, there are reduced relative clauses using the *-ing* and ‘passive *-ed*’ forms:<sup>14</sup>

- (69) a. People eating peanuts will be prosecuted  
 b. People reported to be absent will be fined

The *-ing* form requires the subject to be omitted, and rejects progressive and modal auxiliaries, only allowing, somewhat marginally, *have*-forms:

- (70) a. \*People being walking down the road will be arrested for vagrancy.  
 b. \*People canning speak French will be detained  
 c. ?People having filled out this form should go through the door on the left.

The passive reduced form in *-ed* requires its subject to omitted, and allows no tense-aspect-mood inflection of any kind, but is able to be interpreted as either time simultaneous with or prior to the main clause (*people suspected of swapping songs* vs. *people accused of swapping songs*).

The properties of reduced relatives in English and many other languages are consistent with the idea that they lack certain syntactic components found in ordinary clauses, such as for example a tense-marker or ‘auxiliary’ constituent. As noted in section 1.1.1 above, reduced RCs sometimes appear in different positions than full ones do, and when this is the case, they always seem to occupy a position also occupied by adjectives. Reduction is the norm for prenominal RCs; Japanese is unusual in not having a reduced tense-mood system in its RCs, in spite of the optional genitive marking of subjects, an indication of nominalization.

Both reduction and nominalization appear to be restricted to embedded RCs; there are no accounts of co-relative RCs showing either phenomenon, and in English, even structures that might in principle be taken as extraposed reduced relatives could be also be analysed as circumstantial adverbials:

- (71) a. A man walked in who was wearing a hat  
 b. ?\*The man walked in who was wearing a hat  
 c. A man walked in wearing a hat

<sup>14</sup>These latter can be spelled out morphologically by a wide variety of means, including vowel-replacement with or without an affix *-en* (*dug, frozen*), as well as the *-ed* affix.

- d. The man walked in wearing a hat

In (b), we see that the extraposed relative isn't very acceptable with a definite subject, while in (d), we see that no such restriction applies with a clause-final *ing* modifier, suggesting that these are not reduced relatives.

## 4.2 Marking the Function of NP<sub>rel</sub>

Some languages mark information about the function of NP<sub>rel</sub> on the verb or complementizer of the relative clause. An example is Turkish, where normal RCs appear prenominally in the head. There are two types depending on whether NP<sub>rel</sub> is inside the subject, or not. In the first case, the verb is in a nonfinite form marked with *-en*, and the subject, if overt, is nominative. In the second, the verb is marked with the nominalizer *-dig-* followed by cross-referencing of the subject, which is in the genitive case if it appears overtly<sup>15</sup> (Underhill 1972:88-90, Andrews 1985:32-33):

- (72) a. [mekteb-e gid-en] oğlan  
 school-DAT go-SUBJREL boy  
 The boy who goes to school
- b. [oğl-u mekteb-e gid-en] adam  
 son-3SG school-DAT go-SUBJREL man  
 The man whose son goes to school
- (73) a. [Halil-in öldür-düğ-ü] adam  
 Halil-GEN kill-NOM-3SG man  
 The man who Halil killed
- b. [oğlan-in mekteb-in-e git-tiğ-i] adam  
 boy-GEN school-3SG-DAT go-NOM-3SG man  
 The man whose school the boy goes to

What is particularly interesting is that the *-en/-an* participle is used not only when NP<sub>rel</sub> is the subject, but when it is contained within the subject (and certain sentence-initial locatives which are arguably but not obviously subjects, as discussed by Underhill). These forms also illustrate nominalization and reduction. The non-subject relatives are nominalized inasmuch as their subjects are genitive and their verbs are cross-referenced with genitive morphology. And both types of clauses show a degree of reduction, using a single form for nonfuture instead of distinguishing past and nonpast. A considerably more complex system of this nature, with a three-way distinction between subject, object and oblique, is described for the Polynesian language Chamorro by Chung (1982).

Another form of role-marking is to distinguish cases where NP<sub>rel</sub> is core (and typically omitted) versus oblique (typically retained). A very thoroughly described example of this sort is Modern Irish (McCloskey (1979), esp. pp. 5-10 for the most basic facts, McCloskey (2002), Asudeh (2004) for more recent discussion). In this language there are two distinct RC-markers, both pronounced [ə], but differing in their phonological effect on the following word. One effect, traditionally called 'lenition', involves

<sup>15</sup>The subject can be omitted if it is pronominal; both affixes have vowel-harmony alternations

deletion or conversion to aspiration or a fricative, and the other, traditionally called ‘nasalization’, involves nasalization or voicing. Following McCloskey, we’ll represent the particle with lenition as *aL*, nasalization as *aN* (combining conventional orthography with additional morphophonemic information). RCs with omitted subject and object NP<sub>rel</sub> are called ‘direct relatives’, and take *aL*, RCs with retained NP<sub>rel</sub> (object, oblique and possessive, but not subject) are called ‘indirect relatives’, and take *aN*. Examples of subject and object direct relatives are:

- (74) a. an fear aL dhíol ∅ an domhan  
 the man DIR.REL sold the world  
 the man who sold the world
- b. an scríbhneoir aL mholann na mic léinn ∅  
 the writer DIR.REL praise the students  
 the writer who the students praise

And here are some indirect relatives:

- (75) a. an scríbhneoir aN molann na mic léinn é  
 the writer IND.REL praise the students him  
 the writer who the students praise
- b. a fear aN dtabharann tú an t’airgead dó  
 the man IND.REL give you the money to-him  
 the man who you give the money to
- c. a fear aN bhfuil a mháthair san otharlann  
 the man IND.REL the mother in-the hospital  
 the man whose mother is in the hospital

The marking of the nature of NP<sub>rel</sub> appears not only on the RC itself, but also on any subordinate clauses with S<sub>rel</sub> that contain NP<sub>rel</sub>. So from a sentence such as (a) below, we form the relative clause (b):

- (76) a. Mheas mé gurL thuig mé an t-úrscéal  
 thought I that understood I the novel  
 I thought that I understood the novel
- b. an t-úrscéal aL meas mé aL thuig mé ∅  
 the novel DIR.REL thought I DIR.REL understood I  
 the novel I thought I understood

When NP<sub>rel</sub> is resumptive, a variety of things can happen. One possibility is that the minimal clause containing the resumptive pronoun begins with *aL*, while higher clauses up to and including S<sub>rel</sub> begin with *aL*:

- (77) a. Deir siad goN measann sibh goN bhfuil an eochair insa doras  
 say they that think you.PL that is the key in-the door  
 They say that you think that the key is in the door

b. an doras aL deir siad aL mheasann sibh aN bhfuil an eochair ann  
 the door DIR say they DIR think you IND is the key in-it  
 the door they say you think the key is in

See McCloskey (2002) and Asudeh (2004) for further discussion and analysis. Zaenen (1983) discusses a variety of other cases in which an NP<sub>rel</sub> or other ‘extracted’ element has an effect on the possibilities for clause-structure.

## 5 Further Reading

Typological surveys of relative clauses include Downing (1978), Andrews (1985), and Lehmann (1986); Andrews also devotes some attention to constructions resembling RCs in various languages. Cole (1987) and Basilico (1996) provide analyses of internal RCs in various languages, while Srivastav (1991) gives an in-depth treatment of co-relative and non-corerelative RCs in Hindi. Asudeh (2004) provides a very thorough analysis of resumptive pronouns, and other aspects of the syntax of postnominal RCs in a number of languages. A very important but unfortunately relatively inaccessible source is Lehmann (1984).

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