1. Introduction

Traditionally, the element \textit{one} in constructions like (1) is considered to be a pro-form that appears instead of a full noun.

(1) Jack met the king from England, and I met the \textit{one} from France.

(Jackendoff 1977:58)

Yet, such anaphoric \textit{one} exhibits several restrictions that are not shared by regular nouns. For example, anaphoric \textit{one} cannot be immediately preceded by a numeral or a quantifier. The contrast between (2) and (3) illustrates this point.

(2) a. Mary bought three apples at Big Y.
    b. John borrowed many/some books from that library.

(3) a. * Mary bought three apples at Big Y, and her mother bought five ones at Wal-Mart.
    b. * John borrowed some books from that library, and his brother borrowed many ones from this library.

In this study, I will present evidence that English-learning two-year-olds already know this constraint on anaphoric \textit{one}. If the recent analysis of the
one-construction by LLombart-Huesca (2002) is on the right track, the results indicate that the grammar of two-year-olds projects the functional head of Number within the nominal structure, and that the child grammar respects the economy principle of Last Resort that inserts one under the Number head only when necessary. More broadly, the findings argue for the view that child language acquisition is constrained by biologically-determined Universal Grammar from virtually the very beginning of life (Otsu 1981, Crain & Thornton 1998, among many others).

2. Traditional Analysis of Anaphoric One

It has been widely assumed at least since Jackendoff (1977:58) that anaphoric one is a pronominal element that is substituted for the single-bar projection of a head noun. The contrast between (4a) and (4b) provides the empirical basis for this assumption.

(4) Jack met the professor of physics from England,
   a. * and I met the one of biology from France.
   b. and I met the one from France.

The PPs of physics and from England in (4) have a different status: While the PP of physics is a complement of the head N professor and hence a sister of that N, the PP from England is an adjunct that occupies a sister position of the constituent professor of physics, which constitutes an N-bar. Hence, the contrast between (4a) and (4b) indicates that one must include the complement position of the head N, which in turn suggests that one replaces an N-bar projection.\(^1\)

Yet, an analysis that treats anaphoric one as a pro-N-bar faces several
empirical problems. Most notable is the fact that there are several co-occurrence restrictions on \textit{one} that do not immediately follow from this analysis. For example, the \textit{one}-construction is not allowed when \textit{one} stands for a mass noun.

(5) *I bought the old furniture and the new one. \quad (\text{Llombart-Huesca 2002:60})

In addition, as noted in the previous section, \textit{one} cannot be immediately preceded by a numeral or a quantifier. The relevant examples are repeated in (6).

(6)  
\begin{itemize}
  \item a. * Mary bought three apples at Big Y, and her mother bought five ones at Wal-Mart.
  \item b. * John borrowed some books from that library, and his brother borrowed many ones from this library.
\end{itemize}

The restrictions illustrated in (5) and (6) have to be stipulated under the analysis that \textit{one} replaces a projection of the head noun.

Another problem that casts doubt on the pro-N-bar analysis is the similarity between NP-ellipsis and anaphoric \textit{one}. The NP-ellipsis construction exemplified in (7) permits both strict and sloppy interpretation: \textit{Julie’s} in the second conjunct can be interpreted either as ‘Julie’s picture of Janet’s cat’ or ‘Julie’s picture of her own cat’. The same range of interpretations is available to the \textit{one}-construction in (8): \textit{Julie’s ugly one} can be an ugly picture of Janet’s cat or an ugly picture of her own cat.
This parallel behavior between NP-ellipsis and anaphoric *one* has led Llombart-Huesca (2002) to give up the pro-N-bar analysis, and to develop a novel proposal that the *one*-construction involves NP-ellipsis. Her analysis is summarized in the next section.


The co-occurrence restrictions on anaphoric *one* exemplified by the examples in (5) and (6) share one important property: Both of them are related to the number specification. The ungrammaticality of (5) suggests that *one* is only compatible with [+count] nouns, and that of (6) shows that *one* cannot appear when a quantifier with intrinsic number specification is present. Building on this observation, Llombart-Huesca (2002) argues that *one* occupies the head position of the Number projection within DP. More specifically, she proposes that *one* is a phonological support for the Number head in the DP, which is inserted as a last-resort procedure when the complement NP is elided.

According to Llombart-Huesca (2002), three functional categories can appear within the nominal structure: D(eterminer), Q(uantifier), and Num(ber). For example, under her analysis, noun phrases like *this book* and *many/three books* have the following structures.
Extending the analyses of *do*-support in the clausal domain by Halle & Marantz (1993), Bobaljik (1995) and Lasnik (1995) to the nominal domain, Llombart-Huesca proposes that the phonologically empty Number head is an affix that is merged with the complement NP under adjacency in the PF component. Hence, in the structures given in (9), the Number head merges with the NP *book(s)* in PF, which provides phonological support to Number and satisfies its affixal property.

Yet, there is a case in which the Number affix fails to merge with the NP in the complement position: the case in which NP-ellipsis is applied to that NP. In this situation, no phonological support from the NP is available, and the Number head is left stranded. Llombart-Huesca suggests that there are two ways to save this situation. One of them is to formally license the empty Number head, through the immediate c-command by an element holding ‘strong agreement features’. One such strong agreement feature is assumed to be [+partitive], which is carried by numerals and by quantifiers like *some/many*.

The other way to save the structure is to insert *one* under the Number head, in order to give phonological support to it. Llombart-Huesca argues that this insertion is constrained by the economy principle of Last-Resort, and that *one*-support is permitted only when the licensing by an appropriate element is not available. These two possibilities are illustrated in (10).
Let us see how this analysis accounts for the data given in (11) and (12).

(11) John borrowed some books from that library, and
   a. his brother borrowed many from this library.
   b.* his brother borrowed many ones from this library.

(12) Mary bought this apple at Big Y, and
   a. his mother bought that one at Wal-Mart.
   b. his mother bought that at Wal-Mart.

In (11a), the quantifier *many* licenses the empty Number head under immediate c-command, since by assumption it has the strong agreement feature of [+partitive]. Thus, NP-ellipsis is possible without the insertion of *one*. The example in (11b) is ruled out as a violation of the Last-Resort principle, because *one*-insertion is a last-resort operation that is adopted only when the element that can license Number does not exist within the nominal structure. In contrast, since a demonstrative like *that* does not carry any strong agreement feature, *one*-insertion is the only way to save the structure when NP-ellipsis applies. This explains the grammatical status of (12a). Then, why is (12b) permitted, which apparently involves NP-ellipsis? Llombart-Huesca argues that *that* in (12b) does...
not contain the Number head and has a simpler structure than the one in (10), as shown in (13).

(13)       DP
    r       u
    D   NP
   |   5
 this  \textit{ec}

The difference in interpretation between (12a) and (12b) motivates this assumption. While in (12a) the speaker refers to \textit{that apple} as opposed to \textit{this apple}, in (12b) the speaker refers to \textit{that ‘thing’} as opposed to \textit{this apple}. Llombart-Huesca assigns the source of this semantic difference to the structural difference between (10) and (13). \textit{One}-insertion never applies to (13), given that there is no Number head to support.\footnote{Unlike with mass nouns, this is not necessarily true for count nouns.}

As for the incompatibility of \textit{one} with mass nouns, Llombart-Huesca suggests that \textit{one} has a [+count] specification, which is not consistent with the [+mass] specification in mass nouns.

To summarize, under the analysis by Llombart-Huesca (2002), \textit{one} is inserted as a Last-Resort operation when it is necessary to give phonological support to the Number affix that would be stranded otherwise. The relevant situation arises in cases of NP-ellipsis when there is no element within the nominal structure that has the ability to license the empty Number head by carrying strong agreement features.
4. **The Constraint on Anaphoric One in Child Grammar**

The analysis proposed by Llombart-Huesca (2002) successfully accounts for why quantifiers and numerals, in contrast to singular demonstratives, are incompatible with anaphoric *one*.

(14) a. Mary bought many apples at Wal-Mart.
    b. * Mary bought many ones at Wal-Mart.

(15) a. John bought this apple at Big Y.
    b. John bought this one at Big Y.

Under this analysis, the contrast between (14) and (15) is largely determined by the properties of UG (such as the formal licensing of empty heads and Last Resort). Then, since children do not have much to learn in order to be able to distinguish the grammaticality of (14b) and (15b), we can expect that the grammar of young English-learning children should exhibit the relevant contrast from the earliest observable stage.

In order to see whether this is actually the case, I analyzed seven longitudinal corpora for English from the CHILDES (MacWhinney 2000), which provide a total sample of more than 67,000 lines of child speech. The English corpora I analyzed are summarized in Table 1.

For each child, I began by locating the first clear use of a singular demonstrative that is immediately followed by an anaphoric *one* (namely, *this one* or *that one*). Starting with that file, I picked out the utterances that contain any of the following: (i) a singular demonstrative (*this* or *that*) that is immediately followed by an overt complement noun or by an anaphoric *one*; (ii) a numeral (from *two* to *nine*) that is immediately followed by an overt
complement noun or by an anaphoric one; (iii) a quantifier (some or many) that is immediately followed by an overt complement noun or by an anaphoric one. The CLAN program Combo, together with a file containing singular demonstratives, numerals, and quantifiers, was used to identify potentially relevant child utterances, which were then searched by hand and checked against the original transcripts to exclude imitations, repetitions, and formulaic routines.

<table>
<thead>
<tr>
<th>Child</th>
<th>Collected by</th>
<th>Age</th>
<th># of child utterances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adam Brown</td>
<td>(1973)</td>
<td>2;8.0 - 3;0.25</td>
<td>7,983</td>
</tr>
<tr>
<td>Eve Brown</td>
<td>(1973)</td>
<td>1;7.0 - 2;3.0</td>
<td>11,563</td>
</tr>
<tr>
<td>Naomi Sachs</td>
<td>(1983)</td>
<td>1;11.21 - 2;7.16</td>
<td>6,046</td>
</tr>
<tr>
<td>Nina Suppes</td>
<td>(1973)</td>
<td>2;0.24 - 2;5.28</td>
<td>12,847</td>
</tr>
<tr>
<td>Peter Bloom</td>
<td>(1970)</td>
<td>1;11.17 - 2;4.15</td>
<td>8,957</td>
</tr>
<tr>
<td>Sarah Brown</td>
<td>(1973)</td>
<td>2;7.28 - 3;0.18</td>
<td>5,474</td>
</tr>
<tr>
<td>Shem Clark</td>
<td>(1978)</td>
<td>2;2.16 - 3;0.5</td>
<td>14,847</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>67,717</strong></td>
</tr>
</tbody>
</table>

Table 1  English Corpora Analyzed

The results of my transcript analysis are summarized in Table 2. As we can see in the table, children showed frequent use of singular demonstratives that contain either an overt noun or anaphoric one in their complement position. In contrast, while numerals and quantifiers with an overt complement NP occurred reasonably often, there was virtually no example in which a numeral or a quantifier is immediately followed by anaphoric one.²⁵

For each of demonstratives, numerals and quantifiers, the percentage of one was calculated, which is summarized in Table 3.
<table>
<thead>
<tr>
<th></th>
<th>demonstratives</th>
<th>numerals</th>
<th>quantifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NP</td>
<td>One</td>
<td>NP</td>
</tr>
<tr>
<td>Adam</td>
<td>8</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Eve</td>
<td>55</td>
<td>20</td>
<td>44</td>
</tr>
<tr>
<td>Sarah</td>
<td>5</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>Naomi</td>
<td>35</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>Nina</td>
<td>291</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>Peter</td>
<td>77</td>
<td>55</td>
<td>48</td>
</tr>
<tr>
<td>Shem</td>
<td>96</td>
<td>84</td>
<td>22</td>
</tr>
</tbody>
</table>

Table 2  The Number of Child Utterances

<table>
<thead>
<tr>
<th></th>
<th>demonstratives</th>
<th>numerals</th>
<th>quantifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NP</td>
<td>One</td>
<td>NP</td>
</tr>
<tr>
<td>Adam</td>
<td>57%</td>
<td>43%</td>
<td>92%</td>
</tr>
<tr>
<td>Eve</td>
<td>73%</td>
<td>27%</td>
<td>100%</td>
</tr>
<tr>
<td>Sarah</td>
<td>63%</td>
<td>37%</td>
<td>100%</td>
</tr>
<tr>
<td>Naomi</td>
<td>70%</td>
<td>30%</td>
<td>100%</td>
</tr>
<tr>
<td>Nina</td>
<td>95%</td>
<td>5%</td>
<td>100%</td>
</tr>
<tr>
<td>Peter</td>
<td>58%</td>
<td>42%</td>
<td>100%</td>
</tr>
<tr>
<td>Shem</td>
<td>53%</td>
<td>47%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 3  The Percentage of Anaphoric One

The sharp contrast concerning the use of one between demonstratives on one hand and numerals and quantifiers on the other succinctly shows that two-year-old children already have the same knowledge as adults with respect to the distribution of one: They know that while demonstratives can co-occur with anaphoric one, numerals and quantifiers are incompatible with it.

If Llombart-Huesca’s (2002) analysis is correct, the results obtained in this
study have the following theoretical implications. First, the grammar of two-year-olds projects the functional head of Number within the nominal structure, which hosts the anaphoric one. This finding, especially the data from children before the age 2;5 (Eve and Peter), adds a new piece of evidence against the view that the grammar of children around this age is purely an instantiation of maximal projections of lexical categories, in total absence of any functional category. For example, the finding poses a (potential) problem for Platzack’s (1990) claim that there are no functional categories in child Swedish up to approximately three years of age. The finding, on the other hand, is consistent with the Full Competence view of Poeppel & Wexler (1993), which claims that phrase structure in the grammar of two-year-olds is equipped with a full array of functional categories and is organized in exactly the same way that it is for adults (See Deprez & Pierce 1994 and Phillips 1996 for similar proposals).

The second theoretical implication of this study is that young children obey the economy principle of Last Resort. Under Llombart-Huesca’s (2002) analysis, numerals and quantifiers have the ability to license the empty Number head, and the insertion of one into their complement is excluded by the Last Resort principle. Then, the fact that children do not permit the use of one with numerals and quantifiers suggests that the relevant principle is already operative in their grammar. This finding, along with many other studies, argues for the Continuity Assumption that child language acquisition is constrained by the principles of UG from the very beginning of life (See Otsu 1981, Crain & Thornton 1998, Meroni et al. 2001, among many others).
5. Conclusion

In this study, I have presented evidence from spontaneous speech data that English-learning children before the age of three already have the same grammatical knowledge as adults concerning the distribution of anaphoric one. If the analysis by Llombart-Huesca (2002) is on the right track, the results suggest that the grammar of two-year-olds projects the functional head of Number within the nominal structure, and that the child grammar obeys the economy principle of Last Resort that inserts one under the Number head only when necessary. Hence, this study provides a new piece of evidence from the nominal domain for the Continuity Assumption, the assumption that the child grammar reflects the properties of UG from the very beginning.

Notes
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1 Acquisition studies provide evidence that children have the knowledge that one is anaphoric to N-bar but not to N⁰. See Hamburger & Crain (1984) for evidence from four- to six-year-olds, and Lidz et al. (2003) for evidence from 18-month-old infants.
2 Quantifiers and numerals can precede one when an intervening adjective is present.
Mary bought three large apples at Big Y, and his mother bought five small ones at Wal-Mart.

John borrowed some easy books from that library, and his brother borrowed many difficult ones from this library.

Under Llombart-Huesca’s analysis, this is due to the fact that quantifiers/numerals and the Number head are not in the immediate c-command relation due to the presence of the adjective, and hence the former cannot license the latter.

Llombart-Huesca (2002:77) assumes that strong agreement features also include [+plural], based on the observation that there are native speakers who find a contrast between (i) and (ii).

(i)?* I like these cars but I don’t like those ones.

(ii) I like these shirts but I don’t like those.

Yet, the informants that I consulted did not find any sharp contrast between (i) and (ii). Thus, I leave open the question of whether [+plural] constitutes one of the strong agreement features that in effect exclude one-insertion.

Llombart-Huesca (2002:83) assumes that NP can be freely elided to the extent that it has an appropriate antecedent in the discourse, while empty functional elements (including Number) need to be formally licensed.

The single example in which one appears immediately after a numeral is the following utterance by Adam:

*ADA: two caboose

*MOT: two?

*ADA: two ones. (Adam20:1379)

References


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