"Reduced Words" in Highly Modular Theories:
Yiddish Anarthrous Locatives Reexamined

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1. An Embarrassment of Theoretical Riches

1.1. Reduced/Weak vs. Full/Strong

In most currently available theoretical frameworks there are several possible analyses for "reduced", or "weak", forms paired with "full", or "strong", forms. A reduced form might turn out to be any one of the following:

--an inflectional affix, only historically related to the full form. This is certainly the case for the English derivational suffix -ly, which has only a historical relationship to the full word like. A less obvious example is the English contracted negator n't, which Zwicky and Pullum (1983) argue is an inflectional suffix in modern English, though it is indubitably related historically to the full negator not.

--a clitic with a special distribution, distinct from that of the corresponding full form (a "special clitic", in the version of the terminology of Zwicky (1977) that I will use here). This is the case for a set of Serbo-Croatian weak forms including the dative personal pronouns mu (3 sg. masc./neut.) and im (3 pl.); the corresponding full forms are njemu and njima, respectively (Browne 1974, 38). Serbo-Croatian weak forms occur as clitics in "second position", which can be either after the first accented word in a clause or after the first accented constituent (Browne, 41). Full forms occur everywhere else (usually indicating emphasis or contrast)--including in isolation: Njemu? 'To him', Njima? "to them?'.

--a clitic that merely attaches to a word adjacent to the corresponding full form (a "simple clitic" in my current terminology). The English auxiliary clitics 's, 'd, and so on are simple clitics, attached phonologically to the word preceding them and serving as reduced forms of the full words is/has, had/would, and so on.

--an allomorph distributed (in part) according to syntactic context, without necessarily attaching phonologically to a neighboring word. Into this category of phenomena fall examples of "external sandhi" involving phonological reduction, for instance the reduction of the English prepositon to to [tə] when it is in construction with a following NP (as in to Pittsburgh), but not when it is stranded (as in Where to?).

1.2. Phonological Relationships

Moreover, the phonological relationship between a full and reduced form can be expressed by rules of several different sorts, at least the

following:

--a morpholexical rule, or "rule of allomorphy", distributing allomorphs
according to morphosyntactic (and perhaps also phonological) context.
Such rules account for suppletive and portmanteau variants, and for
other cases in which the appropriate analytic move is simply to assign
several morphophonemic representations to some (abstractly specified)
morpheme or sequence of morphemes. Kaisse (1983) proposes that the
alternants /hæz/ and /z/ for has, /wUd/ and /d/ for would, and so on
are distributed by such rules: /z/ is the alternant of <HAVE, PRES,
3PER, SG> appearing when this formative is a clitic, /hæz/ the
alternant appearing elsewhere; /d/ is the alternant of <WILL, PAST>
appearing when this formative is a clitic, /wUd/ the alternant
appearing elsewhere.

--a nonautomatic morphophonemic rule, deriving morphophonemic representa-
tions from morphophonemic representations. Such rules are subject to
morphosyntactic conditions, and their effect is to alter phonological
segments, rather than to "express" morphosyntactic entities. The rule
of Sanskrit sandhi that says that the two words (and only the two
words) "sas 'he' and esas 'this man' drop s before any consonant"
(Emeneau 1958, 6) is such a rule.

--an automatic phonological rule, deriving phonological representations
from phonological representations, in phonological contexts. the
(variable) rules in English deleting word-initial [h] and reducing [æ]
and other vowels to [ə], in words not bearing phrasal accent, exemplify
this type of rule. Note that one effect of these particular rules is
to supply [həd], [æd], and [əd] as variants of [hæd].

1.3. Highly Modular Theories

This descriptive embarras de richesse is to be expected in "highly
modular" theories, those positing a number of grammatically significant
modules, components, or strata. The problem in such theories is that any
particular array of facts, including those concerning the distribution of
full vs. reduced words, will initially appear to permit a large number of
analyses, involving different assignments of rules to components.

However, in highly modular theories it is usually possible to argue for
one analysis over others by appealing (a) to general characteristics of the
various types of rules, and (b) to the possible interactions between rules
of different types. A theoretical framework of interest makes a number of
specific claims about characteristics of rules and about rule interactions,
and in consequence it permits certain analyses and excludes others.

In what follows I will explore what happens if we try to adhere to the
predictions of one highly modular theory, namely the "Interface Model"
outlined by Zwicky (1982). Five components in this theory will be relevant
to my discussion of Yiddish: a component of syntax, specifying the
surface consitiuent structures of a language; a cliticization component, in
which special clitics are positioned and in which clitics, simple and
special, are attached to adjacent words (I will assume that the method of
attachment is Chomsky-adjunction), to form "phonological words"; a set of

morpholexical rules; a set of nonautomatic morphophonemic rules; and a set
of automatic phonological rules, these last three types of rules as
characterized briefly above.

As for interactional possibilities, I will make the simplest possible
assumption about these five components, namely that the rules in one
component apply, as a set, before the rules in the next component in the
list. A major result of this linear ordering of autonomous components is
that the applicability of rules in one component of the grammar can affect
the applicability of rules in a later component in the list, by feeding or
bleeding, but cannot affect the applicability of any rules in an earlier
component in the list.

2. The Yiddish Facts

Among the locative expressions of Yiddish are some lacking an overt
expression of a definite article, though they are understood definitely.
The phrase in gloz 'in the glass' is a typical example. The noun gloz in
this expression is understood definitely, and can even be anaphoric. Such
anarthrous ('article-less') locatives are therefore not parallel to the
anarthrous locative idioms of English (at school) and German (zu Hause 'at
home'), the nouns of which cannot be anaphoric. A closer comparison is to
German locative expressions with a contracted definite article, such as zum
Bahnhof 'to the [railway] station' (though the comparison here is not
perfect; see section 4 below).

I will view the Yiddish anarthrous locatives simply as extreme cases of
reduction, to zero. The question is what sort of rule, or what sorts of
rules, should be responsible for this reduction of a definite article ╱
ultimately to zero.

My presentation of the facts about locative expressions in Yiddish will
follow Hall and Hall (1970; hereafter HH), a description of "the contempor-
ary standard language" (HH, 49), though based on the judgments of one
speaker, Beatrice Hall's mother, Fannie Lincoff.

First some background about the morphosyntactic categories of Yiddish.
Yiddish has the same four cases, three genders, and two numbers as German.
We are concerned here only with the dative case, since all prepositions
govern this case. In the dative, the relevant gender distinctions are
masculine/neuter, or MN, and feminine, or F. The dative articles are

(1) dem MN Sg; der F Sg; di Pl

No gender distinctions are expressed in the plural. In any case, the
plural article di is not subject to reduction to zero; we will be concerned
only with reductions of dem and der.

In addition to gender, two other factors are relevant for article/zero
alternations. The first of these is the phonological shape of the locative
preposition with which the article is in construction; we need to disting-
uish the prepositions ending in nasals, in particular n, from those ending
in some other consonant and from those ending in a vowel:

(2) a. <u>in</u> 'in'; <u>fun</u> 'from'; <u>lebn</u> 'near'
      b. <u>af</u> 'on'; <u>unter</u> 'under'
      c. <u>bay</u> 'near, at'; <u>ҫu</u> 'to'

The other relevant factor has to do with the composition of the nominal expression following the definite article. What counts is whether this nominal consists of just a noun, without any modifiers, or whether there are modifying expressions in it:

(3) a. Unmodified: <u>almer</u> 'cupboard'; <u>gas</u> 'street'
      b. Modified: [inәm] <u>groys m feld</u> '[in the] big field';
                       [inәm] <u>feld voz iz grin</u> '[in the] field that is green';
                       [inәm] <u>feld lebn park</u> '[in the] field near the park'

The full range of facts can now be illustrated, first for unmodified nouns (in (4)), and then for modified nouns (in (5)). Within each set I give, first, expressions involving MN nouns like <u>almer</u>, <u>feld</u>, <u>park</u>, <u>bet</u> 'bed', <u>hoyz</u> 'house', and <u>ekgas</u> 'corner'; and then expressions involving F nouns like <u>gas</u>, <u>tir</u> 'door', <u>ṣtot</u> 'city', <u>ṣul</u> 'school', and <u>hant</u> 'hand'. Within one gender, I first give cases with <u>n</u>-final prepositions, then cases involving prepositions ending in other consonants, then cases involving prepositions ending in vowels

(4) a. i.   <u>in almer</u>, <u>in feld</u>, <u>fun bet</u>, <u>lebn park</u>
         ii. <u>afn almer</u> (= <u>af dem almer</u>)
        iii. <u>baym hoyz</u> (= <u>bay dem hoyz</u>)

      b. i.   <u>in gas</u>, <u>lebn tir</u>, <u>fun ṣtot</u>, <u>in ṣul</u>
         ii. <u>af der gas</u>, <u>unter der hant</u>
        iii. <u>ҫu der ṣtot</u>

(5) a. i.   <u>inәm grinәm feld</u>, <u>inәm feld lebn park</u>
         ii. <u>afn grinәm feld</u>
        iii. <u>baym groysn bet</u>

      b. i.   <u>in der ṣul afn ekgas</u>
         ii. <u>af der gas lebn ṣul</u>
        iii. <u>bay der ṣul in ṣtot</u>

In (4) the article <u>dem</u> appears as zero, <u>n</u>, and <u>m</u>, while the article <u>der</u> alternates between zero (after <u>n</u>-final prepositions) and its full form (otherwise). In (5) <u>dem</u> appears as <u>әm</u>, <u>n</u>, and <u>m</u>, while <u>der</u> maintains its full form throughout. In tabular form:

	N	C	V	
MN	Ø	<u>n</u>	<u>m</u>	Unmodified
F	Ø	<u>der</u>	<u>der</u>	
MN	<u>әm</u>	<u>n</u>	<u>m</u>	Modified
F	<u>der</u>	<u>der</u>	<u>der</u>	

3. The HH Analysis

The analysis suggested by HH has a core of four rules, preceded by a Rule A that marks objects of prepositions with the dative case, and followed by syntactic rules affecting relative clauses. Their Rules B through E are reformulated below; note that the rules are supposed to apply in the order given.

B. i. dem is realized as m after a [-cons] segment,
                as ǝn otherwise;

  ii. der is realized as ǝn after a [+nas] segment,
      if the article is followed by an NP-final N.

C. Reduced articles become clitic to a preceding preposition.

D. i. The clitic definite article ǝn is realized as ǝm when it
     follows a [+nas] segment and precedes N followed by S.

  ii. Otherwise, it is reduced to n.

E. nn is reduced to n.

3.1 The HH Rules by Type

Let me simply suppose that these rules achieve their intended ends. Now consider how to classify each rule according to the scheme in section 1.3 above, in which a rule is syntactic, cliticizing, morpholexical, nonautomatic morphophonemic, or automatic phonological.

--Rule B distributes phonological forms for the dative definite articles according to their context. Since it is very difficult to see the realization of dem/der as ǝn as a phonological operation, Rule B seems fairly clearly to be a morpholexical rule.

--Rule C is a cliticization rule.

--Rule D has the effect of replacing a clitic definite article ǝn by ǝm, in a context that is partly phonological, partly syntactic; and of deleting the ǝ of this ǝn in all remaining contexts. The rule therefore effects phonological operations, but not automatic ones. It is a nonautomatic morphophonemic rule.

--Rule E, a degemination, is clearly an automatic phonological rule.

3.2 Ordering Problems in the HH Analysis

I now observe that at least four aspects of this analysis run counter to the component interaction assumptions outlined in section 1.3.

First, Rule B, a morpholexical rule, is ordered before Rule C, a cliticization rule. HH require this ordering to get B to feed C; B reduces

articles, and C applies only to reduced articles. But the scheme in section 1.3 requires that cliticizations precede morpholexical rules.

Second, Rule C, a cliticization rule, is ordered before the relative clause rules of Yiddish. This is a consequence of two other ordering assumptions, Rule C ordered before Rule D (cliticization before morpho- phonemics, just as the Interface Model would require) and Rule D ordered before the relative clause rules (which I will examine in the next paragraph). The ordering of C before D is needed in HH's treatment because D applies only to clitic ən; C creates the structure to which D applies. In any event, the ordering of C before the relative clause rules is the opposite of the ordering required by the scheme in section 1.3.

Third, Rule D, a nonautomatic morphophonemic rule, is ordered before the relative clause rules. HH require this ordering because "modified noun" figures in the context of Rule D and they pick out modified nouns by looking for a noun followed by a clause. If the relative clause rules applied first, they would transform the single N+S structure into three alternatives, N+S (feld voz iz grin), N+PP (feld afn eckgas), and A+N (grinəm feld); then modified nouns could be picked out, it seems, only by an unrevealing disjunction of contexts. But the scheme in section 1.3 requires that syntactic rules, such as those affecting relative clauses, precede phonological rules of any sort, including nonautomatic morpho- phonemic rules.

Fourth, the appearance of an "unmodified N" condition in Rule Bii means that Rule B, a morpholexical rule, must also be ordered before the rules affecting relative clauses, which are syntactic. But the scheme in section 1.3 requries that syntactic rules precede morpholexical rules.

3.3 Sources of Problems

The HH analysis of Yiddish anarthrous locatives was formulated about 15 years ago, when issues of modularity were not as prominent as they are today--indeed, when Generative Semantics, with its assumption that no potential interaction between rules of different types was to be ruled out in principle, was gaining currency. The Halls saw quite clearly (56-7) that their analysis required that morphophonemic rules apply pre-cyclical- ly; what is not so clear is whether they viewed the "problem in rule ordering" they referred to in their title as a blow to the foundations of grammatical theory (as I would be inclined to see it today), or as motivation for adopting the "one giant homogeneous component" Generative Semantics view.

It would scarcely be fair to castigate the Halls for failing to be prescient about developments in grammatical theory. The problems listed in the previous section must nevertheless be taken seriously now, in the context of the Interface Model and other highly modular theoretical frameworks. Two crucial assumptions give rise to these problems.

The first crucial assumption is that unmodified and modified nouns should be distinguished from one another by reference to an early stage in transformational derivations.

But almost no transformational grammarian would now derive adjectives modifying nouns by reduction of predicative relative clauses, so that the HH proposal to identify "modified N" as "N in construction with S" would no longer be available to most analysts. Fortunately, this is not the only way to generalize over nominals of the form A+N, N+S, and N+PP as against nominals of the form N. Surface constituent structure can be referred to directly to distinguish the two types of nominals, so long as Nom(inal) is a constituent, dominated by NP and dominating N. Given this relatively uncontroversial assumption about the constituent structures of Yiddish (and German and English), then "modified N" is simply "N that is not the only daughter of Nom.".

The second crucial assumption is the dem and der should alternate with zero by virtue of a series of reductions, of the form: dem/der -> ən -> n -> ∅. The weak link in this chain of reductions is the first.

This link is weak because the output at this stage, ən, is not an actually occurring alternant of dem or der, but rather is an intermediate representation hypothesized as a source for both əm and n. Note that a morpholexical rule is required at this initial point in the chain; the question then is why the zero alternant (or an n alternant that would automatically be subject to degemination) should not be directly derived by such a morpholexical rule. And if the zero or n alternant is derived directly, then the nasty ordering of a morpholexical rule before a cliticization rule is no longer necessary.

HH (54) provide some defense for ən as an intermediate stage in the derivation of əm and n: They cite a parallel alternation in the form of adjective endings, an alternation in the masculine genitive/dative/accusative and neuter genitive/dative morph, which is realized as əm after stems ending in a nasal and as n otherwise. They hypothesize a nonoccurring form ən as the basic representation, presumably by a kind of triangulation from the phonological shapes of the two actual alternants. But this analysis itself is quite shaky; n is clearly the "elsewhere" alternant and could easily be taken as the basic allomorph, with əm derived from it by a morphophonemic rule. In any case, I can see no satisfactory way to collapse the alternation between n and əm in adjective forms with the similar alternation in reduced definite articles; the latter alternation is contingent on the modified/unmodified distinction, but the former is not.

A moment's reflection on the forms in the table of section 2 should suggest that the zero alternant of dem after a prepositon ending in n is surely the historical outcome of reduction, assimilation, and degemination, and that the extension of this zero alternant to the other dative definite article, der, was analogical. The HH analysis does not attempt to recapitulate all the steps in this historical development (Rule B, in particular, is not a direct reflection of a historical change), but it does make some effort to break down the ultimate reduction to zero into steps. My suggestion is that there should be no special preference for stepwise reductions in morphophonology; and if such stepwise reductions would run counter to a

general component interaction assumption, then they must be rejected, so
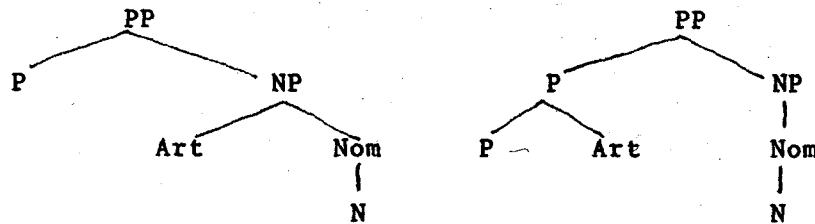long as a palatable alternative is available.

4. Alternative Analyses

As it turns out, there are several analyses, differing in a number of
details, which are consistent with the Interface Model assumptions about
component ordering. (To some extent, the choice among these alternatives
depends upon further information about Yiddish morphology and syntax that I
do not have.)

In particular, it is possible to see the reduced and zero definite
articles of Yiddish, not as clitics attached to a preceding preposition,
but rather as inflectional affixes on that preposition. Though the
corresponding contractions, or Verschmelzungsformen, of German, like the
zum of zum Bahnhof, are usually assumed to be combinations of a preposi-
tion, here zu, and a weak or clitic form of a definite article, here m
corresponding to the full form dem, it has been argued--by Hinrichs in this
volume--that the Verschmelzungsformen are actually prepositions inflected
for case and number (and of course definiteness).

The German and Yiddish facts are not entirely parallel, since the
German P+Art contractions lack an anaphoric use, whereas the corresponding
forms in Yiddish can be used anaphorically, as I pointed out in section 2
above. It now turns out to be important whether the Yiddish reduced forms
have deictic uses. The German contracted forms do not; as a result, the
contractions are never obligatory, the full or uncontracted forms conveying
deixis. The same is true of Yiddish (HH, fn. 3): An expression like af
dem almer (with emphasis on dem) is grammatical on a deictic reading 'on
THAT cupboard' and thus contrasts with afn almer 'on the cupboard'. It
follows that whatever rule creates "contracted forms", whether it is a
cliticization rule or a rule distributing morphosyntactic features realized
as inflections, can be general and optional.

One analysis along these lines assumes that Yiddish singular definite
articles cliticize, generally but optionally, to a preceding preposition,
yielding two types of singular definite PP's in the language:

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         PP                              PP
       /    \                          /    \
      P      NP                       P      NP
           /    \                   /   \     |
         Art    Nom              P — Art     Nom
                 |                            |
                 N                            N
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A set of morpholexical rules then "spell out" Art in P+Art combina-
tions:

--the dative MN definite article is realized as ǝm when P ends in a nasal
and the following N is modified;

--otherwise, it is realized as m when P ends in a vowel;

--otherwise, it is realized as n;

--the dative F definite article is realized as n when P ends in a nasal and the following N is unmodified.

These rules yield P+Art combinations like in+n and fun+n, which will yield in and fun by the automatic phonological rule of degemination.

I assume, finally, that a universal principle marks as ungrammatical any morphological combination that receives no phonological realization. As a consequence of this principle and the morpholexical rules listed above, the feminine definite article has a reduced form in only one context, following a P ending in a nasal and preceding an unmodified N. Since cliticization was optional, the full form der is available in all the other contexts.

This analysis is consistent with syntax before cliticization before morpholexical rules before phonology. The syntactic component provides the appropriate surface constituent structures, which are then (optionally) altered by cliticization rules, the outputs of which are the structures within which morpholexical rules assign allomorphs, the resulting strings of segments being subject to phonological rules. The analysis is roughly as complex as the HH treatment--there seems to be a fair amount of irreducible synchronic arbitrariness here--but incorporates no "problem of rule ordering".

A number of details in this analysis might be improved upon, with the exercise of some ingenuity or the infusion of further relevant data or both. I do hope to have shown that a not implausible analysis is available that is consistent with highly modular theoretical frameworks like the Interface Model.

Two final remarks. First, the Halls mention a further case in which the feminine definite article has a reduced form. They say that in "fast speech" der can reduce to n when it follows a consonant-final preposition (like af) and precedes an unmodified noun; af der gas has the "fast speech" variant afn gas. Surely it is casual and not fast speech that is relevant here; it is mind-boggling to imagine how speed of speech could reduce der to n in the context of f. What we are dealing with here is an extension, in informal style, of the morpholexical rule for clitic der: The rule is extended to provide the n allomorph, not only after nasal-final preposi-tions, but after consonant-final prepositions in general.

Second, although I do not have the space to pursue the matter here, I should point out that the references to "unmodified" and "modified" N have survived the translation from the HH analysis to mine. I believe that the modified/unmodified distinction is one of the constraining or conditioning factors that linguistic theory must make available in morphophonology, and I expect that the need for this distinction could be supported by examples from many languages other than Yiddish. It is especially notable that this distinction can be defined on the basis of surface constituent structure, so that it is available even in nontransformational theories of syntax; in fact, the distinction can be defined on the basis of individual branchings

within surface constituent structures, so that it is available even in pure phrase-structure approaches to syntax.

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