Acquisition of object and quantitative pronouns in Dutch: *kinderen wassen* hem *voordat ze* er *twee meenemen*

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1. Introduction

Despite a large literature on Dutch children's pronoun interpretation, relatively little is known about their production. In this study we elicited pronouns in two syntactic environments: object pronouns and quantitative *er* (Q-*er*). The goal was to see how different types of pronouns develop, in particular, whether acquisition depends on their different syntactic properties. Our Dutch data add another type of language to the acquisition literature on object clitics in the Romance languages. Moreover, we present another angle on this discussion by comparing object pronouns and Q-*er*.

This investigation is part of a large cross-linguistic project: COST Action 33.[1] Object pronouns and clitics have been investigated with the same elicitation paradigm in 17 of the COST languages (Varlokosta et al., in prep.). Q-*er* is a so-called partitive pronoun; it is unique in the Germanic languages. The Romance counterpart of it are partitive clitics. Q-*er* was tested along with partitive clitic *en* in French, *ne* in Italian, and *en/ne* in Catalan (Gavarró et al., in prep.). Dutch is the only language of these four in which the partitive word is a pronoun rather than a clitic. We tested twenty Dutch 5-year-olds on the object pronoun elicitation task, and twenty children on the Q-*er* elicitation task; seventeen of the children took both tests. Moreover, two adult control groups were included. The children produced object pronouns and full NPs in patterns similar to the adults, but the children produced much fewer Q-*er* than the adults. We attribute this difference in performance to the different syntax of both pronouns. The use of Q-*er* involves more sophisticated syntactic knowledge: Q-*er* occurs at the left edge of the VP and binds an empty position inside an NP with a numeral, whereas object pronouns are simply one-word stand-ins for full noun phrases. In this paper we present only the Dutch results of these two COST tasks. We refer to Varlokosta et al. (in prep.) and Gavarró et al. (in prep.) for the cross-language comparisons for each task.

The literature on Dutch pronoun acquisition focuses largely on children's comprehension of pronouns and anaphors. Pronoun production studies are much rarer. There are no studies on children's use of Dutch Q-*er*.[2] The existing studies on

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[1] This research is part of the EU-funded COST A33 project "Crosslinguistically Robust Stages of Children's Linguistic Performance, with Applications to the Diagnosis of Specific Language Impairment" (P.I. U. Sauerland, 2006-2010). Researchers from twenty-five different countries participate. The goal is to provide a cross-linguistically uniform picture of 5-year-olds' knowledge of grammar, which can serve as the basis for further research into clinical markers for the detection of SLI. The COST research themes include pronouns, quantification, implicatures, passives, tense and aspect, and questions.
http://www.zas.gwz-berlin.de/index.php?id=47&L=1

[2] With the exception of an Utrecht University MA thesis by Laverman (2003) which we unfortunately have not been able to trace.

object pronouns mostly deal with Binding Theory issues, looking at children's interpretation of pronouns and reflexives (Baauw, 2000; Koster, 1993; Philip & Coopmans, 1996; among others). A recent study tested comprehension and production and finds an asymmetry (Spenader, Smits & Hendriks, 2009): the preschoolers hardly made any mistakes in production, appropriately supplying an object pronoun in the disjoint condition and a reflexive in the co-referential condition (see below). The same children, however, made a fair amount of Principle B errors in comprehension. Finally, there is one production study on subject pronouns and anaphoric reference in discourse (Wubs, Hendriks, Hoeks & Koster, 2009), in which children refer to a previously introduced referent with a subject pronoun.

The topic of the present study is the use of object and quantitative pronouns in discourse. Do children supply an object pronoun or quantitative *er* in contexts appropriate for anaphoric reference? We frame this question against the background of the phenomenon of clitic omission in the Romance languages. In Catalan, French, Greek, Italian and European Portuguese young children do not always produce object clitics in obligatory contexts (Costa & Lobo, 2006; Guasti, 1993/1994; Hamann, Rizzi & Frauenfelder, 1995; Jakubowicz & Rigaut, 2000; Schaeffer, 2000; Tsimpli, 2001; Wexler, Gavarró & Torrens, 2004). Clitic omission is characterized by optionality: within the same child clitics are sometimes produced and sometimes not. This optional clitic drop is manifested at the age of 2 and, to a lesser extent, 3; in some languages it even extends to 4-year-olds. Clitic omission does not happen in the development of all clitic languages; it is not found in Spanish (Wexler et al., 2004).

There phenomenon of clitic omission has been extensively investigated cross-linguistic, with connections to other phenomena (in particular, past participle agreement) and extended to (specific) language impairment. Several explanations are based on some notion of complexity: child grammars would be computationally simpler or more restricted than the adult grammars. Alternatively children would fail to process computationally complex derivations because of processing limitations (for a recent overview of types of explanations object drop (with a focus on French), see Prévost, 2009). A prominent syntactic approach that makes use of the notion of computational complexity is Jakubowicz's (2010) Derivational Complexity Metric which defines complexity as the number of instances of Merge (see also Jakubowicz & Nash, in press). Jakubowicz argues that merging an object clitic in the argument position and subsequently moving it to a non-argument position to get licensed raises the complexity, which then leads to clitic omission.

Our study investigates Dutch object pronouns and quantitative *er* against this background of clitic omission and computational complexity. Object pronouns have a different syntax than object clitics: clitics are heads and move to the head of a clitic phrase, whereas pronouns are DPs and scramble to a specifier position. Tracking the development in a language with object pronouns rather than clitics will show whether the phenomenon of clitic drop can be subsumed under a more general phenomenon that affects clitics and pronouns alike, or whether it is indeed restricted to clitics. Pronoun acquisition will thus indirectly provide an answer to the question of how much the syntax of object clitics plays a role in clitic omission. By comparing two kinds of pronouns—object pronouns and quantitiative *er*, each of which have a very different syntax—we can see in detail which elements of the syntax of pronouns do or do not play a role in omission.

As a secondary theme, our study is also framed against the background of pragmatic issues in anaphoric reference, specifically, when exactly are object and quantitative pronouns produced vis-à-vis full noun phrases, and how does this

develop in children? This question relates to the literature on the Givenness Hierarchy (Gundel, Hedberg & Zacharski, 1993), which describes which form is most appropriate to refer to a certain referent depending on its accessibility in the discourse and information structure. This hierarchy includes six different levels for the given/new status of a discourse referent, using notions such as focus and familiarity, (1).

(1)   Givenness Hierarchy (Gundel et al., 1993)
            - In focus (pronouns)
            - Activated (*that, this, this* N)
            - Familiar (*that* N)
            - Uniquely identifiable (*the* N)
            - Referential; indefinite (*this* N)
            - Type identifiable (*a* N)

The hierarchy predicts that when a certain referent is activated, familiar and uniquely identifiable and moreover in focus, a pronoun will be used. A full noun phrase, either with a definite or demonstrative article, will be used when the referent has all these features except being in focus.

Spenader et al. (2009) found that Dutch preschoolers between the ages of 4;6 and 6;6 produce object pronouns and reflexives without hesitation. In the condition that targeted pronouns, however, children sometimes produced full NPs, the ratio of which was different for the two different discourse conditions in the experiment. In one condition the introductory sentence contained two topics: *Here you see an elephant and a crocodile*. In the other condition it contained just a single topic. *Here you see a crocodile*. The child had to describe a picture of a co-referential action or an action with disjoint reference. Since we are interested in production rates of pronouns, omission and full NPs, we have summarized in Table 1 the results of the latter condition, for which the target was a pronoun.

Table 1: Number (and percentage) of various forms produced in disjoint reference condition in Spenader et al. (2009)

	Pronoun	*Full NP*	*Reflexive*	*Other*
Two topics	22/135 (16.29)	94/135 (69.63)	3/135 (2.22)	16/135 (11.85)
Single topic	69/140 (49.23)	47/140 (33.57)	7/140 (5)	17/140 (12.14)

The children produced pronouns and full NPs. There were a few "other" responses (not further specified in Spenader et al., possibly omissions), and a negligible number of reflexives. In the two-topic condition they produced more full NPs and fewer pronouns than in the single topic condition. The production patterns in the control groups of adults were similar, in particular, the adults also produced both pronouns and full NPs. Apparently in these contexts, both pronoun and full NP are possible answers for a referent which has just been introduced. Moreover, the adults too produced more full NPs in the two-topic condition (78.33% versus 53% in the single-topic condition). Spenader et al. argue that this difference makes sense: in the two-topic condition two potential referents have been introduced, suggesting some kind of contrast between the two. Since pronouns do not typically express contrasts

(unless they are marked with contrastive stress), this may have led to a preference for a full DP over a pronoun.

Both pronoun production tasks in our study aim at eliciting pronouns in a discourse context which introduces and focalizes the referent. The results therefore also contribute to questions of development of information structure, in particular, the choice of forms for anaphoric reference—pronoun versus full noun phrase.

In sections 2 and 3 we present the syntax of object pronouns and quantitative pronouns in Dutch. Based on the differences in structure, we will form our hypothesis and predictions for the acquisition of object and quantitative pronouns in section 4. The two experiments and the group results of each are described in sections 5 and 6. Section 7 compares individual children's behavior on the two experiments. In section 8 the results are discussed and section 9 summarizes the conclusions.

2. Object pronouns in Dutch

We focus here on the properties of singular, third person, object pronouns in Dutch, which are the target in the object elicitation experiment. Pronouns take different forms depending on gender and strength, as shown in Table 2. Weak pronouns are phonologically reduced versions of strong pronouns.

Table 2: Object pronouns in Dutch

	Common		Neuter
	Masc.	Fem.	
Strong	*hem*	*haar*	*het*
Weak	'*m*	'*r*	'*t*
	'him'	'her'	'it'

In gender agreement, there are two possible kinds of antecedents: a surface antecedent, which propagates the grammatical gender of the antecedent; and the conceptual antecedent, which propagates the natural gender of the antecedent (Meyer & Bock, 1999). Grammatically, Dutch has two genders: *neuter* and *common* (non-neuter). Grammatical gender is marked on the definite article and the pronoun: neuter nouns take *het* 'the' and the pronoun associated with such nouns is *het* 'it'; common nouns take *de* and the pronouns are subject *hij* 'he' and object *hem* 'him'. Natural gender applies to animate referents only and distinguishes male and female people and animals. For nouns with female reference natural gender overrules grammatical gender and produces the female pronouns subject *zij* 'she' and object *haar* 'her'.

Dutch agreement typically follows natural gender, as in English, but it may also follow grammatical gender. Audring (2009) recently documented how the Dutch pronoun system is in transition between the two gender types. For example, the word *kind* 'child' in (2) is neuter. One can refer to its referent with neuter pronoun *het* 'it', following grammatical gender (ANS, 1997). Alternately, one can apply natural gender and use *hem* 'him' or *haar* 'her', provided one knows the child's sex.

(2)   A: Waar is dat kind dat daar op de stoep zat ineens gebleven?
          'Where did the child that was sitting on the pavement suddenly go?'

     B: Ik weet het niet, ik heb het / hem / haar helemaal niet gezien.
        'I don't know, I didn't see it / him / her.'

Pronoun agreement also follows natural gender when an animate referent is referred to directly, and the referent is clearly male or female, as in (3) (ANS, 1997). The word *meisje* 'girl' in (3a) is neuter, yet the possessive pronoun *haar* 'her' is feminine, since the reference is a female person. The possessive pronoun *zijn* 'his' in (3b) signals that the intended referent is a male student.

(3)   a. Heeft dat meisje haar auto wel op slot gedaan?
         'Did the girl lock her car?'
    b. Heeft die student zijn auto wel op slot gedaan?
         'Did that student lock his car?'

For referents of non-animate, common nouns, such as *de fiets* 'the bike', which do not have a natural gender, the weak male pronoun *'m* 'him' is used, serving as the default form, (4). For non-animate neuter nouns, such as *het boek* 'the book', the neuter pronoun *het/'t* 'it' would be the grammatically correct form, but in spoken language the default pronoun *'m* 'him' is also used, (5). The strong masculine pronoun *hem* 'him' is decidedly odd in these contexts, as it suggests an animate referent.

(4)   A: Waar is je fiets?
        'Where is your bike?'
    B: Ik hem 'm net in de schuur gezet.
        'I just put him in the shed'

(5)   A: Heb je Mulisch zijn laatste boek gelezen?
        'Did you read Mulisch' last book?'
    B: Ja, ik heb 'm / 't net uit.
        'Yes, I just finished him / it.'

Turning to the syntax of pronouns, object pronouns typically scramble because they are definite, (6a). It is possible for a pronoun to remain in the object position inside the VP, but this requires a focus stress on the pronoun, (6b) (de Hoop, 1992). See (7) for the structure of (6a): we assume a neutral functional projection FP above VP for scrambled objects; the scrambled object is in its specifier.

(6)   a. Hij heeft hem gisteren   heel hard geschopt.   Scrambled
        he   has   him yesterday very hard kicked
        'He kicked him really hard yesterday.'

    b. Hij heeft gisteren   heel hard HEM geschopt.   Non-scrambled
        he   has   yesterday very hard   HIM kicked
        'He kicked HIM really hard yesterday.'

(7)

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                    CP
                  /    \
              DP         C'
              Hij       /  \
                      C      IP
                    heeft   /  \
                          FP
                        /    \
                     DP        VP
                    /\        /  \
                  hem     AdvP     VP
                        gisteren  /  \
                              AdvP    VP
                              /\     /  \
                          heel hard      V'
                                       /  \
                                     DP      V
                                    hem   geschopt
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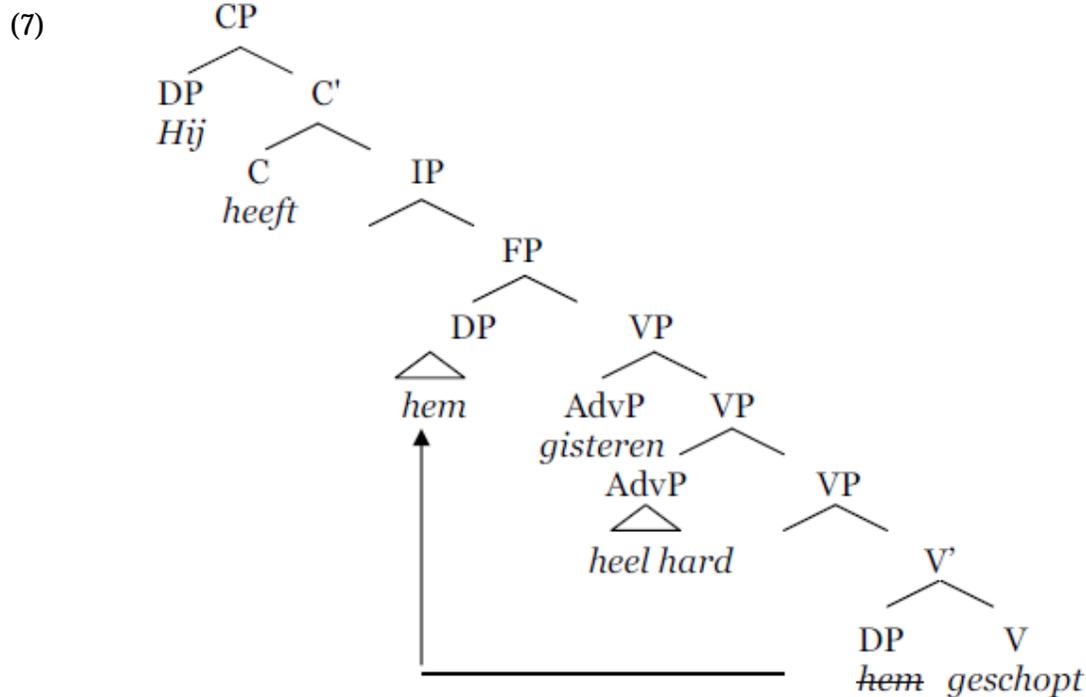
Comparing the distribution of weak and strong pronouns Zwart (1991) notes several distributional differences. One of these concerns the nature of scrambling: whereas strong pronouns may remain inside the VP, in which case they must carry focus stress, 0b), weak pronouns move out obligatorily, (8).

(8)   A: Hij heeft 'm gisteren   heel hard geschopt.   Scrambled
            he   has 'm yesterday   very hard kicked
            'He kicked 'm really hard yesterday.'

        B: *Hij heeft gisteren   heel hard 'm geschopt.   Non-scrambled
            he   has   yesterday very hard 'm kicked

Zwart takes these more rigid distributional possibilities of weak pronouns to suggest a type of movement different from regular object scrambling. In fact, he argues that weak pronouns are heads and undergo head movement to the functional category T (called INFL at the time), thus effectively classifying them with clitics which undergo clitic movement. Cardinaletti and Starke (1996, 1999), however, classify weak pronouns as a deficient class of pronouns, yet pronouns nevertheless. They make a strong case for a three-way classification of pronouns and clitics, in which weak pronouns are positioned in between strong pronouns and clitics, patterning in some ways like strong pronouns and in others like clitics. Weak pronouns cannot be coordinated with full DPs, cannot be modified and they have a highly rigid distribution, all of which are features they share with clitics. Moreover, like clitics, weak pronouns have less restricted possibilities for reference: they can refer to animate as well as non-animate referents, whereas strong pronouns only refer to animate ones. However, weak pronouns also differ from clitics and behave like strong pronouns: they can be complements of prepositions, are not obligatorily adjacent to the verb and in sentence coordination weak pronoun subjects can be left out of the second conjunct, which makes them full NPs, and not heads.

Following Cardinaletti and Starke's classification then, Dutch object pronouns are strong or weak pronouns, and not clitics. This makes Dutch an interesting case for comparison with clitic languages (see Varlokosta, in prep.).

3. Dutch quantitative pronoun *er*

Quantitative *er* (Q-*er*) is one of four types of *er* pronouns in Dutch, (9); the others are existential *er*, (10), locative *er*, (11), and prepositional *er*, (12). These functions are sometimes combined, for example, quantitative and prepositional er in (13) (Bennis, 1986).

(9)   Hij heeft er   twee gekocht.   Quantitative *er*
        he has ER two   bought
        'He bought two of them.'

(10)   Er loopt een jongen in de tuin.   Existential *er*
        ER walks a   boy   in the garden
        'There is a boy walking in the garden.'

(11)   Hij heeft er   het boek gekocht.   Locative *er*
        he has ER the book bought
        'He has bought the book there.'

(12)   Hij legt er twee boeken op.   Prepositional *er*
        he puts ER two books on
        'He puts two books on top of it.'

(13)   Hij legt er   twee op.   Prepositional and Quantitative *er*
        he puts ER two on
        'He puts two on top of it.'

Like other pronouns, Q-*er* needs an antecedent in the context. Unlike object pronouns, which are stand-ins for full constituents, Q-*er* relates to a complex noun phrase modified by a numeral or weak quantifier such as *geen* 'no' or *veel* 'many'. Q-*er* thus binds an empty position inside a complex noun phrase. Q-*er* cannot stay in its base-generated position, but obligatorily scrambles out. After scrambling it leaves behind the numeral or quantifier as a remnant of the original noun phrase, as illustrated in (14).

(14)   Hij heeft er   [NumP twee er] gekocht
        he has   ER [NumP two ER] bought

Q-*er* is obligatory for count nouns in a noun-ellipsis context; omission leads to ungrammaticality, (15). Q-*er* does not occur in cases of ellipsis of mass nouns, (16). Q-*er* is thus a special noun-ellipsis pronoun. Dutch stands out among the other Germanic languages which do not have such a pronoun; noun ellipsis with a numeral is perfectly grammatical in the other languages; see for example the English translation under (15).

(15)   *Hij heeft twee   gekocht.
          he has   two   bought
          'He bought two.'

(16)   [Talking about cheese]
          Er ligt (*er) veel in de koelkast.
          There lies ER much in the fridge
   'There is a lot in the fridge.'

     Several analyses of Q-*er* posit that the construction contains an ellipsis site inside the DP which is licensed by Q-*er*. Coppen (1991) proposes the structure in (17a) with N' ellipsis. Corver, Van Koppen and Kranendonk (2009) assume NP ellipsis, (17b).

(17)   a.   [$_{NP}$ [$_{QP}$ twee] [$_{N''}$ [$_{Det}$ er [$_{N'}$ $\varnothing$]]]]   **Coppen (1991)**

         b.   [$_{DP}$ [$_{QP}$ [$_{NumP}$ [$_{nP}$ [$_{n}$ er [$_{NP}$ $\varnothing$]]]]]]   **Corver et al. (2009)**

Barbiers (2009), however, rejects an ellipsis approach for Q-*er* on the basis of evidence that there is no gender agreement with Q-*er*. The choice of relative pronouns is sensitive to the neuter versus common gender distinction. *Huis* 'house' is neuter and requires *dat* 'that' as its relative pronoun, not *die* 'that' (18a). But when Q-*er* refers to a house, it takes the default common form *die*, (18b), and not *dat* 'that'.

(18)   a.   Dit is een huis   dat   / *die   je   gezien moet hebben
                   This is a   house that^{Neuter} / that^{Common} you seen   must have

         b.   [Talking about houses]
                   Dit is er   één die   / *dat   je   gezien moet hebben
                   This is ER one that^{Common} / that^{Neuter} you seen   must have

Barbiers takes the absence of agreement to suggest that Q-*er* is not specified for gender, nor does the presumed elided N seem to carry a gender feature, and so, he concludes, there is no elided element that serves as the antecedent of the relative pronoun. Instead Barbiers claims that Q-*er* is a DP inside another DP, and thus constitutes a constituent inside a bigger constituent. Q-*er* is the spell-out of the inner DP. Q-*er* scrambles out; this movement is obligatory. The outer DP with the numeral remains behind as a remnant. This proposal is illustrated in (19), where we again assume a functional projection FP above VP as the landing site for scrambling. Barbiers' proposal explains not only lack of gender agreement, but also why Q-*er* does not allow adjectives, determiners or complements.

(19)
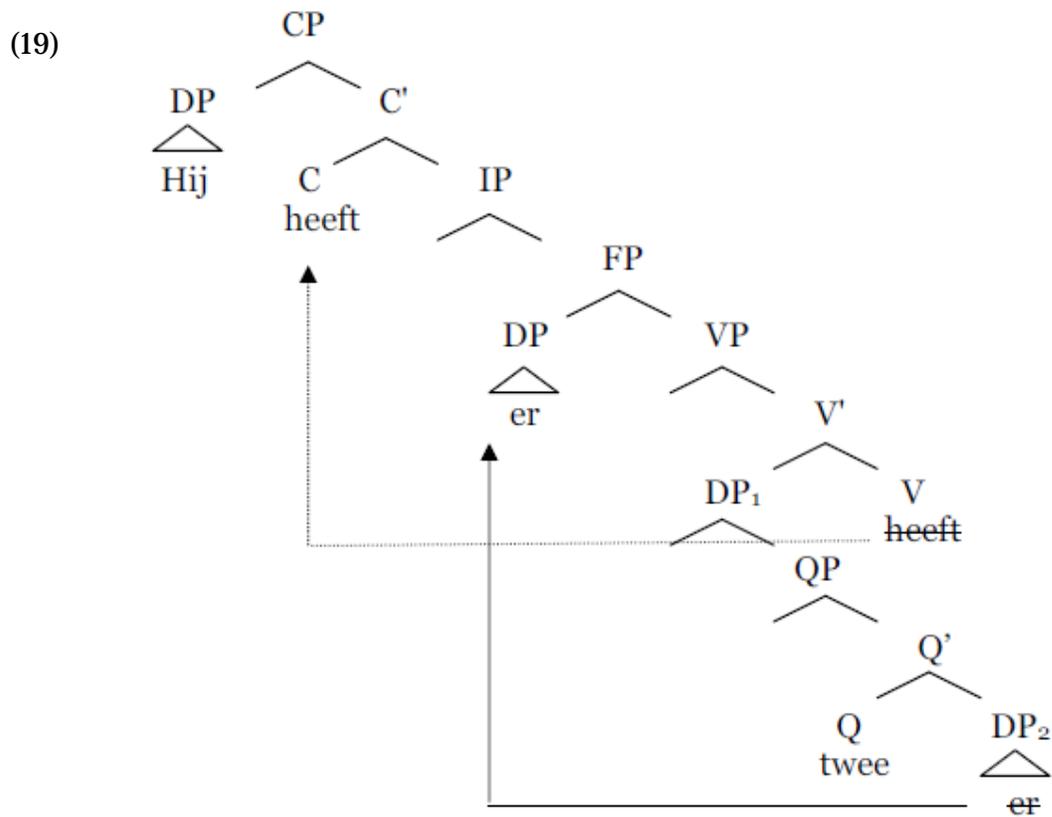
4. Hypothesis and Predictions

Our two research questions are: (i) Is there a relation between the syntax of different pronouns and their acquisition? This question has several angles. First, it relates to the difference between object clitics and object pronouns, which is taken up in Varlokosta et al. (in prep.). We approach it here by comparing object and quantitative pronouns, which have different syntactic properties, as shown in sections 2 and 3. The second research question relates to the pragmatic properties of pronouns: (ii) Which form—pronoun or full noun phrase—do children supply in contexts of anaphoric reference, and how does this compare to the adult patterns of use?

In sentences containing an object pronoun, the pronoun itself is a complete constituent which undergoes scrambling. In contrast, Q-*er* is part of a complex DP and constitutes a constituent within a bigger constituent. Q-*er* scrambles while the rest of the constituent, i.e., the numeral stays behind. Our hypothesis is that Q-*er* is acquired later than object pronouns, because of its more complex syntax. A further reason why we assume Q-*er* is acquired late is the fact that pronoun *er* has three additional functions besides its quantitative-partitive use (existential, locative and prepositional). Sorting out all the different *er*'s and the properties of each may also contribute to late acquisition.

The Spenader et al. (2009) study reviewed in section 1 shows that children between 4 and 6 freely produce pronouns and full NPs. It does not report on object omission. We believe we can take their results as an indication that our object pronoun elicitation task will pose few problems for the 5-year-olds in our study. Moreover, we expect to get both pronouns and full NPs with our task, seeing that that is what the children and adults produced in the Spenader et al. task.

As for quantitative *er* we have no expectations as to what 5-year-olds do or do not produce as there are no previous studies; our study is thus exploratory.

5. Experiment 1: Object Pronoun Elicitation

Seventeen children participated in both tests. A few additional children took only one of the two tests.

5.1. Method

Twenty typically-developing 5-year-olds (12 girls, 8 boys; mean age 5;7; age range 5;0-6;0) participated in the object pronoun elicitation experiment, plus a control group of fifteen adults. The children were tested individually in a quiet room by two experimenters; one explained the task while the other scored the answers. The sessions were also taped-recorded for later checking. The adults were tested individually by just one experimenter.

The goal of this test was to establish whether children produce object pronouns. Our point of interest is whether the Dutch children omit object pronouns, like children in clitic languages do for object clitics. The task for the elicitation of object pronouns was a cloze task (Varlokosta et al., in prep.). The participants saw a picture (Figure 1) presented on a laptop in MS PowerPoint and the experimenter told them a short story. Their task was to finish the last sentence of the story, which targeted an object pronoun. The short story introduces the referent, thus creating an appropriate context for anaphoric reference with a pronoun, (20).
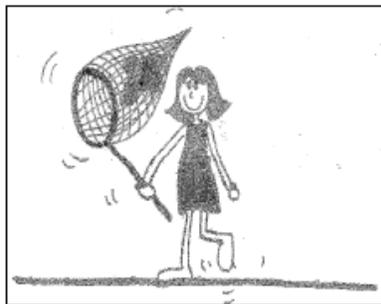
Figure 1: Picture from object pronoun elicitation task (Varlokosta et al., in prep.)

(20)   Exp.: Het meisje heeft de vlinder gevangen. Nu kan de vlinder niet meer
                vliegen. Waarom kan de vlinder niet vliegen? De vlinder kan niet vliegen
                omdat het meisje ...
                'The girl caught the butterfly. Now the butterfly can't fly. Why can't the
                butterfly fly? The butterfly can't fly because the girl ...'

        Child: ... 'm gevangen heeft.
                ... caught it.

There were twelve test items and ten fillers. All test items contained a transitive verb. There were practice items to train the participants on finishing the sentence in the shortest possible way, using a pronoun. Suggestions were made to use a pronoun for the two practice items, no suggestions or corrections were given during the actual test.

5.2. Results

The children produced object pronouns and full NPs in patterns similar to the adults, as illustrated in Figure 2. In contrast to the adults, the children sometimes omitted objects. Not all of these were ungrammatical, however, because some of the Dutch verbs we used are optionally transitive, for example, *schoppen* 'kick', *krabben* 'scratch' and *verven* 'paint'. These can be used intransitively, in which case the object is implied. Responses with such optionally transitive verbs without an object were categorized as "correct omissions". The set of grammatical responses thus includes object pronouns, and also full NPs and correct omissions; these constituted 82.1% of the total set of responses. 12.5% were ungrammatical omissions involving obligatory transitive verbs, and 5.4% of the responses were otherwise ungrammatical (e.g., incomplete sentence completion).
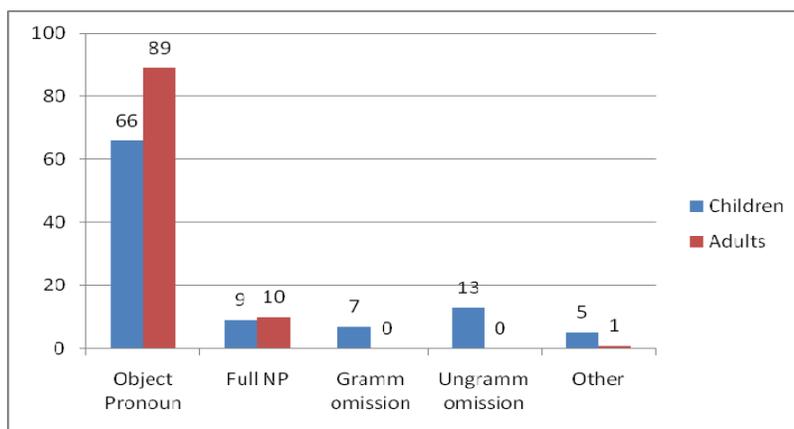
Figure 2: Results object pronoun elicitation task

6. Experiment 2: Quantitative *er* elicitation

6.1. Method

Twenty children were tested on a Q-*er* elicitation task (11 girls, 9 boys; mean age 5;6; age range 5;0-6;0), including nineteen who also participated in Experiment 1. Another control group of fifteen adults was also tested. The procedure was used as in Experiment 1. Those children who took both tests were tested on each task in separate sessions.

The task for the elicitation of the Q-*er* was disguised as a guessing game about the number of entities on a picture (Gavarró et al., in prep.). The experimenter took guesses and the child judged them. The child had a pile of cards with pictures and held them up one by one. The experimenter, who was sitting across from the child, could not see the picture, but on the back of each card part of the picture was shown, so that the experimenter could make a guess about the picture. The experimenter would then guess how many objects there were in the picture. When she guessed incorrectly, the child had to provide the correct answer using a Q-*er* construction. There were twelve test items and ten filler items; for the filler items the experimenter made correct guesses.

One of the pictures is illustrated in Figure 3. The experimenter presents her guess as a yes/no-question; the target answer was a Q-*er* construction, (21). Note that the

experimenter's guess introduces the antecedent (here, suitcases) and thus licenses the replacement of the noun in an Q-*er* construction.

Figure 3: Picture from the Q-*er* elicitation task (Gavarró et al., in prep.)

(21) Exp: Neemt ze drie koffers mee?
            Takes she three suitcases with?
            'Does she take three suitcases?'

      Child: Nee, ze neemt er twee mee.
            No, she takes Q-*er* two with
            'No, she takes two (of them).'

It was essential that participants produced full clauses, because Q-*er* only occurs in sentences with a verb. Participants were stimulated to provide a full sentence (*Can you say that in another way?*), often by modeling the start of the sentence (*No, she has...*). Throughout the test session, whenever necessary, the experimenter provided the subject and verb of the sentence, which the participants then had to complete with a Q-*er* and a numeral. In order to prime production of Q-*er*, there was a training session with four practice items. When a participant did not produce the target Q-*er* in the training, the experimenter modeled a Q-*er* construction and explicitly told her/him that this was an alternative, shorter way of answering, encouraging the participants to use this sorter way. During the actual test the experimenter did not correct participants anymore.

6.2. Results

The children produced only 35.5% Q-*er*, whereas the dults produced 100% target Q-*er*, Figure 4. The absolute percentage in the adults is no doubt due to the explicit training, in which they were instructed to use a "short form" with *er*. Despite the exact same training, the children produced many full NPs (49%). Both pronouns and full NPs are grammatical constructions; they constituted 84.5% of the total set of responses. The ungrammatical constructions included omission and a few cases of doubling where a Q-*er* and a full NP co-occurred. Omission in this kind of structure is always incorrect.
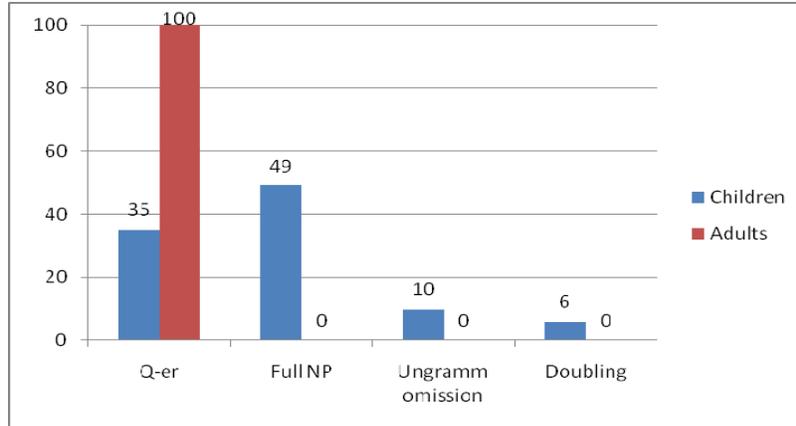
Figure 4: Results Q-*er* elicitation task

7. Comparing both tasks

Combining the results from Figures 2 and 4, Figure 5 shows that the rates of ungrammatical omission in both tasks were similar. A striking difference between the tasks is that children produced many more object pronouns than quantitative *er*. Despite the instructions during the training in both experiments, which were especially explicit in the Q-*er* task, the children often produced a full NP, which is a grammatical alternative, possibly to circumvent the target construction with a pronoun.
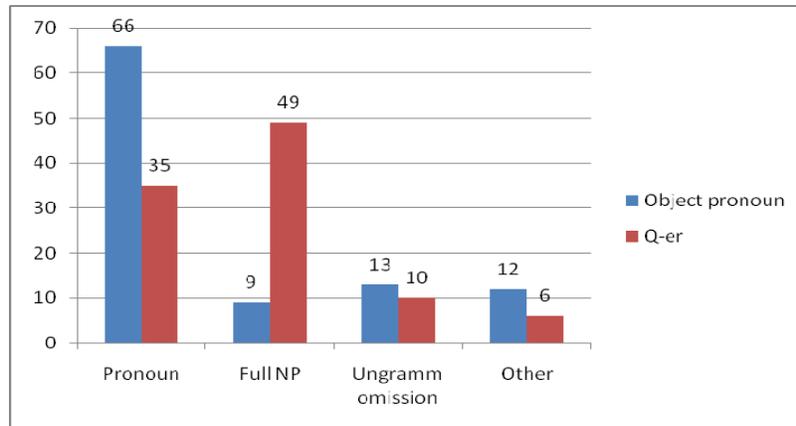
Figure 5: Results children object pronoun and Q-*er* elicitation

For an individual subject analysis of the seventeen subjects who took both tasks, we focus on their pronoun use. We labeled the individual scores on each task as high (10 to 12 pronoun responses out of 12), intermediate (6 to 9 out of 12) or low (0 to 5 out of 12). Figure 6 shows that most of the children have high or intermediate pronoun rates on the object pronoun task, whereas most of them have low rates on the Q-*er* task. Their object pronoun rates are significantly higher than the Q-*er* rates ($t(16)=-4.28$; p=.001). The pronoun rates on the two tasks do not correlate ($r=.191$; p>.4). This may be because the number of children with high Q-*er* rates was very small.
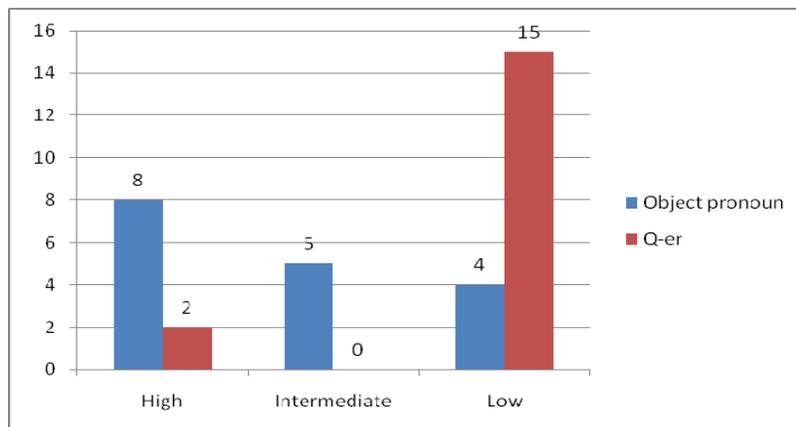
Figure 6: Number of subjects and level of pronoun use (high, intermediate, low)

8. Discussion

We set out to investigate the following two questions. (i) Is there a relation between the syntax of different pronouns and their acquisition? (ii) Which form—pronoun or full noun phrase—do children supply in contexts of anaphoric reference, and how does this compare to the adult patterns of use?

We hypothesized that object pronouns are acquired earlier than Q-er, because the latter has a more complex syntax. The percentage of pronoun use is much higher for object pronouns than Q-*er*. The same pattern obtains in the individual subject scores, with object pronoun rates consistently higher than Q-*er* rates. We conclude that most of our children have essentially acquired object pronouns at the age of 5, or are on their way of acquiring object pronouns. In stark contrast, all but two children struggle with Q-*er* and do not consistently supply it, despite a training in which Q-*er* was explicitly modeled. Our results thus support the hypothesis that object pronouns are acquired earlier than Q-*er*.

In both tasks children produced full NPs along with pronouns. For object pronouns the adults produced pronouns and full NPs in similar rates. This pattern was also established by Spenader et al. (2009). Apparently, the context in our object pronoun experiment allowed for both pronouns and full NPs, and children know this.[3] In the Q-*er* test, however, the patterns of pronoun-full NP production were different for children and adults. The adults exclusively produced *er*, probably because of the explicit training to do so, whereas the children often resorted to full NPs, as if avoiding Q-*er*. It is hard to draw a firm conclusion about this discrepancy. It may be that adults would have also produced full NPs, had they not been explicitly instructed to use the shorter form. It is therefore possible that Dutch allows both Q-*er* and full NPs in this context, but that we forced the participants to use Q-*er*. Nevertheless, children did not let Q-*er* be forced upon them. This may suggest that this construction has not yet been fully acquired. This conclusion is also reached by Berends, Veenstra and Van Hout (this volume), who tested Q-*er* with sentence repetition, and compare those results with the results of the present elicitation task.

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[3] This is in contrast to clitic languages where clitics are obligatory and full NPs would be ungrammatical, see Varlokosta et al. (in prep.).

Overall, the rate of pronoun omission in both tests is low: 12,5% for object pronouns and only 9,7% for Q-*er*. The children in this experiment were 5, which is relatively old, and so the omission in obligatory contexts may be considered quite high. Once our Dutch data will be compared to those of 5-year-olds acquiring clitic languages, we will be able to say whether pronouns are or are not omitted like object clitics (Varlokosta, in prep.). If the rates of omission and ratios of pronoun versus full NP are different in pronoun versus clitic languages, we can draw the conclusion that that pronouns and clitics differ essentially. This would provide support, from acquisition studies, for Cardinaletti and Starke's theory (1996, 1999), *contra* Zwart (1991).

9. Conclusions

Object and Q-*er* pronouns are not acquired equally. We attribute this difference to their different syntax. The use of Q-*er* involves more sophisticated syntactic knowledge: Q-*er* occurs at the left edge of the VP and binds an empty position in the DP, whereas object pronouns are simply stand-ins for full NPs and occur in the same position. Moreover, the fact that Q-*er* is one of four different *er*-types adds to its late acquisition. Van Hout, Veenstra and Berends (in press) develop this idea further by extending Jakubowicz's (2010) Derivational Complexity metric with a structural complexity measure according to which Q-*er* is structurally more complex than object pronouns. Following Tuller et al. (2011), structures with high complexity are difficult to acquire, and so one may expect late emergence, high error rates and/or avoidance, which is just what we found for Q-*er*.

Acknowledgments

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