

children's processing ability.

Much remains to be done. In particular we need to look in more detail at both finite and finiteless sentences. In the case of the latter, we hope that it may be possible to determine whether different analyses are appropriate for early and late examples, at least with some of the children. We also need to investigate the possible role of processing ability more carefully. Finally we need to consider the implications of the data for proposals about 'root infinitives'.

References

- Lasser, I. 1997. *Finiteness in Adult and Child German*. MPI Series in Psycholinguistics.
- Phillips, C. 1995. Syntax at age two: cross-linguistic differences. *Papers in Language Processing and Acquisition*. MIT Working Papers in Linguistics 26, ed. by C. Schütze, J. Ganger, and K. Roihier, 325-382.
- Rizzi, L. 1994. Some notes on linguistic theory and language development: the case of root infinitives. *Language Acquisition* 3. 371-393.
- Wexler, K. 1994. Finiteness and head movement in early child grammars. *Verb Movement*, ed. by D. Lightfoot and N. Hornstein, 305-350. Cambridge: Cambridge University Press.
- Wexler, K. 1996. The development of inflection in a biologically based theory of language acquisition. *Towards a Genetics of Language*, ed. by M.L. Rice, 113-144. Mahwah, NJ: Lawrence Erlbaum.

ACQUIRING SUBJECT AND OBJECT RELATIVES: EVIDENCE FROM IRISH

Helen Goodluck
University of Ottawa/
University of Ulster,
Jordanstown

Eithne Guilfoyle
Dun Laoghaire Institute
of Art-Design-Technology/
University of Calgary

Sile Harrington
Dun Laoghaire Institute
of Art-Design-Technology/
Trinity College Dublin

Many experimental studies have suggested that children acquiring various languages have more difficulty with relative clauses in which the head refers to the object position than those in which the head refers to the subject position. However, there is also some spontaneous speech evidence that object relatives may be acquired slightly before subject relatives. We report here on the acquisition of subject and object relative clauses by native Irish speaking children from Kerry. We show that while the children did produce some non-adult forms, they had adult-like control of both subject and object relatives. We discuss our study in the context of debates concerning whether a pronominal binding or a movement mechanism for relative clause formation has priority in first language acquisition.

Introduction¹

Relative clause formation has been the topic of intensive research in grammatical theory and language acquisition by children. In this paper, we focus on the distinction between relative clauses in which the head noun (*man* in the examples below) refers to the subject position in the relative clause as shown in (1), and relative clauses in which the head refers to the object position as shown in (2).

- (1) Sue met the man who/that ___ telephoned Fred.
- (2) Sue met the man who/that Fred telephoned ___.

Beginning with Keenan and Comrie (1977), research on the grammar of

1. This research was supported by the Social Sciences and Humanities Research Council of Canada grant #410-98-0511 to Helen Goodluck and Eithne Guilfoyle; additional financial support for the purchase of recording equipment was provided to Eithne Guilfoyle by Bord na Gaeilge. We are indebted to Diarmuid O Sé for advice on the dialect. We are grateful to the teachers who facilitated access to child subjects, and especially to the adult controls and the child subjects and their parents.

many different languages has shown that relatives of the type in (1) are a very common type of relative clause, although the possibility of reference between the head and the subject position is excluded in some cases, including one type of relative in Modern Irish (see below). Consistent with this, recent studies of elicited production of relative clauses by preschool children show a greater facility in producing subject as opposed to object relative clauses (see Labelle 1991 and Fragman in press a, b for studies of French-speaking children and Goodluck and Stojanović 1996 for a study of Serbo-Croatian speaking children). Moreover, the literature on language comprehension by preschoolers supports the view that subject relatives are correctly comprehended, when extraneous factors are controlled for (for example, Goodluck and Tavakolian 1982). A superficially surprising finding, then, is that in spontaneous speech, two to three year-old children acquiring English have been reported to produce object relatives as their first relative clauses, subject relatives following a little later (Limber 1973, Goodluck 1997).

A basic goal of the Goodluck (1997) study was to examine whether the emergence of object relatives before subject relatives in spontaneous speech could be explained by a stage in language acquisition in which children temporarily hypothesise a grammar in which subject relatives are not permitted, in other words, a stage in which the child learning English (or any other language in which subject relatives are not restricted) formulates a grammar similar to Modern Irish, which restricts subject relatives. In addition to the lag in the use of subject relatives in children's spontaneous speech, the existence of such a non-adult stage finds support from the elicited production studies of Labelle and Goodluck and Stojanović cited above. They report that the non-adult relatives produced by children in their study implicate the same grammatical mechanism (pronoun binding, see below) that Irish uses in the instances where subject relativization is blocked (but see Fragman in press a, b and Guasti and Shlonsky for dissenting views).

Modern Irish Relatives

Modern Irish has two types of relative clauses, traditionally referred to as Direct and Indirect relatives. A Direct relative has a gap at the relativization site, whereas in the Indirect Relative a resumptive pronoun occupies the relativization site. These two relative clause types are further distinguished by different forms of the relative complementizer, and by different mutation effects on the verb following the complementizer. The

complementizer that introduces a relative clause with a gap at the relativization site is usually referred to as *aL* (where *L* stands for the leniting effect on the following verb). The complementizer that introduces a relative clause containing a resumptive pronoun is usually referred to as *aN* (where *N* stands for the nasalization effect on the following verb). The syntactic conditions on the appearance of these different types of relatives are complex, and subject to substantial dialectal (and even individual) variation (see McCloskey 1979, to appear for discussion). Here we restrict ourselves to looking at simple relative clauses in Munster (Kerry) Irish, in other words, relative clauses in which the relativization site is a main clause, rather than an embedded clause. In simple clauses, subject relatives are formed with a gap at the relativization site, whereas object relatives can be formed using either a gap or a resumptive pronoun.² This is summarized in Table 1 below, and illustrated by the example sentences showing *subject* relatives in (3) and *object* relatives in (4).

Table 1. Irish subject and object simple relatives

	Complementizer	Extraction Site	Foot of Chain
Direct	<i>aL</i>	Subject/Object	Gap
Indirect	<i>aN</i>	Object	Resumptive pronoun

(3) a. an buachaill a itheann úll.
the boy aL eat-PRES apple
'the boy that eats an apple'.

*b. an buachaill a n-itheann sé úll.
the boy aN eat-PRES he apple
'the boy that eats an apple'.

(4) a. an carr a thiomáineann Neil ar scoil gach lá.
the car aL drive-PRES Nell to school every day
'the car that Nell drives to school every day'.

b. an carr a dtiomáineann Neil ar scoil gach lá é.
the car aN drive-PRES Nell to school every day it
'the car that Nell drives to school every day'.

2. In everyday speech object relatives are usually formed with a gap at the relativization site, except where this would result in ambiguity. See McCloskey (1979: 7) for discussion.

In these examples, we see that for the subject relative in (3a) only the complementizer *aL* combined with a gap is acceptable. The object relatives in (4) allow both *aL* with a gap in object position, and *aN* with a resumptive pronoun in object position.³ On the analyses of McCloskey (1979) and Duffield (1995), the difference between the two types of relatives is accounted for in terms of different syntactic mechanisms: *aL* relatives are formed by an abstract movement operation, illustrated schematically in (5), and the gap position is occupied by a phonetically null category, trace. By contrast, *aN* relatives are formed by a pronominal binding operation, as illustrated in (6):

(5) [Head NP_i [O_i [V ... t_i]]] (O = abstract relative operator)

(6) [Head NP_i [O_i [V pronoun_i]]]

The proposal that these two different mechanisms are involved can be used to explain the ungrammaticality of *aN* relatives with relativization of the subject position. A definite pronoun, such as the resumptive pronoun found in *aN* relatives, may not be syntactically too close to the NP it refers to. On this account, (3b) is ungrammatical for the same reason (too close proximity to the head NP it refers to) as a sentence such as *John hit him* (with *John* and *him* construed as the same person) is ungrammatical. That is, on an account such as McCloskey's, the ungrammaticality of (3b) is a consequence of Binding Theory, in the general sense of Chomsky (1981).

Hypotheses and predictions for first language acquisition

As mentioned in the Introduction, it has been proposed that the earlier emergence of object relatives in English child language acquisition might be explained as the result of a stage where subject relatives are restricted, even when the adult grammar of the language does not have any such restriction. In other words, children learning a language such as English might go through a stage in which they temporarily entertain a grammar like that of adult Irish. This putative stage would be one reflection of the general tendency argued for by some authors for children to prefer a non-movement mechanism for relative clause formation. It is possible to hypothesise therefore that object relatives may arise before subject relatives

3. An additional complication is that in Kerry *aN* is usually replaced by the complementizer *go* (McCloskey, to appear). This point is discussed further below.

in Irish, given that the adult grammar of Irish restricts matrix subject relatives to *aL* relatives only. We designed an experiment to test this prediction. The experimental task aims to elicit subject and object relatives. In addition to allowing us to test whether one relativization site is easier than the other for children, we planned to examine the data for the following characteristics:

- a. Relative frequency of *aN* vs. *aL* forms compared to an adult control group
- b. Presence of syntactic characteristics associated with pronominal binding relatives cross-linguistically. These include the use of resumptive pronouns and the use of an invariant complementizer/relative particle to introduce the relative clause (see the Labelle and Goodluck and Stojanović studies cited above and references therein).

Experiment

Task and materials

We used an elicited production task modelled on Labelle (1991) and Goodluck and Stojanović (1996). The goal is to present the subjects with a stimulus to which the normal response will be a relative clause of a particular type. To this end, each subject was shown pairs of pictures in the presence of a blindfolded soft toy, and given a 1p and a 5p coin. Each picture pair contains similar or identical characters or objects. The subject was asked to place one coin on the character/object on each picture, and then to tell the toy where s/he has placed a specific coin. The sample protocols shown in (7) and (8) show how subject and object relatives were elicited using this methodology. Each subject responded to three pairs of pictures designed to elicit subject relatives and three designed to elicit object relatives, as part of a larger battery of test conditions (see Appendix for examples of the pictures described in (7) and (8)).⁴

4. In addition to the simple subject and object relative conditions described here, we tested relativization of prepositional object position, negated clauses, past tense simple relatives, and present tense subject and object relatives in which the relativization site is in an embedded clause. The results are discussed in Goodluck, Guilfoyle, and Harrington (in preparation).

(7) Sample Subject Probe

The subject is shown a pair of pictures depicting: (a) a boy running with a schoolbag on his back, and (b) a boy eating an apple.

Experimenter's script:

- (a) Téann an buachaill seo ar scoil gach lá.
go-PRES the boy DEMONST to school every day
'This boy goes to school every day'.
- (b) Itheann an buachaill seo úll ag am lóin.
eat-PRES the boy DEMONST apple at time lunch
'This boy eats an apple at lunch time'.

Instructions: the subject is asked to put one coin on each boy, and asked where the 1p/5p is.

(8) Sample Object Probe

The subject is shown a pair of pictures depicting: (a) a girl cleaning a car, and (b) a girl driving a car

Experimenter's script:

- (a) Glanann Neil an carr seo gach Satharn.
Clean-PRES Nell the car DEMONST every Saturday
'Nell cleans this car every Saturday'.
- (b) Tiomáineann Neil an carr seo ar scoil gach lá.
drive-PRES Nell the car DEMONST to school every day
'Nell drives this car to school every day'.

Instructions: The subject is asked to put one coin on each car, and asked where the 1p/5p is.

Subjects

We report here on the performance on the conditions illustrated in (7) and (8) of 12 adults and 13 child native speakers from the Kerry Gaeltacht. The children ranged in age from four years, nine months (4;9) to 8;5

years.⁵

Results

Table 2 below gives the number of relative clauses elicited for these children and adults.

Table 2. Number of subject and object relatives produced

	Subject relatives	Object relatives
Adults	38 (39)	23 (23)
Children	37 (32)	32 (30)

The numbers in parentheses in Table 2 are the number of responses in which the target relativization site and the site in the response coincided, i.e., the number of times that a subject relative was produced in response to a subject probe such as the sentence in (7) and an object relative was produced in response to an object probe such as the sentence in (8). The close correspondence between the pairs of numbers shows that both children and adults produced mostly subject relatives in response to subject probes and object relatives in response to object probes. In terms of the type of relative produced (formed with gaps or resumptive pronouns), adults overwhelmingly preferred to use relatives formed with a gap: 100% of their subject relatives were formed with a gap (as the grammar dictates), as were 100% of their object relatives. No adult produced object relatives with *aN*.⁶ The examples of subject relatives shown in (9) and of object relatives in (10) are typical of the relative clause data produced by children and adults:

- (9) a. Ar an mbuachaill a itheann úll.
on the boy aL eat-PRES apple
'On the boy that eats an apple'. (Adult Control 3)

5. An additional 24 children have been tested. A cursory inspection of the data from these children does not suggest any conclusions different from what we report here.

6. One additional L₁ Irish adult has been tested, whose background is not the Kerry dialect; this individual did produce *aN* object relatives with resumptive pronouns.

- b. Ar an bhuachaill a itheann an úll.
on the boy aL eat-PRES the apple
'On the boy that eats the apple'. (Subject 15: age 6;10)
- c. Ar an bhuachaill a théann ar scoil.
on the boy aL go-PRES to school
'On the boy that goes to school'. (Subject 16: age: 8;4)
- (10) a. Ar an rothar a dheisíonn Daid.
on the bicycle aL fix-PRES Dad
'On the bicycle that Dad fixes'. (Adult Control 4)
- b. Ar an rothar a ghlanann sé.
on the bicycle aL clean-PRES he
'On the bicycle that he cleans'. (Subject 15: age 6;10).

Some further points about the data deserve note. First, in spite of the fact that the adults produced no resumptive pronouns in their object relatives, we know that they do have access to a resumptive pronoun strategy for relative clause formation. This is because in other conditions in this study (see footnote 4) we probed for relativization of the object of preposition position, for which a resumptive pronoun is the only option in the adult grammar, and in this case all adults produced resumptive pronoun relatives, as illustrated by the example in (11):

- (11) ar an mbord go gcoimeádann Mam na h-úlla air.
on the table REL keep-PRES Mammy the apples on+it
'On the table that Mammy keeps the apples on'.

Second, not all the child, or even adult, productions conform to the relative clause pattern described in Table 1. Note first that one adult produced three relatives with *go* and no resumptive pronoun in response to the object probes; these are not included in the totals in Table 2, because it is unclear if the intended structure was a direct object relative or an oblique relative or complement to N. Moreover, a few child productions of *aL* relatives did not include correct mutation (as illustrated in 12). Strikingly, two children produced *go* in both subject relatives as in (13) and in object relatives illustrated by (14).

- (12) ar an rothar aL socraíonn sé.
on the bicycle REL repair-PRES he
'On the bicycle that he repairs'. (Subject 24: age 5;5)

- (13) a. ar an Mamai go osclaíonn an doras.
on the Mammy COMP open-PRES the door
'On the Mammy who opens the door'. (Subject 25: age 5;3)
- b. Ar an duine go léim suas.
on the person COMP jump-PAST up
'On the person that jumped up'. (Subject 22: age 4;8)
- (14) a. ar an rothar go deisíonn Daid.
on the bicycle COMP mend-PRES Dad
'On the bicycle that Dad mends'. (Subject 35: age 5;6)
- b. an liathróid go caitheann an buachaill.
the ball COMP throw-PRES the boy
'The ball that the boy throws'. (Subject 35: age 5;6)
- c. an ceann go péinteáil Daid.
the one COMP paint-PRES Dad
'The one that Dad paints'. (Subject 25: age 5;3)

Readers familiar with Kerry Irish will be aware that in this dialect, *go* is frequently used instead of *aN* in relatives with a resumptive pronoun. Thus the *aN* example in (4b) is commonly encountered as (15) in Kerry:

- (15) an carr go dtiomáineann Neil ar scoil gach lá é.
the car COMP drive-PRES Nell to school every day it.
'The car that Nell drives to school every day'.

The syntactic conditions under which *aN* and *go* appear in Kerry Irish are well beyond the scope of this paper, however it should be noted that in the adult grammars, while *go* can appear with a resumptive pronoun, it does not appear with a gap at the extraction site as in the child subject and object relatives of (13) and (14) above. Nor to our knowledge is *go* ever used in subject relatives (Ó Sé 2000; McCloskey, to appear).

Discussion

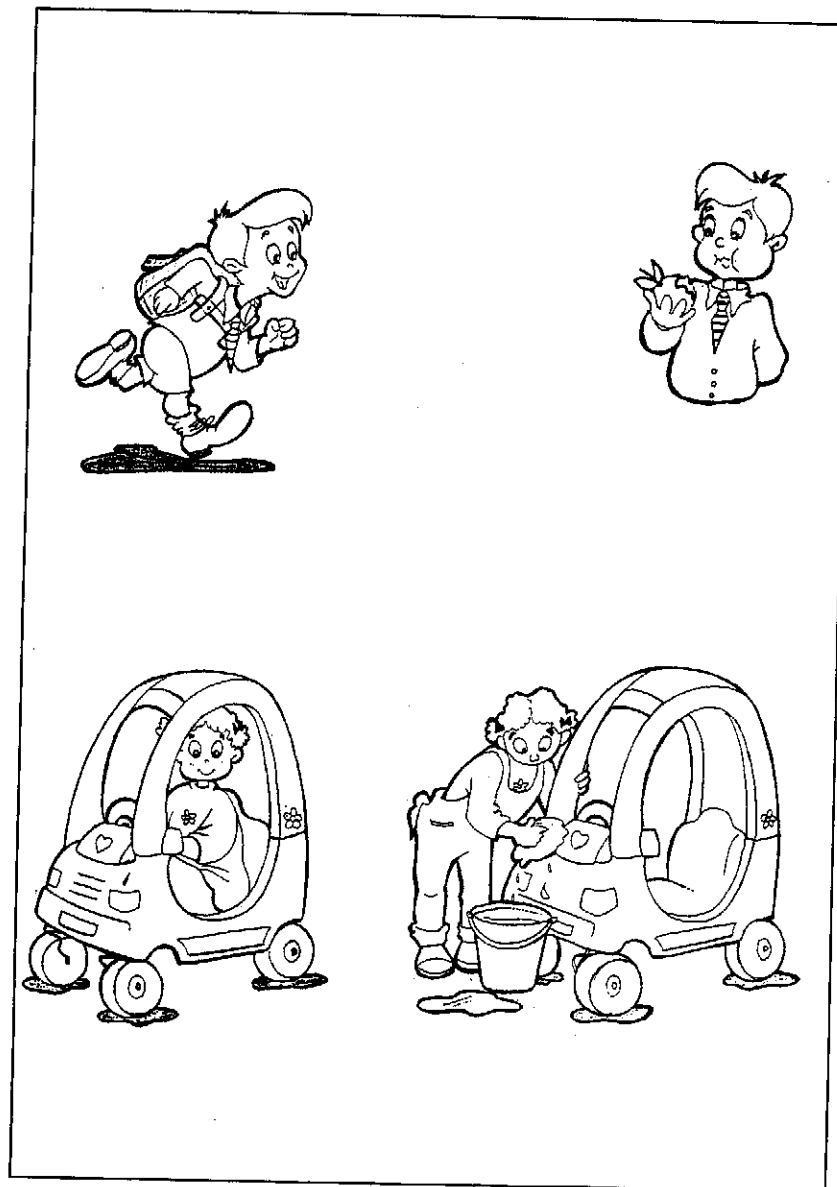
Plainly, there is little evidence in our data that the grammar of simple subject and object relatives differs for Irish-speaking children and adults. No difficulty was found with subject relativization on the part of children,

as we hypothesised might be the case if children learning Irish initially do not have access to the *aL/gap* relativization strategy. Of course, the children we have tested are relatively old, and there may well be stages of development that we have missed.

There are in any case two separate hypotheses to be examined: whether children adopt a pronominal binding analysis for relativization early on, and whether the particular binding analysis adopted is of the type used in adult Irish, blocking relativization of the subject position. We do have evidence from the two children who produced relatives introduced by *go* of children innovating in a way that cannot be attributed directly to the model of the adult language.⁷ As mentioned above, use of an invariant complementizer to introduce relatives has been taken as an index of use of a pronominal binding strategy. However, we believe it is worth re-examining this notion. The use of a complementizer could also be for the child a signal of subordination that fits with the restrictive use of a relative clause. Our test was set up to elicit restrictive relative use: use of the relative to identify one member of (in our case) a two-member set. Restrictive relatives in a language such as English are syntactically subordinated to the head NP (as opposed to non-restrictive, parenthetical, relatives, which are quite loosely connected to the syntax of the main clause; see for example Safir 1986). In sum, from our data, we see on the one hand clear evidence of competence in relative clause production by 4 to 7 year old Irish-speaking children, with subject and object relatives being produced with equal facility by most of the children tested; on the other hand, there are intriguing hints of early stages of development that have the potential to inform ongoing debates concerning general issues in the ontogeny of relative clause formation.

7. Another area in which children's performance is not adult-like in our test is negative relative clauses (see footnote 4 above). None of the 13 children we report on produces the adult form of the negative complementizer. Space does not allow further elaboration here, but see Goodluck, Guilfoyle, and Harrington (in preparation) for further discussion.

Appendix



References

- Chomsky, N. 1981 *Lectures on Government and Binding*. Dordrecht: Kluwer.
- Duffield, N. 1995. *Particles and Projections in Irish Syntax*. Dordrecht: Kluwer.
- Fragman, C., in press, a. Pied-piping, wh-fronting and the development of relatives. *Proceedings of the 1999 Generative Approaches to Language Acquisition Conference*, Potsdam, Germany. Frankfurt am Main: Peter Lang.
- Fragman, C., in press, b. Grammaire et pouvoir global de computation: deux sources de difficultés possibles dans l'acquisition des relatives chez les enfants francophones. *Canadian Journal of Linguistics/La revue canadienne de linguistique*.
- Goodluck, H. 1997. Relative clauses in the speech of Adam. *Proceedings of the 1997 Generative Approaches to Language Acquisition Conference*, Centre for Human Communication Research, University of Edinburgh.
- Goodluck, H., E. Guilfoyle, and S. Harrington, in preparation. The structural basis of Irish speaking children's relative clauses.
- Goodluck H., and D. Stojanović. 1996. The structure and acquisition of relative clauses in Serbo Croatian. *Language Acquisition* 5. 285-315.
- Goodluck, H., and S. Tavakolian. 1982. Competence and processing in children's grammar of relative clauses. *Cognition* 11. 1-27.
- Keenan, E., and B. Comrie. 1977. Noun phrase accessibility and universal grammar. *Linguistic Inquiry* 8. 63-99.
- Labelle, M. 1991. Predication, wh-movement and the development of relative clauses. *Language Acquisition* 1. 95-119.
- Limber, J. 1973. The genesis of complex sentences. *Cognitive Development and the Acquisition of Language*, ed. by T. Moore, 169-285. New York: Academic Press.

- McCloskey, J. 1979. Resumptive pronouns, A-bar binding and levels of representation in Irish. *Syntax and Semantics 23: The Syntax of Modern Celtic Languages*, ed. by R. Hendrick, 199-248. New York: Academic Press.
- McCloskey, J., to appear. Resumption, successive cyclicity, and the locality of operations. *Prospects for Derivational Explanation*, ed. by S. D. Epstein and D. Seeley. Oxford: Blackwell.
- Ó Sé, D. 2000. *Gaeilge Chorca Dhuibhne*. Dublin: ITÉ.
- Safir, K. 1986. Relative clauses in a theory of binding and levels. *Linguistic Inquiry* 17. 663-690.