

Chapter 2

Paradigm leveling in Yiddish

A notable difference between Yiddish and German verb paradigms is that Yiddish has no vowel alternations in the present tense.¹ Whereas Middle High German (MHG) and Modern German (NHG) verbs often have vowel alternations among the singular forms (10a), or between singular and plural forms (10b), Yiddish never does (11).²

(10) MHG present tense vowel alternations

a.	‘dig’	sg.	pl.	b.	‘know’	sg.	pl.
	1st	<i>grabe</i>	<i>graben</i>		1st	<i>weiʒ</i>	<i>wiʒzen</i>
	2nd	<i>grebest</i>	<i>grabet</i>		2nd	<i>weist</i>	<i>wiʒzet</i>
	3rd	<i>grebet</i>	<i>graben</i>		3rd	<i>weiʒ</i>	<i>wiʒzen</i>

(11) Yiddish paradigms have no vowel alternations

a.	‘dig’	sg.	pl.	b.	‘know’	sg.	pl.
	1st	<i>grɔb</i>	<i>grɔbən</i>		1st	<i>veys</i>	<i>veysən</i>
	2nd	<i>grɔbst</i>	<i>grɔbt</i>		2nd	<i>veyst</i>	<i>veyst</i>
	3rd	<i>grɔbt</i>	<i>grɔbən</i>		3rd	<i>veyst</i>	<i>veysən</i>

As I will show in Section 2.1, the form that has been extended in Yiddish is always the expected 1sg form. This is a puzzle, because Bybee (1985, chap. 3) argues that it is the 3sg, not the 1sg, that is most often the ‘basic’ form in paradigms—why would Yiddish have chosen the 1sg instead? Furthermore, although this change is across the board in Yiddish, it is apparently unattested in any other German dialect, leading us to wonder: what made Yiddish so different from other, closely related languages? In this chapter, I will show that we can gain insight

¹With the term ‘Yiddish’, I am referring here exclusively to the eastern dialects of Central and Eastern Europe; I do not know if the same holds true of the western dialects of Austria, Germany, and points west, or not.

²For MHG forms, I will use the standardized orthography of Paul, Wiehl, and Grosse (1989, §§18–20), in which ^ marks long vowels, *ɛ* represents a short open [e], and *ʒ* represents a coronal sibilant fricative, possibly fortis or possibly postalveolar (Paul et al, §151). For all Yiddish examples, I will use the YIVO transliteration system (<http://www.yivoinstitute.org/yiddish/alefbeysh.htm>), with two minor modifications: I will use the IPA symbol *ɔ* instead of YIVO *o* for *kometes-aleph*, and I will use *-ən* instead of YIVO *-en/-n* for the infinitive and 1pl/3pl present tense suffix. The change of MHG short [a] > Yiddish [ɔ] reflects a regular sound change; the correspondences between MHG orthographic ⟨w⟩ and Yiddish ⟨v⟩, MHG ⟨ei⟩ and Yiddish ⟨ey⟩, MHG ⟨s⟩ and Yiddish ⟨z⟩, and MHG ⟨ʒ⟩, ⟨ʒʒ⟩ and Yiddish ⟨s⟩ are also completely regular.

into both of these questions by comparing different forms in the paradigm to see which is the “most informative”—that is, which form contains the most information about how to project the remainder of the paradigm. In section 2.2, I will show that it is in fact the 1sg form that preserves the most contrasts in Yiddish, and thus would be selected as the base form in the proposed model. Finally, in section 2.3, I will argue that the advantages of the 1sg form are unique to Yiddish, due to small but crucial differences between Yiddish and other German dialects. Thus, considering the informativeness of forms gives us insight not only into the question of why verbs were leveled to the 1sg in Yiddish, but also into why this did not occur elsewhere.

2.1 Leveling to the 1sg in Yiddish verb paradigms

As illustrated in (11) above, Modern Yiddish has no root vowel alternations in present tense paradigms (Rockowitz 1979; Katz 1987). The goal of this section is to show that in virtually all cases, it is the etymologically expected vowel of the 1sg form that has been extended to the remainder of the paradigm. In order to show this, we will consider the candidates in (12) as sources for the modern present tense stem, successively eliminating all forms except the 1sg.³

(12) Candidates for the source of the modern present tense stem:

1sg	1pl	infinitive
2sg	2pl	
3sg	3pl	/UR/

I will start with the fairly traditional assumption that the origin of Yiddish was some form of Middle High German, so it is useful to begin by considering the possible types of present tense paradigms that occurred in MHG.

2.1.1 MHG present tense patterns

Most MHG verbs had the same vowel throughout the entire present tense, with no alternations, as in (13); verbs of this type included the “strong” classes I, IIIa, and some of VII, as well as all of the “weak” verbs.⁴

(13) No alternations (Strong I, Strong IIIa, some Strong VII, all weak)

a. ‘live’	<i>lëbe</i>	<i>lëben</i>	b. ‘say’	<i>sage</i>	<i>sagen</i>
	<i>lëbest</i>	<i>lëbet</i>		<i>sagest</i>	<i>saget</i>
	<i>lëbet</i>	<i>lëben</i>		<i>saget</i>	<i>sagen</i>

³The list in (12) is a nearly comprehensive list of all of the verb forms that occur in Yiddish; the only other forms are the present participle, the stem (“shtam”), the past participle, and the imperative. The present participle and stem are always based on the infinitive, and the past participle is demonstrably not the source of the modern present tense forms. The singular imperative form is in fact always identical with the 1sg form, and could equally well have served as the base for the leveling discussed here. For expository ease, I will refer throughout this chapter to the 1sg form, but I cannot preclude the possibility that it was the singular imperative form instead.

⁴For a description of the strong and weak verb classes of MHG, see Paul, Wiehl, and Grosse 1989, chap. 7.

In another set of verbs, an *a* in the root surfaced as an *e* in the 2sg and 3sg, due to a process known as *umlaut* (14), originally conditioned by an [i] in the suffixes of these forms. This occurred in strong class VI and the remainder of strong class VII. The umlaut alternation is illustrated in (14) for the verb *graben* ‘dig’; some other common verbs with umlaut alternations included *varn* ‘travel’, *halten* ‘hold’, *lâzen* ‘let’, *laden* ‘invite’, *slahen* ‘beat’, and so on.

(14) 2sg, 3sg different due to Umlaut (*a* ~ *e*): Strong VI, some Strong VII

‘dig’	<i>grabe</i>	<i>graben</i>
	<i>grebest</i>	<i>grabet</i>
	<i>grebet</i>	<i>graben</i>

Finally, a third set of verbs showed vowel alternations between the entire singular (1,2,3sg) and the entire plural (1,2,3pl). This pattern occurred in two types of verbs. In some, the present tense derived from a Proto-Indo-European perfect, and the singular/plural alternation reflected a PIE alternation in the perfect tense (*ablaut*). These verbs are known as *preterite presents*, and are exemplified by *wiẓzen* ‘to know’ in (15a); other preterite present verbs included *kunnen* ‘can’, *durfen* ‘need’, and *suln* ‘should’. In a second set of verbs, the alternation was due to a phonological process in Old High German that raised mid vowels (*ë, ie*) to high vowels (*i, iu*) before a following high vowel, causing the singular to diverge from the plural (15b); this pattern is sometimes referred to as *Wechselflexion* (“alternating inflection”), and occurred in strong class II (*ie* ~ *iu*), as well as IIIb, IV, and V (*ë* ~ *i*). This pattern is shown in (15b) for the verb *gëben* ‘give’; other *Wechselflexion* verbs included *nëmen* ‘take’, *ëẓzen* ‘eat’, and *gieẓen* ‘pour’.

(15) Singular ~ plural alternations

a. Preterite presents	b. <i>Wechselflexion</i>
‘know’ <i>weiẓ</i>	‘give’ <i>gibe</i>
<i>wiẓzen</i>	<i>gëben</i>
<i>weist</i>	<i>gibest</i>
<i>wiẓzet</i>	<i>gëbet</i>
<i>weiẓ</i>	<i>gibet</i>
<i>wiẓzen</i>	<i>gëben</i>

2.1.2 Yiddish present tense patterns

Let us now consider the fate of each of these patterns in Yiddish. Unsurprisingly, verbs with no alternations in MHG continue to have no alternations in Yiddish, as seen in (16).

(16) Non-alternating verbs remain non-alternating in Yiddish

a. ‘live’	<i>leb</i>	<i>lebən</i>	b. ‘say’	<i>zɔg</i>	<i>zɔgən</i>
	<i>lebst</i>	<i>lebt</i>		<i>zɔgst</i>	<i>zɔgt</i>
	<i>lebt</i>	<i>lebən</i>		<i>zɔgt</i>	<i>zɔgən</i>

Umlaut alternations (1sg *grabe* vs. 2sg *grebst*) were leveled to the non-umlaut (*a*) alternant, as in (17). Thus, it appears that the base of the leveling was not the 2nd or 3rd singular, or else the modern Yiddish paradigm would have *e* throughout (*greb, grebst, grebt*, etc.). This is shown schematically in Table 2.1.

Table 2.1: Generalized form is not the 2,3sg

1sg	1pl	infinitive
2sg	2pl	
3sg	3pl	/UR/

(17) Umlaut verbs leveled to non-umlaut (*a*) alternant

'dig'	<i>grob</i>	<i>grobən</i>
	* <i>grebst</i> ⇒ <i>grobst</i>	<i>grobt</i>
	* <i>grebt</i> ⇒ <i>grobt</i>	<i>grobən</i>

This leaves a number of possible candidates for the source of the Modern Yiddish present tense vocalism: the 1sg, a plural form, the infinitive, or some abstract underlying form. Can we say anything more specific?

Considering next the preterite present verbs, we find that for these, the Yiddish present tense forms come from MHG singular forms. This is shown in (18) for the verbs *darf**ə**n* 'need' and *vis**ə**n* 'know', whose present tense forms are derived from the MHG singular forms *darf-* and *wei**z**-*, and not the plural forms *dürf-/durf-* and *wi**z**-*. Other examples include *muz**ə**n* 'must' (< MHG sg. *muo**z***, not pl. *müe**z**en*), *t**o**r**ə**n* 'must' (< MHG sg. *tar*, not pl. *türren*), and *zol**ə**n* (< MHG sg. *sol*, not pl. *süln*). (In some cases, the infinitive has also been rebuilt, while in others, the etymologically expected infinitive has been retained.)

(18) Preterite Present verbs leveled to singular

a. 'need'	sg.	pl.
1st	<i>darf</i>	* <i>dürfən</i> ⇒ <i>darfən</i>
2nd	<i>darfst</i>	* <i>dürft</i> ⇒ <i>darft</i>
3rd	<i>darf</i>	* <i>dürfən</i> ⇒ <i>darfən</i>
infin.	* <i>dürfən</i> ⇒ <i>darfən</i>	
UR	/d ür f-/, /dar f -/ ⇒ /dar f -/	
b. 'know'	sg.	pl.
1st	<i>veys</i>	* <i>visən</i> ⇒ <i>veysən</i>
2nd	<i>veyst</i>	* <i>vist</i> ⇒ <i>veyst</i>
3rd	<i>veys(t)</i>	* <i>visən</i> ⇒ <i>veysən</i>
infin.	<i>visən</i>	
UR	/v i s/, /ve y s/	

We can conclude from the fate of the preterite presents that the generalized form was not a plural form or the infinitive—in fact, most infinitives of preterite presents were also rebuilt on the basis of singular forms. Furthermore, the two MHG stem alternants (*darf-*, *dürf-*) cannot easily be reduced to a single UR, since they involve an idiosyncratic vowel alternation that is attested in only one other verb, and it is not clear how to derive *ü* from *a* or vice versa. The most promising analysis seems to be to list two alternants for these verbs (e.g., /dar**f**/, /d**ür**f/), in which case the form that was generalized in Yiddish does match one of the available MHG UR's (/dar**f**/). However, simply saying the UR has been generalized does not explain why one

UR was chosen and not the other. Putting this conclusion together with the conclusion from the umlaut verbs, we have now eliminated the 2sg, 3sg, all of the plural, the infinitive, and the UR as sources of the Yiddish present tense paradigm. Thus, it appears that the 1sg is only remaining possibility.

The data up to this point converge neatly on a single form as the source for Yiddish present tense paradigms. Unfortunately, when we turn to the *Wechselflexion* verbs (15b), the situation appears to be more complicated. From what we have seen thus far, we would expect that these verbs should generalize the vocalism of the singular (*i*), and indeed this is what we find with the verb *gebən* ‘give’:

(19) Generalized *i* throughout the paradigm: *gebən*

‘give’	sg.	pl.
1st	<i>gib</i>	* <i>gebən</i> ⇒ <i>gibən</i>
2nd	<i>gibst</i>	* <i>gebt</i> ⇒ <i>gibt</i>
3rd	<i>gibt</i>	* <i>gebən</i> ⇒ <i>gibən</i>
infin.	<i>gebən</i>	

For most MHG *Wechselflexion* verbs, however, Yiddish seems to have generalized the *e* of the plural/infinitive, as in *nemən* ‘take’:

(20) Generalized *e* throughout the paradigm: *nemən*

‘take’	sg.	pl.
1st	* <i>nim</i> ⇒ <i>nem</i>	<i>nemən</i>
2nd	* <i>nimst</i> ⇒ <i>nemst</i>	<i>nemt</i>
3rd	* <i>nimt</i> ⇒ <i>nemt</i>	<i>nemən</i>
infin.	<i>nemən</i>	

The pattern of generalized *e* is found not only in *nemən*, but also in verbs like *esən* ‘eat’ (1sg *es*, not **is*), *fargesən* ‘forget’ (1sg *farges*, **fargis*), *zeyn* ‘see’ (1sg *zey*, **zi*), *vern* ‘become’ (1sg *ver*, **vir*), *helfən* ‘help’ (1sg *helf*, **hilf*), and so on. Why do these verbs show a different pattern from all other verbs in the language? Is this an exception to generalization of the 1sg form?

I would like to argue that verbs like *nemən* and *esən* are not exceptions, but rather that these verbs already contained an *e* in the 1sg at the time that Yiddish “diverged” from other German dialects.⁵ I began this section with the assumption that Yiddish began as some form of Middle High German, as exemplified by the standard literary MHG forms in (13)-(15). However, it turns out that the history of the *Wechselflexion* in German is somewhat complicated and controversial, and it is not at all clear that the paradigm in (15) is the correct starting point for Yiddish. According to the standard account (Sonderegger 1987, pp. 146-147; Paul et al. 1989 §§31-35), *Wechselflexion* was due to a phonological process in Old High German that raised /e/ to [i] when there was a high vowel (*u*, *i*) in the following syllable. Since the singular suffixes had high vowels and the plural suffixes had mid vowels, this created an alternation between

⁵I am not making any particular commitment here as to where or when Yiddish ceased to be a sociolect of German and became a separate language, except to suppose that the two probably continued to co-evolve at least until the beginning of the Middle Yiddish period (c. 16th century), when Yiddish literature began to flourish in the east, eastward migrations trickled off, and significant east-west dialect differences emerged (Weinreich 1980, p.724-726).

raised *i* in the singular and non-raised *e* in the plural, shown in the first column of (21). In Middle High German, all suffix vowels were then reduced to schwa, eliminating the conditioning environment for *e*-raising, and making the *e~i* alternation a purely morphological difference between the singular and the plural. This pattern is found in all MHG texts until the mid-15th C (Dammers, Hoffmann, and Solms 1988, §148.4). Finally, at some point during late MHG or early NHG times, the vowel of the 1sg lowered back to *e*, probably under the influence of the umlaut pattern (1sg vs. 2,3sg, as in (14) above).⁶ First person singular forms with *e* began to occur regularly in “middle German” (Fränkisch, Thüringisch, Böhmisch, Schlesisch) some time during the fifteenth century (Paul et al. 1989, §242, note 1; Philipp 1980, p. 66), taking hold earlier in the west than in the east (Dammers, et al. 1988, §148.4). The change apparently proceeded verb-by-verb, with considerable variation between verbs and even between occurrences of the same verb in the same text (Kern 1903, pp. 47-60; Geyer 1912, §31-§32), but eventually affected all *Wechselflexion* verbs of German. This chronology is summarized in (21).

(21) The standard history of *Wechselflexion*

<i>essen</i> ‘eat’	OHG 700-1050	MHG 1050-1400	Early NHG 1400-1650	NHG 1650-present
1sg.	<i>issu</i>	<i>isse</i>	{ <i>isse, esse</i> }	<i>esse</i>
2sg.	<i>issis(t)</i>	<i>issest</i>	<i>isst</i>	<i>isst</i>
3sg.	<i>issit</i>	<i>isset</i>	<i>isst</i>	<i>isst</i>
1pl.	<i>ëssēm</i>	<i>ëssen</i>	<i>essen</i>	<i>essen</i>
2pl.	<i>ësset</i>	<i>ësset</i>	<i>esst</i>	<i>esst</i>
3pl.	<i>ëssent</i>	<i>ëssent</i>	<i>essen</i>	<i>essen</i>

What we see, then, is that the use of 1sg forms with *e* in German—either as relic forms (see fn. 6) or as 15th century innovations—predates the rise of Yiddish literature in the 16th century and the last large-scale migrations from west to east during the Thirty Years war (1618-1648). Thus, I hypothesize that Yiddish already had *e* in the 1sg of *Wechselflexion* verbs before wholesale, across-the-board paradigm leveling occurred. If this is the case, then the *e* of verbs like *nemen* and *esn* is not an exception to the generalization that leveling was to the form found in the 1sg.

I have found only three other exceptions to generalization of the 1sg in Yiddish: (1) the verb *zayn(ən)* ‘to be’ retains a suppletive paradigm, and has not undergone leveling, (2) the future auxiliary verb *velən* is derived from a conditional form, not the 1sg. present indicative, and (3) the verb *gefələn* ‘be pleasing’ is used predominantly in the 3rd person, and derives from a 3sg form (*gefelt* ‘it is pleasing’, *gefələn* ‘they are pleasing’).⁷ These exceptions are not particularly

⁶Various scholars have even suggested that 1sg forms with *e* were not pure innovations, but may actually have been relics of a much older stage of the language that survived in the spoken language or in certain dialects; for summary, see Dammers et al 1988, §148. Joesten (1931) argues persuasively that a following *u* (as in the 1sg suffix) never conditioned *e* > *i* raising at all, but that the *i* of *ich nime* and *ich isse* was actually an analogical extension of *i* from the 2,3sg. If this is the case, then it seems possible that some dialects may not have undergone this analogical change, and retained the expected *e* in the 1sg all along.

⁷This effect, in which the semantics of a word influence the direction of leveling, is discussed by Tiersma (1982) and others under the rubric of *local markedness*. It should be noted, though, that this is the only such case in Yiddish, so it may be extravagant to invoke local markedness to explain just one case. It is also possible that *gefələn* may derive from a MHG variant of *gefallen*; another example is Yiddish *fregən* ‘ask’, which derives from MHG *vrēgen*, a variant of *vragen* (Paul et al. 1989, §30). I will return to the issue of local markedness in section 4.4.3, and again in section 6.2.2.

surprising—two are extremely high frequency verbs, and the third has a restricted occurrence for semantic reasons.

In sum, for every type of MHG verb, it appears that the form originally found in the 1sg has been extended to the remainder of the paradigm in Yiddish. This leveling has been remarkably complete, affecting virtually all verbs in the language. In the next section, I will consider the question of why Yiddish paradigms were rebuilt on the basis of this, and not some other form.

2.2 The 1sg as the “optimal base” in Yiddish

2.2.1 Identifying the optimal base

Why did the 1sg have a privileged status among the forms of the present paradigm in Yiddish? In this section, I will argue that the 1sg is “maximally informative” in Yiddish, suffering from the fewest phonological neutralizations, and maintaining distinctions between as many lexical items as possible. The strategy for showing this is to examine a version of Yiddish before any paradigm leveling took place, considering which parts of the verbal paradigm would have been affected by neutralizations, and how many lexical items would have been affected in each case.

Yiddish, like German, English, and many other languages, disallows sequences of tautosyllabic obstruents with voicing disagreement ($*bs]_{\sigma}$, $*pd]_{\sigma}$, etc.). When a suffix consisting of voiceless obstruents (such as 2sg *-st*, 3sg/2pl *-t*) is added to a root ending in a voiced obstruent, the root-final obstruent is devoiced to create voicing agreement. The result is that in the 2sg, 3sg, and 2pl, the contrast between root-final voiced and voiceless obstruents is neutralized.⁸ (Shading is used here to indicate a neutralization.)

(22) Neutralization in the 2sg/3sg/2pl: voicing assimilation to suffix

	<i>libən</i> ‘to love’	<i>zipən</i> ‘to sift’
1sg	<i>lib</i>	<i>zip</i>
2sg	<i>lipst</i>	<i>zipst</i>
3sg	<i>lipt</i>	<i>zipt</i>
1pl	<i>libən</i>	<i>zipən</i>
2pl	<i>lipt</i>	<i>zipt</i>
3pl	<i>libən</i>	<i>zipən</i>
infn.	<i>libən</i>	<i>zipən</i>

This neutralization affects all obstruent pairs with a voicing contrast, of which there are seven in Yiddish (p/b , t/d , k/g , f/v , s/z , \int/ζ , $t\int/d\zeta$). A hypothesis of the current approach is that the seriousness of a neutralization depends not on the number of phonemes involved, but rather on the number of lexical items whose underlying form cannot be recovered because of

⁸A number of studies in recent years have shown that voicing neutralizations of this type may not always be complete, and that the contrast may potentially be preserved through secondary cues, such as preceding vowel length, in some languages (German, Port and O’Dell (1986, Port and Crawford (1989); Catalan, Dinnsen and Charles-Luce (1984); Russian, Chen (1970, pp. 135-137)), but not in others (Turkish, Kopkalli (1993); Italian, Baroni (1998)). I am assuming here that the neutralization caused by devoicing is complete in Yiddish; nevertheless, even if it turned out to be only a partial neutralization, it would be possible to argue that a form with no devoicing at all is still a better source of information about the underlying voicing status of final obstruents than a form with partially neutralizing devoicing.

the neutralization. In order to get an estimate of the number of verbs whose final segment would be ambiguous because of voicing assimilation, I counted the number of verbs ending in these fourteen obstruents in the German portion of CELEX (Burnage 1991).⁹ For CELEX counts, I considered only verb lemmas that had a token frequency of 1 or greater (i.e., verbs that actually occurred in the corpus), and that were not “compound”, in the sense of having a separable initial element (separable prefix, incorporated object, adverb); this left a total of 4877 verbs. As it turns out, 1988 of these end in an obstruent with a voicing contrast, meaning that approximately 41% of all verbs have an ambiguous final segment in the 2sg, 3sg, and 2pl.

Another set of neutralizations in Yiddish verbal paradigms comes from a ban on geminate consonants within a word. For example, adding the 2sg suffix *-st* to a verb ending in *s* or *z* should yield the sequence *-sst* (with devoicing of *z* to satisfy the voicing agreement requirement). However, this sequence actually surfaces as degeminated *-st*: /veys-st/ → [veyst], not *[veysst]. The result is that *s*- and *z*-final verbs are neutralized with vowel-final verbs in the 2sg, as seen in (23a). For the 3sg and 2pl forms, the suffix is *-t*, and an equivalent degemination of *tt* (fed by /d/ → [t] devoicing) applies in these forms as well (23b).¹⁰

(23) Neutralizations caused by degemination

a. Neutralization in the 2sg: devoicing of *z*, degemination of *ss*

	<i>geyn</i> ‘to go’	<i>visən</i> ‘to know’	<i>vayzn</i> ‘to show’
1sg	<i>gey</i>	<i>veys</i>	<i>vayz</i>
2sg	<i>geyst</i>	<i>veyst</i>	<i>vayst</i>
3sg	<i>geyt</i>	<i>veys(t)</i>	<i>vayst</i>
1pl	<i>geyən</i>	<i>veysən</i>	<i>vayzən</i>
2pl	<i>geyt</i>	<i>veyst</i>	<i>vayst</i>
3pl	<i>geyən</i>	<i>veysən</i>	<i>vayzən</i>
infin.	<i>geyən</i>	<i>visən</i>	<i>vayzən</i>

b. Neutralization in the 3sg/2pl: devoicing of *d*, degemination of *tt*

	<i>faltən</i> ‘to fold’	<i>falən</i> ‘to fall’	<i>redən</i> ‘talk’
1sg	<i>falt</i>	<i>fal</i>	<i>red</i>
2sg	<i>fal(t)st</i>	<i>falst</i>	<i>retst</i>
3sg	<i>falt</i>	<i>falt</i>	<i>ret</i>
1pl	<i>faltən</i>	<i>falən</i>	<i>redən</i>
2pl	<i>falt</i>	<i>falt</i>	<i>ret</i>
3pl	<i>faltən</i>	<i>falən</i>	<i>redən</i>
infin.	<i>faltən</i>	<i>falən</i>	<i>redən</i>

⁹Ideally, we would really like to make these counts on a lexicon of Middle Yiddish, but this does not exist in searchable form, and counts from Modern German form a reasonable approximation. There are certainly numerous lexical differences between the verbal vocabularies of Yiddish and German, and even some phonological ones—for example, Yiddish has some verb roots ending in [dʒ], which is absent in German, and it has a fair number of roots ending in [v], which is quite rare in German. However, the bulk of common Yiddish verbs are shared with German, and there is no reason to believe that the lexical differences would significantly alter the proportion of major classes like obstruent-final verbs, strident-final verbs, etc.

¹⁰This degemination was common already in MHG (Paul et al., §53d): *valt* or *valtet* ‘fold-3sg’. Modern Yiddish has obligatory degemination, while Modern German has obligatory epenthesis.

How many lexical items would be affected by these neutralizations? The voicing neutralization of *s/z* and *t/d* was already included in the count for voicing assimilation above, but degemination means that vowel-final roots are also ambiguous in these forms—an additional 227 words in CELEX, or 5% of the verbal vocabulary.

So far, we have examined neutralizations in forms with obstruent suffixes—the 2sg, 3sg, and 2pl. Turning to the 1pl, 3pl, and infinitive forms, the suffix for all of these forms is *-ən*. Since this suffix is vowel-initial, and Yiddish allows vowels to occur in hiatus, it does not give rise to illegal sequences that can trigger assimilation or deletion, with one exception: if the verb root ends in a schwa (e.g., *pərə-* ‘fiddle with’) then the 1pl/3pl/infinitive form ends simply in *-ən*, and not **-əən*. This reduction of /əə/ to [ə], motivated by a ban on long schwa (**[ə:]*), means that in these forms, schwa-final verbs are neutralized with non-schwa-final verbs.¹¹ This is shown in (24) for the minimal pair *pər-ən* ‘to match’ vs. *pərə-n* ‘to fiddle with’.

(24) Neutralizations in the 1pl/3pl/infinitive: stem-final /ə/

	<i>pərən</i> ‘to match’	<i>pərən</i> ‘to fiddle with’
1sg	<i>pər</i>	<i>pərə</i>
2sg	<i>pərst</i>	<i>pərəst</i>
3sg	<i>pərt</i>	<i>pərət</i>
1pl	<i>pərən</i>	<i>pərən</i>
2pl	<i>pərt</i>	<i>pərət</i>
3pl	<i>pərən</i>	<i>pərən</i>
infin.	<i>pərən</i>	<i>pərən</i>

How serious is this neutralization? German does not have schwa-final verbs, so it is impossible to use CELEX to estimate the number of lexical items that would be affected by it. Instead, I took a sample from Weinreich (1990), counting all of the verbs beginning with [l]. (This segment was chosen to avoid skewing the sample by including uniquely Slavic onsets like *shtsh-* or *tl-*, or characterically Hebrew onsets like *mə-*; words beginning with [l] seem to come from Germanic, Slavic, and Hebrew in representative proportions.) Of the 90 verbs beginning with [l], 9 of them (10%) have stem-final ə. Thus, a contrast that is seen in a significant portion of the Yiddish verbal vocabulary is neutralized in the 1pl/3pl/infinitive forms.

As with other neutralizations, it is worth considering whether the presence of stem-final schwa is truly neutralized in the 1pl/3pl/infinitive forms, or whether it could be predicted using secondary cues. In casual speech in many dialects, the schwa of the *-ən* suffix may be lost, resulting in a syllabic nasal agreeing in place with a preceding consonant: [libən] ~ [libm] ‘love-1pl/3pl/inf.’. This process affects suffix schwas, but not stem-final schwas—meaning that verbs with stem-final schwa could possibly be distinguished by lack of a schwa-less variant (*pərən/pərŋ* ‘match’ vs. *pərən/*pərŋ* ‘fiddle with’). This difference would be rather poor evidence about the status of final schwas, however. First, it requires distinguishing a syllabic nasal from a schwa-nasal sequence, which is not always easy to do, particularly after consonants other than stops. Furthermore, this form is only informative if it is determined to end in a syllabic nasal; if it ends in *-ən*, no conclusion can be drawn. Finally, reduction of *-ən* to syllabic

¹¹The same holds true if we assume that the [ə] of the infinitive suffix is epenthetic, and not part of the suffix itself. In this case, the problem is that we do not know if a surface [ən] sequence is the result of adding *-n* to a root that ends in schwa, or of adding *-n* to a root that ends in a consonant and inserting a schwa by epenthesis.

-n does not seem to occur in all environments. This is reflected in some fashion in the YIVO orthography, which uses *-en* after *m*, *n*, *ng*, *nk*, and syllabic *l*, but *-n* elsewhere. In practice, the reduction is probably not as categorically restricted as the orthography implies, but occurs most often after stops, least often after vowels, and so on. Therefore, we would be able to use the 1pl/3pl/infinitive form to infer a lack of final schwa for at best only a subset of verbs in the language.

Another potentially relevant fact is that virtually all schwa-final verbs come from Slavic or Hebrew (e.g., *lyubə-n* ‘caress’, from Russian/Ukrainian *lyubit* ‘love’; *taynə-n* ‘claim’, from Hebrew *ta’anā* ‘claim’).¹² If a speaker could identify a verb as non-Germanic, perhaps by recognizing that it contains a sequence that is illegal in German (such as *lyubən* ‘caress’, *pyeshthən* ‘caress’, *tliən* ‘smolder’, *strashən* ‘threaten’), there is a much higher likelihood that it will have a stem-final schwa.¹³ In addition, there are two derivational suffixes with final schwa: the verbal suffix *-eve* (e.g., *ratevə-n* ‘rescue’, *zhalevə-n* ‘use sparingly’, *bushevə-n* ‘rage’), and the mimetic suffix *-ke* (e.g., *shushkə-n* ‘whisper’, *hafkə-n* ‘bark’, *kvakə-n* ‘quack’, *bekə-n* ‘bleat’, *khryukə-n* ‘grunt’). These suffixes contribute a large number of schwa-final verbs, and if a verb ends in *-kən* or *-evən*, it is extremely likely to have final schwa. These two facts make it somewhat easier to guess whether a new word should behave like *pər-ən* ‘match’ or *pərə-n* ‘fiddle with’, but it is still far from predictable. Indeed, in addition to *pər-ən* vs. *pərə-n*, there are a number of other minimal or near-minimal pairs with and without schwa, including *bray-ən* ‘brew’ vs. *brayə-n* ‘talk endlessly’, *blank-ən* ‘gleam’ vs. *blənkə-n* ‘stray’, *kvetsh-ən* ‘squeeze’ vs. *kvitshə-n* ‘squeak’, and so on. The upshot is that although it may be possible to guess about the status of a final schwa in some cases, it would still be easier and more accurate to choose a form that shows it unambiguously, such as a singular form or the 2pl.

The neutralizations discussed so far would have affected forms with overt suffixes—that is, all forms except the 1sg. The 1sg form would not have been subject to such severe neutralizations, because Yiddish had no phonological processes affecting segments in stem-final position.¹⁴ This is not to say that the 1sg would have been completely free from neutralizations, however; in fact, there are two properties of verbs that could not have been predicted from the 1sg form alone. Umlaut verbs like *fərən* would have had the same vowel (ɔ) as non-umlaut verbs like *pərən* in the 1sg, and preterite present and *Wechselflexion* verbs would likewise have

¹²Weinreich does list some Germanic words with stem-final schwa, such as *veyə-n* ‘blow’ and *knurə-n* ‘snarl’; cf. German *wehen*, *knurren*. Lass (1980) cites Mieses (1924) in identifying also *zeyə-n* ‘sow’ and *kreyə-n* among this group, although Weinreich lists both as having free variation (e.g., *zeyə-n/zeyə-n*). One might imagine that these are isolated relics of a time when MHG endings had *e* (*wehet*, *knurret*), but curiously, they seem to involve stems ending in *r* and *h*, which were among the first environments for syncope of *e* in final syllables (Paul et al. 1989, §53, §240). I have no explanation for how these verbs came to have stem-final schwas in Yiddish.

¹³The problem of how speakers identify members of separate lexical strata is a general one in phonology; see Itô and Mester (1995, Itô and Mester (2002) for a discussion of the different phonotactics for different lexical strata in Japanese. Lass (1980) claims that identifying non-Germanic words in Yiddish based on general phonological properties is a “non-starter” (p.263), based on the fact that there are no systematic differences in their stress patterns. Presumably, he does not consider the possibility of using certain phonemes or phoneme clusters as indicators of non-Germanic status because they do not work 100% of the time; there are plenty of non-Germanic words that by chance happen to be composed of elements that are legal in the Germanic part of the lexicon. We might, however, for the sake of argument suppose that speakers could identify at least a subset of the verbs of Slavic origin, and use this to help predict the occurrence of final schwa.

¹⁴It appears that an earlier stage of Yiddish did have final devoicing, but this was lost early on in most dialects; see Sapir (1915), Kiparsky (1968), Sadock (1973), and King (1980) for discussion.

been indistinguishable from non-alternating verbs in this form. A crucial difference from the neutralizations discussed above, though, is that umlaut, preterite present, and *Wechselflexion* verbs would have been ambiguous with some non-alternating verb not only in the 1sg, but in *every* part of the paradigm. (Recall that we are considering here a version of Yiddish prior to paradigm leveling, in order to try to predict the base of the subsequent leveling; in actual Modern Yiddish, all of these verbs have uniform paradigms (17-20).) The shading in (25) shows that in some parts of the paradigm, these verbs resembled the non-alternating verbs in the middle column, while in other parts of the paradigm, they resembled those in the final column.

(25) Neutralizations that include the 1sg (pre-leveling forms)

a. Umlaut verbs neutralized with non-umlaut verbs

	<i>fʁən</i> ‘to travel’	<i>pʁən</i> ‘to match’	<i>hern</i> ‘to hear’
1sg	<i>fʁ</i>	<i>pʁ</i>	<i>her</i>
2sg	<i>ferst</i>	<i>pʁst</i>	<i>herst</i>
3sg	<i>fert</i>	<i>pʁt</i>	<i>hert</i>
1pl	<i>fʁən</i>	<i>pʁən</i>	<i>hern</i>
2pl	<i>fʁt</i>	<i>pʁt</i>	<i>hert</i>
3pl	<i>fʁən</i>	<i>pʁən</i>	<i>hern</i>
infin.	<i>fʁən</i>	<i>pʁən</i>	<i>hern</i>

b. Preterite presents and *Wechselflexion* neutralized with non-alternating verbs

	<i>visən</i> ‘to know’	<i>heysən</i> ‘to order’	<i>vishən</i> ‘to wipe’
1sg	<i>veys</i>	<i>heys</i>	<i>vish</i>
2sg	<i>veyst</i>	<i>heyst</i>	<i>vishst</i>
3sg	<i>veys(t)</i>	<i>heyst</i>	<i>visht</i>
1pl	<i>visən</i>	<i>heysən</i>	<i>vishən</i>
2pl	<i>vist</i>	<i>heyst</i>	<i>visht</i>
3pl	<i>visən</i>	<i>heysən</i>	<i>vishən</i>
infin.	<i>visən</i>	<i>heysən</i>	<i>vishən</i>

Since these neutralizations affect all parts of the paradigm equally and do not favor any particular choice of base, it is perhaps unnecessary to count the number of lexical items involved. It may be noted, however, that compared with the neutralizations discussed above, these would have affected only a very small number of words. In MHG, umlaut occurred in only in a handful of verbs, mostly in the strong classes VI and VII; it is difficult to get a comprehensive list of all MHG umlaut verbs, but there were perhaps less than two dozen altogether (Paul et al. 1989, §§ 251-253). Added to these were about a dozen preterite present verbs (§§ 269-275) and around 70 verbs in the *Wechselflexion* classes (IIIa, IV, and V; §§ 247-250), for a total of around 2% of the verbal vocabulary.

The combined effect of these neutralizations is summarized in Table 2.2, which shows the proportion of lexical items whose underlying form could not be unambiguously recovered from each part of the paradigm. The conclusion from all of these counts is that the 1sg form in Yiddish preserves the greatest number of phonemic distinctions, including the voicing of stem-final obstruents, the presence of stem-final *t*, *d*, *s*, and *z*, and the presence of stem-final *ə*. Thus, given a 1sg form, it would be possible to predict virtually every form of every word with absolute

Table 2.2: Summary of neutralizations in Yiddish

	<i>singular</i>	<i>plural</i>
<i>1st</i>	umlaut (< 1%??)	final -ə } (10% ?) umlaut }
<i>2nd</i>	obstruent voicing } (46%) final -s/-z/-V }	obstruent voicing } (46%) final -t/-d/-V//umlaut }
<i>3rd</i>	obstruent voicing } (46%) final -t/-d/-V }	final -ə } (10% ?) umlaut }
<i>infin.</i>	final -ə } (10% ?) umlaut }	

certainty, with the exception of the 2sg/3sg of umlaut verbs and the plurals of preterite present and *Wechselflexion* verbs.

2.2.2 Using the 1sg as the base to derive Yiddish verb paradigms

Suppose that you are a language learner, trying to acquire Yiddish at a time before the paradigm leveling has occurred. Your goal is to be able to produce and comprehend all forms of all words, and in order to do this, you need to learn the distinctive phonological properties of each verb—the number of phonemes, their voicing, and so on. I have shown that the 1sg form on its own could provide almost all of this information, and would thus be the optimal choice of base form to predict other forms. A hypothesis of the current approach is that once the learner has identified this fact, she goes on to develop a grammar that derives the rest of the paradigm from the base form. For Yiddish, this grammar would include:

(26) Rules for deriving Yiddish paradigms

a. Morphological rules:

- 2sg: $\emptyset \rightarrow -st$
- 3sg: $\emptyset \rightarrow -t$
- 1pl: $\emptyset \rightarrow -ən$
- 2pl: $\emptyset \rightarrow -t$
- 3pl: $\emptyset \rightarrow -ən$
- infinitive: $\emptyset \rightarrow -ən$

b. Phonological rules (or their constraint-based equivalents):

- Obstruent devoicing: $[-son] \rightarrow [-voice] / __ \begin{bmatrix} -son \\ -voice \end{bmatrix} \#$
- *t* Degemination: $t \rightarrow \emptyset / __ t\#$
- *s* Degemination: $s \rightarrow \emptyset / __ s\#$
- *ə* Degemination: $ə \rightarrow \emptyset / __ ə\#$

If we use 1sg forms as the input for these rules, they will unambiguously yield the correct result for almost all forms of all words. The only exceptions are the 2,3sg of umlaut verbs, for

which we would predict incorrect forms like **f̄rst* and **f̄rt*, and the plurals of preterite present and *Wechselflexion* verbs, for which we would predict incorrect forms like **veys̄n* and **gib̄n*. Under this approach, then, forms with umlaut (*ferst*) and with sg.~pl. alternations (*vis̄n*) would have to be learned as exceptions.

It does not matter for present purposes whether umlaut forms are stored individually as whole-word exceptions, or whether we posit an umlaut rule that applies only to words that are lexically specified for it.¹⁵ As with all analyses that make recourse to lexical exceptions, there is an issue of how lexical exceptions can be constrained to avoid arbitrarily different exceptions for each word. In this case, the problem is to ensure that exceptional 2,3sg forms are by and large exceptional in having vowel fronting, and not in other ways. A traditional approach within generative grammar is to set up a diacritic marking exceptional words for a different grammar—either one with or without an additional rule, or one with a different constraint ranking (Itô and Mester 1995, 2002). There are some cases in which “co-phonologies” with different constraint rankings seems well motivated (for example, as it is used by Itô and Mester to distinguish the strata of the Japanese lexicon), particularly if one could formulate meta-constraints on ways in which co-phonologies are allowed to deviate from one another (e.g., Anttila 2002). However, in the cases discussed in this thesis (Yiddish, Latin, and Lakhota), it may be less appealing to consider exceptional words as essentially belonging to a separate stratum. Furthermore, this approach is problematic from a learnability point of view, because the learner must somehow be able to distinguish between cases where the grammar simply needs to be refined, and cases that require a separate co-phonology/diacritic (i.e., when do you keep learning, and when do you give up and use a diacritic?). Another possibility is to list exceptions as full surface forms, but to constrain the possible alternations within the paradigm using output-output surface constraints (Burzio 1996). The latter approach is more consistent with the general model proposed here, and something along these lines is what I will assume.¹⁶ All that is crucial, however, is that forms like *ferst* and *vis̄n* could not be derived productively by the grammar, and require some overriding word-specific mechanism that may fail in certain conditions. If a speaker forgets or is unable to access the correct exceptional form, she will use the grammar to produce an “overregularized” form (*f̄rst*, *veys̄n*). Furthermore, if these mistakes are accepted and adopted by the speech community, they will eventually replace the old, exceptional forms.

There are clearly many factors at play in determining how willing a community is to adopt new forms; I conjecture that the thoroughness of the change in Yiddish may have been facilitated by the lack of a standard language or widespread literacy, and perhaps even by a conscious desire to differentiate Yiddish from German. The model that I am presenting here is simply an attempt to predict which forms would have been available as *potential* regularizations for Yiddish speakers, and which would not.

¹⁵For a selection of proposals on the handling of exceptions in phonology, see Kenstowicz and Kisseberth (1977, pp. 114-130), Zonneveld (1978), and Zuraw (2000, pp. 67-71); for more recent OT proposals, see (Ellison 1994), Tranel (1996), Zuraw (2000), and Green (2001).

¹⁶Another common observation about exceptions is that they tend to fall into phonologically similar “gangs”, which can help support each other in their irregularity. It is possible that the set of exceptions is constrained not just by statements about what alternations are *possible* in the language, but also by what alternations are *likely*, and in what environment. The model proposed in chapter 3 may be able to capture this by making use of the less reliable, unproductive rules somehow; if an exception is not the grammatically preferred form, at least it should get some support as a second choice losing form.

2.3 Comparison with other German dialects

The Yiddish paradigm leveling discussed above seems like quite a natural change, even if the completeness of the leveling is perhaps a bit striking. If this change is really so natural, however, we would expect that it might have occurred in some other related dialects as well. An informal survey of dialect descriptions revealed several candidates for dialects that bear a superficial resemblance to Yiddish in their present tense forms, but all turned out to have different explanations. In Dutch and some northern German dialects, for example, the present singular paradigm is always uniform (*graaf, graaft, graaft* ‘dig’), as it is in Yiddish. However, these languages never had umlaut to begin with, so their failure to alternate is not due to leveling. Some southern German dialects (Schwabian, Frankish, Bavarian, etc.), which did historically have an umlaut rule, also have uniform present tense paradigms (e.g., Bavarian *grab, grabsd, grabd*) (Schirmunski 1962; Zehetner 1989). However, these dialects show leveling only of the singular present paradigm, while maintaining alternations between the singular and plural in preterite present verbs. It appears that these dialects have lost the umlaut rule for the 2,3sg, rather than undergoing paradigm leveling in the same way that Yiddish has. Finally, some Early NHG texts occasionally have *e* in the 2,3sg of *Wechselflexion* verbs, such as Fischart’s use of *schmelzt*¹⁷ ‘melts-3sg’ (Standard German *schmilzt*), reminiscent of the generalization of *e* seen in Yiddish (20). This seems to happen mainly with verbs that are also sometimes given regular (weak) pasts, however. Weak verbs never have *Wechselflexion*, and the loss of it in the singular of these verbs was probably part of a larger trend to create weak counterparts of strong verbs in Early NHG. In none of these cases do we find compelling evidence of paradigm leveling of the sort seen in Yiddish.

In contrast, there have been numerous changes in German that have either introduced new alternations, or have leveled to a form other than the 1sg. The change from *i* to *e* in the 1sg of *Wechselflexion* verbs, for example, is usually analyzed as an extension of the umlaut pattern (in which the 1sg had a lower vowel than the 2,3sg) to new verbs (though an alternative possibility was discussed above), and umlaut has been extended to other verbs as well. In addition, many verbs in MHG and NHG have been rebuilt on the basis of 3sg forms, such as MHG weak *schricken* ‘scare’ from Strong *V schrecken*, NHG *ziemen* from Strong IV *zēmen*, and *wiegen* ‘rock’ from Strong *V wēgen* ‘move’.

It would be extremely difficult, of course, to prove that the leveling found in Yiddish has never occurred in any other form of German, but my tentative conclusion from this comparison is that the prevailing tendencies in German have been in different directions. So why would Yiddish have departed so radically in this respect? When we consider the differences between Yiddish and German, we find that two of the neutralizations discussed above do not occur in German. First, the degemination of /dt/ and /tt/ to [t] ((23b) above) is found in only a few dialects (Schirmunski 1962), meaning the 3sg and 2pl forms preserve the voicing contrast between stem-final *t* and *d*, and keep both distinct from stem-final vowels. This actually creates quite a significant difference between Yiddish and German, because 562, or 12% of the verbs in the CELEX corpus end in coronal stops. Furthermore, German has no stem-final schwas, eliminating a major source of ambiguity in the 1pl/3pl/inf. forms. The neutralizations of Standard NHG are summarized in Figure 2.1. Comparison with the equivalent graph for Yiddish

¹⁷Ehzuchtbüchlin (1578), S. 228: “vnd schmelzet inn der liebe vnd ... wie inn eynem Ofen zusammen,” cited by Geyer (1912, §23.6).

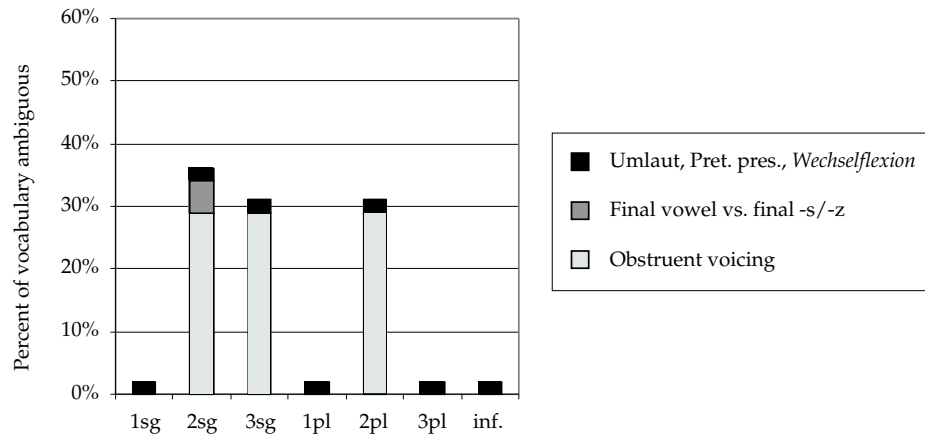


Figure 2.1: Summary of neutralizations affecting German verb forms

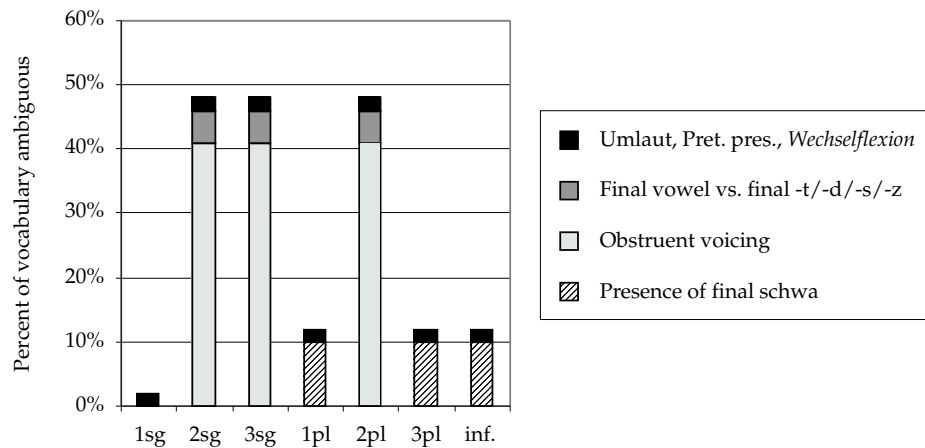


Figure 2.2: Summary of neutralizations affecting Yiddish verb forms

(Figure 2.2) shows that in German, the 1sg form is not uniquely informative; the plural and infinitive forms are just as good. Furthermore, even the 2sg/3sg/2pl forms are not nearly as ambiguous in German as in Yiddish. Thus, a plausible explanation of the difference between Yiddish and German is that in German, some other form (such as the infinitive) is acting as the base.

2.4 Local summary

In this chapter, I have presented evidence from Modern Yiddish that a cross-linguistically marked form (the 1sg) has served as the base of paradigm leveling, affecting almost every verb of the language. A comparison of neutralizations showed that even before the leveling, the 1sg form would also have had the unique property of unambiguously preserving as many properties of

the root as any one form could preserve. The only properties that were neutralized in this form were umlaut and *Wechselflexion* alternations, which in fact could never be preserved in a single form, since observing an alternation necessarily requires at least two forms. Comparing the neutralizations of Yiddish with those of German also provided some insight into why the 1sg form may not be so privileged in other, closely related dialects.

The strategy of comparing neutralizations in various parts of the paradigm is based on the premise that language learners need to be able to produce and understand forms that they have never heard before, and they do this by concentrating on the part of the paradigm that reveals properties of the word as unambiguously as possible. Phonological properties (such as obstruent voicing), morphophonological properties (such as the difference between umlaut *a* vs. non-umlaut *a*), and morphological properties (like verb class) are all taken into account when considering which part of the paradigm is most informative. The calculations of how many lexical items would be affected by each neutralization that I have been using here may seem a bit informal, but they are meant to serve as a conceptual example for a more rigorously defined, computationally implemented algorithm that will be described in more detail in chapter 3. The purpose of this Yiddish example is to demonstrate the basic strategy of base identification: we start by considering each member of the paradigm as a potential base, and then we construct grammars of morphological and phonological rules to derive the remainder of the paradigm. Finally, we compare how effective these grammars are by calculating how many forms are derived correctly by the grammar, how many exceptions must be stored, how reliable the stochastic rules are, how confident (probable) the rules generating the correct outputs are, and so on.

2.5 Significance of the single surface base hypothesis

I have assumed in this chapter that the task of the learner is to select a single surface form as the base—but is this assumption really necessary? In order to assess this, it is useful to consider the predictions of a more traditional model, without the single surface base restriction. Under such a model, a learner could notice that some contrasts (like obstruent voicing and final schwas) are seen in some parts of the paradigm, while other contrasts (like umlaut) are seen in others. The learner could then combine information from multiple parts of the paradigm to create an underlying form that captures *all* unpredictable information.

In the case of Yiddish, comparing different forms to synthesize abstract URs might yield the following results: for non-alternating words like *pɔrən* ‘match’ (13b) or *herən* (25a), the UR of the verb root would be identical to its SR in all forms: /pɔr-/ , /her-/. For umlaut verbs like *fɔrən* ‘travel’, comparing the two surface alternants (*fɔr-* and *fer-*) would lead the learner to posit some sort of underlying distinction between alternating *fɔrən* and non-alternating *pɔrən*. Many different mechanisms for doing this have been proposed in the literature, including:

- Positing a lexically restricted umlaut rule (/ɔ/ → [e]) and then marking *fɔrən* to take this rule (/fɔr-/_[+umlaut])
- Listing both *fɔr-* and *fer-* as possible allomorphs (Kager 1999, pp. 413-420; Burzio 1996), or using a disjunctive representation with two choices of vowel: /f{ɔ,e}r-/ (Hooper 1976).

In this case, the choice of [ɔ] or [e] is determined by surface constraints, which in this case may admittedly be rather ad-hoc (e.g., “3SG-[e]: The 3sg form must have the vowel [e]”)

- Using an abstract, underspecified archiphoneme /O/ (or, a fully specified phoneme that never actually surfaces in Yiddish), along with rules or constraints favoring the addition of front/unrounded features in some contexts, and back/rounded features in others

Any of these approaches could explain why learners might sometimes incorrectly fail to apply umlaut, yielding the Yiddish change (*fɔr*, **fɔrst*, **fɔrt*). For example, they may simply not yet have learned the umlaut rule, or the constraints favoring [e] in the 2,3sg. Moreover, even once they have learned to produce the umlaut alternation, they may have heard a particular verb in only non-umlaut forms, and in the absence of positive evidence that the verb should undergo umlaut, they may not yet have marked it as [+umlaut], or set up an umlaut allomorph for it. Failure to apply umlaut is not the only possible error, however; there are also possible scenarios that should lead to extension of the umlaut vowel to the entire paradigm (**fer*, *ferst*, *fert*). Just as learners may have encountered a verb in only non-umlaut forms, it should sometimes happen that they have heard a particular verb in only umlaut forms, yielding a provisional UR with /e/ instead of /ɔ/[+umlaut], or a UR with just one listed allomorph.

The problem here is that in cases like Yiddish, where there are three possible surface patterns (non-alternating [ɔ], non-alternating [e], and alternating [ɔ] ~ [e]), it takes evidence from multiple surface forms to be sure that the correct UR has been established. If learners are able to posit URs on the basis of evidence from anywhere in the paradigm, however, then we predict that symmetrical errors should be possible. Suppose, for example, that there is a word with alternating [ɔ] ~ [e] (such as *fɔr* ~ *fer*), but the learner has heard it in only one of these forms. If that form was an [ɔ] form (*fɔr*), then the learner may incorrectly conclude that the word is a non-alternating /ɔ/ word (*fɔr*, **fɔrst*, **fɔrt*). If, on the other hand, that form happened to be an [e] form (*fert*), then the learner may incorrectly conclude that the word is a non-alternating /e/ word (**fer*, *ferst*, *fert*). Thus, we are unable to predict the observed asymmetry, that all alternating verbs became invariant /ɔ/, and none became /e/.

What if we allowed learners to set up underlying forms for alternating [ɔ] ~ [e] without actually hearing both [ɔ] and [e]? For example, what if the learner, upon hearing 3sg *fer*, could infer that the *e* must correspond to an *ɔ* in the 1sg, and posit a UR like /fɔr-/[+umlaut]?¹⁸ This would help to eliminate mistakes like (**fer*, *ferst*, *fert*), because the learner would not have to wait around to hear both *fɔr* and *fer* before positing an alternating UR; she could predict *fɔr* on the basis of *fer*. This strategy would have the unfortunate consequence of introducing other, unattested mistakes, however. In particular, it could also lead the learner to posit alternating URs for words that should not alternate. For example, on hearing the 3sg form *hert* ‘hear-3sg’, the learner might posit the UR /hɔr-/[+umlaut], predicting the incorrect paradigm **hɔr*, *herst*, *hert* instead of the correct invariant *her*, *herst*, *hert*.

The challenge, then, is to explain why nonalternating [ɔ] and [e] were consistently learned as such, while alternating [ɔ] ~ [e] was sometimes learned as [ɔ], but never as [e]. What we need is a principle that tells the learner to ignore 2,3sg forms with [e]. For example, they may notice that [e] is notoriously ambiguous in these forms, and learn not to draw any conclusions from it, setting up neither alternating URs nor invariant [e] URs.

¹⁸A model that does just this has been proposed by Harrison and Kaun (2000); I will discuss this idea at greater length in chapter 5.

The problem is even harder when we turn to the preterite present and *Wechselflexion* verbs. As with umlaut, there are various possible approaches to handling the alternations seen in these verbs: we may set up lexically restricted rules (though in this case most would apply to just one or two verbs), we may list separate allomorphs, etc. Once again, the challenge is to explain why speakers extended one vowel (that of the singular), rather than another (that of the plural), and rather than extending the alternation to new lexical items. In the case of umlaut, we saw that perhaps the learner could identify [e] in the 2,3sg as a particularly ambiguous phoneme; in this case there is no such red flag. There are a number of different alternations involved: *veys* ~ *vis* ‘know’, *darf* ~ *durf* ‘need’, *muz* ~ *müz/miz* ‘must’, *tər* ~ *tür/tir* ‘must’, *gib* ~ *geb* and so on. What property do these words have in common that would tell learners to ignore their plural forms? It is difficult to see what considerations could have privileged the vowel of the singular for this particular set of words.

The upshot is that in order to make asymmetrical predictions about possible errors, we need to find a way to restrict the set of forms that learners are considering as possible URs. (I will return to this issue in greater detail in chapter 5.) For this reason, the single surface base hypothesis is relevant for all models of morphology and phonology, and not just those that limit themselves to statements about relations between surface forms. It makes strong predictions about which errors should occur and which should not, by limiting speakers to using information from just one place in the paradigm to project new forms, even if it does not reveal all of the information necessary to project all forms of all words correctly.¹⁹ The learning procedure is designed to mitigate this problem by selecting the base form that preserves the most contrasts, in order to minimize the number of exceptions that must be represented separately. The prediction is that contrasts that are preserved in the base will be maintained, while contrasts that are neutralized in the base will be open for leveling—which, in the case of Yiddish, appears to be correct.

¹⁹I will return in chapter 6 to the issue of local bases for subsets of forms within the paradigm.