THE DEVELOPMENT OF DIFFERENTIAL OBJECT MARKING IN CHILD HEBREW

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Abstract. The present paper examines the development of Differential Object Marking (DOM) in child Hebrew. In Hebrew, DOM distinguishes definite from indefinite objects. Object case-marking is obligatory only with definite objects (pronouns, proper names, and definite nouns), but not with indefinites (Givón 1978). The study analyzes DOM usage in naturalistic speech samples of three Hebrew-speaking girls, between ages 1;5–3;0. The findings point to a gradual development of DOM whereby initially only a small set of case-marked objects is used, expanding over time to include a broader array of lexical categories, with more lexical elements marked in each category. The girls’ acquisition of DOM was almost flawless, suggesting that they may have access both to universal semantic features and to language specific properties early on.

Keywords: Hebrew, acquisition, Differential Object Marking, definiteness, accusative marker.

1. INTRODUCTION

Differential Object Marking (DOM) refers to a phenomenon whereby languages which exemplify overt case-marking of the direct object do not mark all their objects uniformly. These languages overtly mark only some of their objects while other objects are never marked or are optionally marked morphologically, depending on the semantic and pragmatic features of the object (Bossong 1991, 1998). Despite its existence in hundreds of languages, to date DOM has not received much attention in the field of first language acquisition. In view of that, the main goal of the present paper is to describe the developmental path which Hebrew-speaking children follow in acquiring DOM in their L1, and consequently, to add to the growing body of cross-linguistic data on DOM acquisition.

The theoretical account of DOM on which we base our investigation is that of Aissen (2003), for it makes specific reference to DOM in Hebrew as compared with other languages. Aissen (2003) proposes the following principle to account for DOM, based on the functional/typological literature on this phenomenon:

(1)  The higher in prominence a direct object, the more likely it is to be overtly case-marked.

Certain factors such as the animacy, specificity and definiteness of the direct object are relevant to determining its prominence and thus to case marking it in different

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languages. In some languages it is the animacy of the object that plays a role, in others it is its definiteness or specificity; and in still others both animacy and definiteness affect object case-marking. However, it is argued that in all of these cases, objects which resemble subjects more are also more likely to be overtly case-marked (Comrie 1979, Torrego 1998, Aissen 2003).

According to Aissen (2003), prominence is assessed on the following scales:

(2) **Animacy:** human > animate > inanimate

**Definiteness:** personal pronoun > proper name > definite NP > indefinite specific NP > non-specific NP

Languages differ with respect to the scale which they use (or whether they use both scales), and with respect to the cut-off point above which accusative case-marking is obligatory or optional. In languages with DOM, a direct object that is case-marked at a given point on one of the scales, suggests all direct objects higher on that scale will also be case-marked, whereas lower ranked objects will not necessarily be case-marked. Aissen (2003) argues that the degree to which DOM is marked on objects reflects a tension between two opposing principles: **iconicity** – the more marked a direct object as an object, the more likely it is to be overtly case-marked, and **economy** – avoid case-marking. This tension is resolved differently in different languages. For example, in Sinhalese, only objects high in prominence on the animacy hierarchy are case-marked; in Hebrew, only objects high in prominence on the definiteness hierarchy are case-marked; and in Romanian, it is objects which are high in prominence on both hierarchies that must be case-marked (Aissen 2003).

2. DIFFERENTIAL OBJECT MARKING IN HEBREW

Hebrew is a Semitic language, with a relatively free word-order. In Hebrew, definite NPs are marked with the definite article *ha-* (example 3). Moreover, *ha-* cannot be separated from the noun by any intervening material (*e.g.* numerals, adjectives), as shown in example (4). Every object noun phrase in the sentence is case-marked with a preposition (direct object – *ʔet*; indirect object – *le-*). Subjects and semantically indefinite direct objects are not overtly case-marked by a preposition, as shown in example (5).

(3) ha-sefer ‘the-book’
(4) shney ha-sfarim ‘two the-books’ vs. *ha-shney sfarim ‘the two books’
(5) sefer ‘(a) book’, sfarim ‘books’

In Hebrew, the accusative marker *ʔet* is sensitive to the definiteness of the object (Berman 1978, Danon 2001). Whenever an object is marked with the definite article (whether it is [± animate]), it must be preceded by *ʔet*. This is illustrated in examples (6)–(9) below. Example (6) shows that when a definite NP is preceded by *ʔet*, the resulting sentence is grammatical. In contrast, using the definite article *ha-* without the accusative
marker ʔet, yields an awkward sentence (example 7), and using the accusative marker ʔet with an indefinite direct object yields an ungrammatical sentence (example 8). However, using an indefinite direct object without the preceding accusative marker ʔet yields a grammatical sentence, as shown in example (9) below.

(6) raiʔti ʔet ha-yeled/ʔet ha-bayit
    saw-1sg-past ACC the-boy/ACC the-house
    ‘I saw the boy/the house.’

(7) ? raʔiti ha-yeled/ ha-bayit
    saw-1sg-past the-boy/ the-house
    ‘I saw the boy/the house.’

(8) *raʔiti ʔet yeled/ ʔet bayit
    saw-1sg-past ACC boy/ ACC house
    ‘I saw ACC boy/ACC house.’

(9) raʔiti yeled/bayit
    saw-1sg-past boy/ house
    ‘I saw (a) boy/house.’

The examples above suggest that in Hebrew, DOM is affected only by the definiteness of the direct object; that is, object case-marking is obligatory only with definite objects (Givón 1978). Thus, in Hebrew, pronouns, proper names and definite NPs are overtly case marked by the accusative marker ʔet, whereas indefinite NPs and indefinite pronouns are not.

In Hebrew, DOM is not triggered by animacy or by specificity. As indicated by examples (6)–(9), both animate and inanimate nouns (boy, house, respectively) have to be definite to get accusative case-marking, or indefinite not to get case-marked. Specificity does not affect case-marking in Hebrew either, as can be seen in example (11). In this example, the use of ʔet is ungrammatical when the direct object refers to a specific doctor:

(10) hu mexapes ʔet ha-rofe.
    he is-looking ACC-the-doctor
    ‘He’s looking for the doctor.’

(11) hu mexapes (*ʔet) rofe exad.
    he is-looking (*ACC) doctor one
    ‘He’s looking for a certain doctor.’

3. THE ACQUISITION CHALLENGE

3.1. Previous studies

The differential marking of objects within a given language and the diversity of factors that affect this marking pose a challenge for any language learner. Since object case-marking is differential, and not utilized in all contexts of a language, learners of DOM
languages must learn the contexts in which it is obligatory, optional, and/or excluded, as well as the meaning differences associated with the use or the non-use of this structure. As a result, it was hypothesized that DOM should be difficult both for L2 learners and for children acquiring their L1. In recent years, DOM has received considerable attention in L2 learning, bilingualism and heritage language research, most of which related to Spanish (e.g., Montrul 2004, Montrul and Bowles 2009, Guijarro-Fuentes and Marinis 2007, 2009, Killam 2011, Martoccio 2012). The findings of these studies suggest that DOM is quite difficult for L2 learners of Spanish, who demonstrate persistent errors at intermediate and even advanced levels of proficiency. As expected, the findings reveal that learners who demonstrated prior knowledge and exposure to instruction of DOM also showed higher accuracy rates than those with no prior knowledge of the structure (Martoccio 2012).

Unlike L2 research, to date, almost no published studies exist on the L1 acquisition of DOM, with the exception of Rodríguez-Mondoñedo (2008). Rodríguez-Mondoñedo examined the L1 acquisition of DOM by six Spanish-speaking children between ages 0;9–3;0, using longitudinal data from the CHILDES database (MacWhinney 2000). His findings suggest that unlike L2 learners, children who are native speakers of Spanish master DOM in their L1 very early and use it with virtually no errors.

3.2. Acquisition of DOM in Hebrew

3.2.1. Goal

In Hebrew, the use of the accusative marker is tightly related to the overt occurrence of the definite article ha-. Zur (1983) notes that Hebrew-speaking children do not use the definite article ha- at the one-word stage, not even with rote-learned words. When first used, the definite article and the accusative marker are used as frozen contracted forms, e.g., ta’sefer ‘ACC+the book’ (cf. the standard ‘et ha-sefer ‘ACC the book’). The definite article begins to appear when the child starts to combine words. Its first uses are limited to specific words or word-clusters; it is then used in subject position, and only then with a direct object which requires the use of ‘et. Levy (1988) points out that around MLU 3, the use of the accusative marker ‘et is almost error free (see also Berman 1985).

In light of the above, the goals of the present study are: (1) to describe the development of DOM in child Hebrew and to examine whether this process corroborates the findings reported by Rodríguez-Mondoñedo (2008) for Spanish; (2) to examine to what extent the development of DOM in child Hebrew adheres to Aissen’s definiteness scale. Assuming this scale to be universal, a more general question we wish to address is whether or not children have access to the semantic scales relevant to DOM from the onset of acquisition (Avram 2013).

3.2.2. Predictions

We make a number of predictions concerning the acquisition of DOM in Hebrew. First, given the developmental trajectory of the definite article and the accusative marker
described above, we predict the acquisition of DOM to proceed gradually and with few errors. Secondly, in line with Aissen (2003), it is predicted that direct objects, which are higher in prominence in Hebrew, will also be the objects initially case-marked by the children. And finally, we predict that Hebrew-speaking children will adhere to the cut-off point of DOM in their language, and will case-mark definite rather than indefinite objects.

3.2.3. Method

The present study analyzes naturalistic speech samples of three Hebrew-speaking girls, between ages 1;5 – 3;0. The girls were audio-recorded by their mothers, who were linguistics students at Tel Aviv University at the time of recording. They were recorded in their homes every 10-14 days, in spontaneous interactions with their parents and siblings. Recordings were done at various settings (storytellings, meal time, play time, etc.). Each session was approximately one hour long. Information about the girls and transcripts is given in Table 1.

<table>
<thead>
<tr>
<th>Name</th>
<th>Age range</th>
<th>MLU range</th>
<th>Nr of transcripts</th>
<th>V-containing utterances</th>
<th>Nr of overt DO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lior</td>
<td>1;5 – 2;9</td>
<td>1.0 – 3.5</td>
<td>32</td>
<td>1,684</td>
<td>403</td>
</tr>
<tr>
<td>Smadar</td>
<td>1;6 – 2;4</td>
<td>1.5 – 4.5</td>
<td>16</td>
<td>1,687</td>
<td>401</td>
</tr>
<tr>
<td>Hagar</td>
<td>1;7 – 2;9</td>
<td>1.6 – 3.6</td>
<td>32</td>
<td>1,342</td>
<td>406</td>
</tr>
</tbody>
</table>

The recordings were transcribed, coded and analyzed using CHILDES with adaptations to Hebrew (MacWhinney 2000, Uziel-Karl 2001). All verb containing utterances in the girls’ data were isolated and transitive verbs with overt direct objects were coded for object case-marking. Table 2 lists the coding categories: (1) Obligatory contexts for DOM in Hebrew – definite NPs, object pronouns and proper names; (2) non-DOM contexts in Hebrew – indefinite NPs, onomatopoeia, indefinite pronouns and quantifiers; (3) unintelligible DOM contexts, e.g., the accusative marker is followed by an unintelligible word; (4) DOM errors, e.g., a proper name is not preceded by an accusative marker.

Quantitative analyses were performed on each girl’s database as a whole, and the findings for the three girls were compared to each other to identify general versus individual trends. In addition, DOM was examined developmentally (month-by-month analysis) in each girl’s database to detect shared versus individual developmental patterns. These analyses were supplemented by a qualitative analysis of the errors performed by each girl.
Table 2
Coding Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Example</th>
<th>English gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obligatory contexts for DOM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC DET N</td>
<td>ʔet ha-tik</td>
<td>ACC the-bag</td>
</tr>
<tr>
<td>ACC PRO</td>
<td>oti</td>
<td>(ACC-I) = me</td>
</tr>
<tr>
<td>ACC PROP N</td>
<td>ʔet Donald Duck</td>
<td>ACC Donald Duck</td>
</tr>
<tr>
<td>N</td>
<td>oniya, agvania</td>
<td>ship, tomatto</td>
</tr>
<tr>
<td>ONO</td>
<td>hav-hav</td>
<td>wof-wof</td>
</tr>
<tr>
<td>PRO</td>
<td>mashehu</td>
<td>something</td>
</tr>
<tr>
<td>QUANTIFIER</td>
<td>ha-kol, kama, od exad</td>
<td>everything, some, one more</td>
</tr>
<tr>
<td>Unintelligible utterances</td>
<td>ʔet ha-XXX</td>
<td>ACC the-XXX</td>
</tr>
<tr>
<td>UC</td>
<td>*han</td>
<td>han (not a word in Hebrew)</td>
</tr>
<tr>
<td>*(ACC) PROP N</td>
<td>∅ Arik</td>
<td>∅ Arik</td>
</tr>
<tr>
<td>DOM errors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*(ACC DET PROP N</td>
<td>ʔet ha-Arik</td>
<td>ACC the-Arik</td>
</tr>
<tr>
<td>*(ACC DET) N</td>
<td>∅ tik</td>
<td>∅ bag</td>
</tr>
</tbody>
</table>

3.2.4. Results

Figure 1 displays the distribution (in percentages) of direct objects which are case-marked versus direct objects which are not case-marked, out of the total number of overt direct objects for each girl (Lior, N = 403; Smadar, N = 401; Hagar, N = 406). Figure 1 shows that, overall, Smadar uses considerably more overt case-marked direct objects (over 60%) than Lior and Hagar (slightly over 40% and 30%, respectively).

Figure 2 displays the distribution (in percentages) of the different types of direct objects that are case-marked out of all case-marked direct objects for each girl (Lior, n = 156; Smadar, n = 224; Hagar, n = 112).

2 The following abbreviations are used in Table 2: ACC – Accusative; DET – determiner; PRO – pronoun, N – noun, ONO – onomatopoeia; PROP N – proper name; UC – unclear or unintelligible form.
Figure 2 shows that personal pronouns and definite NPs constitute approximately 90% of all case-marked direct objects in the girls’ data, considerably more than proper names. A comparison between the three girls reveals that Lior and Hagar use slightly more personal pronouns and less definite NPs than Smadar.

Figures 3–5 display developmental data for each one of the girls. The three figures show the distribution (in percentages) of case-marked objects in the data of each girl by age. In the figures, the darkest gray bars indicate the percentage of definite NPs, the lighter gray bars – the percentage of proper names, and the lightest gray bars – the percentage of object pronouns.

Figure 3 shows the distribution of case-marked direct objects by type and age, out of all overtly case-marked direct objects in Smadar’s data (n = 224).

Figure 3 shows that initially, Smadar has very few case-marked direct objects. This is due to the fact that early on she uses mainly bare verbs. Smadar’s early case-marked objects include proper names and case-marked demonstrative pronouns (‘et ze ‘ACC-this’).
which initially tend to be acquired as unanalyzed frozen expressions (Berman 1985). Over
time, Smadar increases the number of case-marked categories in her data (object pronouns
and definite NPs) as well as the number of case-marked objects (tokens) in each category.

Figure 4 shows the distribution of case-marked direct objects by type and age, out of
all overtly case-marked direct objects in Lior’s data (n = 156).

Figure 4 indicates that for a number of months, the only case-marked objects that
Lior uses are object pronouns. Gradually, she increases the number of case-marked
pronouns and case-marked definite NPs. Around the same time (age 2;2), she starts
producing case-marked proper names, although to a much lesser extent. Earlier occurrences
of definite NPs and proper names (around age 2;0) appear without overt case-marking.

Figure 5 shows the distribution of case-marked direct objects by type and age, out of
all overtly case-marked objects in Hagar’s data (n = 112).
Figure 5 shows that all of Hagar’s early case-marked direct objects are pronouns. Around age 2;0, she starts producing case-marked definite NPs, and later case-marked proper names as well. Hagar, too, increases the number and types of case-marked objects over time.

A comparison of the findings in Figures 3-5 suggests that all three girls start out by producing a single type of case-marked direct object – the object pronoun, which they go on using for a period of several months. Object pronouns seem to be a preferred option for the onset of DOM in Hebrew, since in this language they are morphologically related to ʔet, i.e., a morpho-phonological variation of inflected ʔet (e.g. ʔet ani = ʔotiti ‘ACC-I = me’, ʔet hu = ʔotito ‘ACC-he = him’, etc.), so there is no way of separating the case properties of these pronouns from the general properties of ʔet in order to determine whether case assignment is done productively. Based on the acquisition trajectory reported for Hebrew (Berman 1985, Zur 1983), the early use of case-marked object pronouns is assumed to be non-productive. Subsequent DOM elements include definite NPs and proper names. Over time, all three girls exhibit a gradual increase in the number of DOM categories and in the number of case-marked objects in each category.

A qualitative analysis of the case-marked elements in the girls’ data reveals the following: (1) pronouns – initially, the girls use only a limited number of case-marked pronouns – the demonstrative ʔet ze ‘ACC-this’ and the object personal pronouns – ʔoto ‘him’, ʔoti ‘me’ and ʔotam ‘them’; (2) proper names – initially, the girls case-mark their own names, names of siblings and friends and names of familiar Sesame Street characters; (3) definite NPs – early case-marked definite NPs include words for commonly used objects such as bakbuk ‘bottle’, smixa ‘blanket’, furniture-mita ‘bed’, games-harkava ‘puzzle’, food-agvaniya ‘tomato’, as well as animal names like xatul ‘cat’ and kelev ‘dog’.

3.2.5. Error Analysis

Throughout development, the three girls produced very few errors relating to DOM (approximately 6% of all DOM contexts, with the exclusion of unintelligible words in
direct object position). A qualitative analysis of the data reveals three major types of errors, as listed in the following examples:

(12) **Missing [definite article + ACC marker] in obligatory contexts**
    a. kax ∅ teyp
       ‘Take tape.’ (Smadar 1;7)
    b. sim mita ∅ sus
       put bed ∅ horse
       ‘Put ∅ horse on the bed.’ (Smadar 1;7)
    c. tisgeri ∅ xalon
       close ∅ window
       ‘Close ∅ window.’ (Smadar 2;2)

(13) **Missing ACC marker in obligatory contexts**
    a. lexapes ∅ Arik
       to search ∅ Arik
       ‘to search for Arik’ (Smadar 1;10)
    b. lignov ∅ bimba ha-ktana
       to steal ∅ bimba [toy car] the little
       ‘to steal the little toy car’ (Smadar 1;10)
    c. ani lokaxat gam ∅ Rolf
       I am taking-fm-sg also ∅ Rolf
       ‘I am taking Rolf, too.’ (Smadar 1;11)
    d. lehavi ∅ ha-kubiyyot
       to bring ∅ the blocks
       ‘to bring the blocks’ (Smadar 2;0)

(14) **Using [a definite article + ACC marker] in non-obligatory contexts**
    a. Ani sama ∅ ha-kaze
       I am putting ACC the this-kind
       ‘I am putting this.’ (Smadar 1;11)
    b. axshav ani e’eset ∅ ha-hit’amlut
       now I will do ACC the gymnastics
       ‘Now I will do the gymnastics.’ (Smadar 2;2)

The sentences in (12) exhibit cases in which the conversational context requires the use of a case-marked definite NP, but the child omits both the definite article and the accusative marker, using a bare noun in direct object position. These sentences could have been interpreted as including an indefinite NP, and hence as grammatical without the missing markers, but an examination of the conversational context in which these utterances were used suggests that the direct objects ‘window’, ‘tape’ and ‘horse’ were known to the child and caretaker, and that the child made reference to a particular window, tape and horse, which had to be definite and case-marked given this shared knowledge. The examples in (13) exhibit cases where the accusative marker is missing in obligatory
contexts – before proper names (Arik, Rolf), and before a definite NP (the blocks). The sentences in (14) exhibit examples where the child overgeneralized the use of the definite article and accusative marker to grammatical contexts where they are not obligatory (only 3 instances in Smadar’s data), e.g. with demonstrative pronouns and with generic NPs that could be used as indefinite (much like *I am making the noise instead of I am making noise). As noted above, the overall error rate found in the girls’ data is negligible (Smadar: N = 20; Lior: N = 7; Hagar: N = 5), suggesting that the use of DOM is almost flawless.

4. CONCLUSIONS

The present study examined the development of DOM in child Hebrew in the light of research on the L1 and L2 acquisition of this phenomenon in different languages. The findings point to a gradual development of DOM whereby initially, the girls use a small set of specific early case-marked objects non-productively (the very early forms seem to be rote-learned). Productive use of DOM begins around age 2;0 or shortly thereafter, as evident from the expansion in the number of case-marked categories (pronouns, proper names, definite NPs) and in the number of case-marked objects within each category.

The findings also suggest that Hebrew-speaking children correctly case-mark definite direct objects, i.e., definite NPs, proper names and object pronouns while refraining from marking indefinite NPs and indefinite pronouns. Hebrew-speaking children also seem to be attentive to the means used for DOM in their L1, i.e., the accusative marker ŋet (preceding the definite article ha-) and use it correctly. Thus, DOM in child Hebrew is almost flawless, corroborating the findings reported by Rodríguez-Mondoñedo (2008) for the L1 acquisition of DOM in Spanish. The general order of emergence of DOM categories in the girls’ production data broadly follows the definiteness hierarchy proposed by Aissen (2003) in giving precedence to case-marking definite pronouns over definite NPs (except in Smadar’s data, where case-marking of both definite pronouns and proper names precedes the case-marking of definite NPs). Danon (2001) notes that unlike definite NPs which are only syntactically definite, proper names and pronouns are syntactically as well as semantically definite. Thus, the fact that these types of objects are case-marked rather early in the acquisition process might suggest that children have access to the semantic features relevant to DOM from very early on, and perhaps even that semantic features have precedence over syntactic features in the acquisition of this phenomenon.

Finally, it is essential to examine the acquisition of DOM in additional typologically related as well as non-related languages, in order to determine the extent to which DOM is affected by universal versus language particular factors and to establish the interrelations between these factors throughout the acquisition process.

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