

A CROSS-DIALECTAL STUDY OF VOWEL HARMONY IN MALTESE

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0.0 **Abstract** Maltese includes a number of different dialects which cross-classify with respect to different processes. As for Vowel Harmony in roundness they fall into two groups. In the first, harmonization is conditioned by the phonetic quality of the harmonizing vowel and it propagates to adjacent vowels; in the second, harmonization is determined by the phonological quality of radical vowels only and it applies to both adjacent and non-adjacent vowels. The relevant rules must include variables to accommodate all facts. The constraint proposed in Jensen (1976) on variables in phonology is shown to be inconsistent with Maltese. Another line of investigation is suggested instead.

0.1 Maltese is spoken by some 275,000 people on Malta (95 sq. mi.) and 24,000 on Gozo (26 sq. mi.); Standard Maltese (SM), based on the vernacular dialect of the urban area around Valetta and Sliema on Malta, is spoken by all but a few Maltese. There are also a number of different dialects, each one with specific features. A village dialect is spoken mostly at home or with fellow villagers. Due to the structure of the settlement, no speech community is really homogeneous: data quoted here are representative of the area they are drawn from but a number of speakers may use less characteristic variants under the influence of SM or neighboring dialects. The data presented here have been collected from informants whose dialectal background was reliable and have been carefully cross-checked.¹

0.2 Maltese appears to be "a separate language resulting from the interaction and fusion of North-African Arabic, but with its own dialect features outside the North-African group, and Siculo-Italian, covering two different cultural strata" (Aquilina, 1959). The core of the vocabulary is still Semitic but since the 12th century² new lexical items have been massively borrowed from Sicilian, Italian dialects, and (more recently) English. Loan verbs undergo typical changes such as gemination of an initial consonant³; they are always conjugated after the model of Semitic verbs with a so-called weak third radical. Nominal forms quite often undergo various phonological changes such as vowel syncope, consonant assimilation, stress shift, etc. From a synchronic point of view the lexicon may be divided into sets defined on morphophonological grounds without reference to any diacritic feature such as [\pm Semitic]. For convenience I will refer to one set as S (Semitic) and to the other as R (Romance and English).

0.3 In SM and dialects surrounding the urban area, Vowel Harmony (VH) only concerns the agreement in roundness of short non-low vowels. In other dialects of Malta and Gozo VH is more extensive and accounts for alternations between [α /a], [e^j /u^j], [e^w /o^w] as well. Due to the interference of other processes, rules for each

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pair include specific provisions and have to be kept distinct. This paper is restricted to that roundness harmonization which accounts for alternations between [i/u] and [e/o]. Since the lowering of [i] to [e] or [u] to [o] is irrelevant to this study, I will use I as a cover symbol for [i/e] and U for [u/o].

1.0.1 Within the S set of the vocabulary radical short vowels always agree in roundness. Thus we have

- (1) kiteb 'he wrote' vs. (2) šorob 'he drank'

The value in roundness of a stem vowel sequence may vary from dialect to dialect. Compare:

- (3) SM holom 'he dreamed' vs. Siššiewi holom
(4) Si ?atel 'he killed' vs. Siššiewi ?utel

When either stem vowel is long, the two vowels may or may not agree:

- (5) Mellieša hu^oris⁴ 'he looked at'
(6) Qormi hu^oros
(7) SM ni^okol 'I am eating'
(8) Gozo ni^okil

In Mellieša the only harmonizing vowel is [u], whereas in Qormi any [+round] vowel will condition harmonization of subsequent [i]; this explains why (5) is permitted in Mellieša but is ruled out in Qormi. In Gozo, stem vowels always agree in roundness whether they are short or long; that this is not also the case in SM is shown by (7).

1.0.2 Within the R set of the vocabulary there has been no tendency to make vowels of the stem agree. In quite a few nominal and verbal forms both [i] or [e] and [u] or [o] occur:

- (9) offēnda
(10) espóst
(11) jenerozitá
(12) métodu

Once a stem is suffixed, however, the same conditions apply for the harmonization of affixal vowels, whether the stem belongs to S or to R. We thus need a morphophonemic constraint on the structure of S stems which will not apply to R stems.

1.0.3 Such a constraint applies only within S stems and should not be permitted to cross a boundary, as will be exemplified in §3.0.1, ex. (41). Conversely, the phonological rules which account for VH among affixal vowels should only apply across an internal boundary; without such a constraint, the rules would improperly change the quality of vowels in R stems.

1.1 The vowels affected by VH are affixal or epenthetic. The following affixes are involved:

Verbal prefixes

Subject suffix :
Person suffixes:

Person markers appear
or as possessive pron

- (13) omm+ok 'yo
(14) missi^or+ek

An epenthetic vowel [i]
to break up a CRC clu
for a nasal or a liqu

- (15) kitb+it+1+

1.2 The morphophonem:
forms like [ji^oklok]
whose derivations are

- (16)
VH
Vowel Deletior

It is clear from (16)
be absent on the surfa
VH.⁶

It would be incor
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perfect stem and the i
[ki^ol] 'he ate' and (1
respectively.

Even within the s
may change; this condi
fixes as well:

- (20) Siššiewi sm
sm

2. The preceding sect:
dialects. We shall now
Dialects fall into gro
only a vowel which is
(b) dialects in which
on the [+back] quality c
Within the first g
Mellieša and Qormi; the
other dialects, Siššiew

to be kept distinct. This
monization which accounts

Since the lowering of [i]
study, I will use i as a

radical short vowels always

'he drank'

quence may vary from

iewi ɸalɛm
iewi ʔutol

vowels may or may not agree:

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Verbal prefixes in the imperfect: nI or nU (1st person)
tI or tU (2nd person)
jI or jU (3rd person)
Subject suffix in the perfect: It or Ut (3rd pers. fem.)
Person suffixes: Ik or Uk (2nd pers. sg.)
kIm or kUm (2nd pers. pl.)
Im or Um (3rd pers. pl.)

Person markers appear as object pronouns attached to any verbal stem
or as possessive pronouns attached to some nominal stems, as in:

- (13) omm+ok 'your mother'
(14) missi+rtek⁵ 'your father'

An epenthetic vowel [i] or [u] is inserted, with some restrictions,
to break up a CRC cluster, where C stands for any consonant and R
for a nasal or a liquid:

- (15) kitb+it+l+kom → kitb+it+i+l+kom

1.2 The morphophonemic status of VH in Maltese is clearly proved by
forms like [ji:klok] 'he eats you-sg.' or [jitbħok] 'he cooks you-sg.'
whose derivations are as follows:

- | | | |
|----------------|-------------|----------------|
| (16) | ji'+kol+tek | (17)ji+tbħ+tek |
| VH | ji'+kol+ok | ji+tbħ+ok |
| Vowel Deletion | ji'+kl+ok | ji+tbħ+ok |

It is clear from (16) and (17) that the context conditioning VH may
be absent on the surface, making the output opaque with respect to
VH.⁶

It would be incorrect, however, to conclude that VH is deter-
mined once for all for each root. It is often the case that the
perfect stem and the imperfect have different vowels: compare (18)
[ki^hl] 'he ate' and (19) [tebaħ] 'he cooked' with (16) and (17),
respectively.

Even within the same paradigm the quality of the stem vowels
may change; this conditions a change in the harmonization of suf-
fixes as well:

- (20) Siġġiewi smajt+om 'I heard them'
sæmæ+t+em 'she heard them'

2. The preceding section was devoted to properties common to all
dialects. We shall now proceed to analyze differences among them.
Dialects fall into groups with respect to VH: (a) dialects in which
only a vowel which is adjacent to a round vowel may be harmonized;
(b) dialects in which harmonization of affixal vowels depends solely
on the [ɬback] quality of stem vowels.

Within the first group we will look into three cases: SM,
Mellieħa and Qormi; the second group will be exemplified by two
other dialects, Siġġiewi and Gozo.

3.0 In SM all short [u]'s have been lowered to [o]⁷, except in a few stems from set R. When preceded by [o], a final I in a closed syllable⁸ goes to [o]; elsewhere, it remains I:

3rd pers. masc.	3rd pers. fem.
(22) kiteb 'he wrote'	kitb+et
(23) felah 'he is strong'	felly+et
(24) habat 'he beat'	habt+et
(25) hadem 'he worked'	hadmt+et
(26) heles 'he set free'	hels+et

Compare with:

(27) holom 'he dreamed'	holm+ot
(28) šorob 'he drank'	šorb+ot

Examples (22)-(26) show that the unmarked form for the pronoun is -It⁹ and that [-ot] is derived by harmonization; the same conclusions obtain for the 2nd person pronoun -Ik. Plural personal pronouns are invariably -kom and -om:

(29) kitib+om 'he wrote them'	kitib+kom 'he wrote you-pl.'
(30) šorob+om 'he drank them'	šorob+kom 'he drank you-pl.'

Suffixal [o] may trigger vocalic harmonization of a subsequent I:

(31) kitib+om+l+ok 'he wrote them to you'
(32) kitib+l+ek 'he wrote to you'

Long [u], whether it is radical (as in 33) or suffixal (as in 34), does not affect a subsequent I:

(33) n+bu:s+tek 'I kiss you'
(34) kitib+u:l+ek 'he wrote it to you'

A short [u] derived from long [u] after the shift of the stress also has no effect:

(35) ma n+bus+ék+š 'I do not kiss you'
(36) ma kitib+u+l+ék+š 'I do not write it to you'

As far as I know there is no relevant case where we could start from an underlying short [u] to test the harmonization of subsequent vowels. In (37) long [o] apparently triggers VH but is in fact derived from two short underlying o's:

(37) so:l+ot 'she coughed' ¹⁰
--

3.0.1 It is thus safe to conclude that in SM only [o] may trigger VH. There is a further restriction, however: Vowel Harmony only

applies to a final vowel

(38) šorob 'he drank'
(39) šorb+ot 'she drank'
(40) šorob+l+ok 'he drank to you'
(41) šorb+it+l+ek 'she drank to you'

In (41), final -ek is [i]; the suffix -it i contrast to (39), it is vowels in set S always e sition, whereas a suffix This fact justifies keep plies to stem vowels dif subsequent material. Th

(42) I → o / oC _o

3.1.0 In Mellicha, as I not been lowered to [o]; place either. Short vowels forms:

(43) kitb+it 'she wrote'
(44) rabt+it 'she wrote to you'
(45) s x r ? +it 'she wrote to you'
(46) šurb+ut 'she drank to you'

Forms (42)-(45) show that we also observe that the like the suffix -it.

As in SM, no long vowels

(47) i+du+r+im 'he drank to you'
(48) hu+d+im 'he drank to you'

In contrast to SM, however, nized:

(49) šurb+ut+i+l+ok 'she drank to you'
--

As long as there is a syllable

(50) šurb+it+im+l+ok 'she drank to you'

As soon as the vowel is

(51) šurb+it+u+l+ok 'she drank to you'
--

An epenthetic vowel propagate. We thus have

lowered to [o]⁷, except in a few
o], a final i in a closed syllable
ns i:

3rd pers. fem.

kitb+et
felly+et
ħabt+et
ħadm+et
ħels+et

ħolm+ot
šorb+ot

aked form for the pronoun is
nonization; the same conclusions
Plural personal pronouns are

kitib+kom 'he wrote you-pl.'
šorob+kom 'he drank you-pl.'

harmonization of a subsequent

to you'

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the shift of the stress also

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case where we could start from
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applies to a final vowel. Compare:

- (38) šorob 'he drank'
(39) šorb+ot 'she drank'
(40) šorob+l+ok 'he drank from you'
(41) šorb+it+l+ok 'she drank from you'

In (41), final -ok is not harmonized since the preceding vowel
is [i]; the suffix -it is not harmonized either since in (41), in
contrast to (39), it is not in final position. Notice that stem
vowels in set S always agree in roundness independently of their po-
sition, whereas a suffixal vowel undergoes VH only in final position.
This fact justifies keeping the morphophonemic constraint which ap-
plies to stem vowels distinct from the phonological rule applying to
subsequent material. The correct VH rule in SM¹¹ turns out to be:

- (42) $I + o / oC_0 _ C_1 \#$

1.1.0 In Mellicha, as in other rural dialects in general, [u] has
not been lowered to [o]; no contextual shift of [i] to [u] has taken
place either. Short vowels are [i, u, ə, a]. We get the following
forms:

- | | |
|--------------------------|---------------------------|
| (43) kitb+it 'she wrote' | kitib+im 'he wrote them' |
| (44) rabt+it 'she tied' | rabat+im 'he tied them' |
| (45) sərʔ+it 'she stole' | sərərʔ+im 'he stole them' |
| (46) šurb+ut 'she drank' | šurub+um 'he drank them' |

Forms (42)-(45) show that among short vowels only [u] triggers VH;
we also observe that the plural person suffix is -im and behaves
like the suffix -it.

As in SM, no long vowel or diphthong¹² may trigger VH:

- (47) i+du+r+im 'he turns around them'
(48) ħu^od+im 'he took them'

In contrast to SM, however, a vowel need not be final to be harmo-
nized:

- (49) šurb+ut+i^o+l+ik 'she drank it-fem from you-sg'

As long as there is a short [u] to condition it, VH keeps propagating:

- (50) šurb+it+im+l+ik + šurb+ut+um+l+uk 'he drank them from you'

As soon as the vowel is no longer short [u], VH is stopped:

- (51) šurb+it+u^o+l+ik + šurb+ut+u^o+l+ik 'he drank it-m. from you'

An epenthetic vowel gets harmonized as well and allows VH to
propagate. We thus have:

- (52) n+jurr+l+kim 'I carry for you-pl.'
 i-epenthesis n+jurr+il+kim
 VII n+jurr+ul+kum

That the underlying quality of the epenthetic vowel is /i/ may be deduced from the fact that if the preceding vowel is not [u], the epenthetic vowel always shows up as [i]. It is particularly interesting to compare [ma njurrulkúms] 'I do not carry for you-pl.' with [ma njurrulkims] 'I do not carry it for you-pl.' The derivations follow:

- | | | | |
|--------------|-----------------|------|-------------------|
| (53) | n+jurr+l+kim+s | (54) | n+jurr+u"+l+kim+s |
| i-epenthesis | n+jurr+il+kim+s | | -- |
| VH | n+jurr+ul+kum+s | | -- |
| Stress | n+jurr+ul+kúm+s | | n+jurr+u"+l+kím+s |
| V shortening | -- | | n+jurr+u+l+kim+s |

In (53), the epenthetic vowel both becomes harmonized and conditions the harmonization of the suffix. In (54), surface short [u] is derived from a long /u/ which does not trigger VII. Notice that in (53) and (54), [i] and [u] stand in paradigmatic contrast. This is good evidence for the morphophonemic status of VH in Maltese.

3.1.1 In Mellicha, then, as in SM, only u (corresponding to SM o) triggers VII; however, the process extends to -im/-kim (as opposed to SM invariable -om/-kom). Moreover, it may apply to any vowel, final or internal, as long as the preceding vowel is short u. Iterative rules have been designed precisely for this kind of situation:

- (55) i + u / uC₀__
 iterative from left to right

In (55) the direction of application is predictable from the fact that the determinant precedes the focus.

3.2.0 In Qormi all round vowels trigger VII. This includes u, u", and u"13:

- (56) du°r+ok 'your house'
 (57) salvu°+t+ok¹⁴ 'she saved you'
 (58) šurub+l+ok 'he drank from you'
 (59) i+bu"s+ok 'he kissed you'
 (60) kitb+u"+l+ok 'he wrote to you'
 (61) n+jurr+ul+kum 'I carry it for you-pl.'

In (58) and (59) the harmonizing vowel is radical; in (60) and (61) it is suffixal; in either case a round vowel conditions the harmonization of a subsequent I. Conversely, non-round vowels do not trigger VII:

- (62) smaj+t+ek 'I heard you'
 (63) rabt+et 'she tied'
 (64) la:b+et 'she played'

Several vowels may
 lar (66) with (51).

- (65) šurb+it+ek +
 (66) šurb+it+u"+l+

As in Mellicha, we can

- (67) RVH i + u /

3.2.1 There is, however
 and Qormi. For we get:

- (68) kitib+em 'he
 (69) kitib+um+l+i
 (70) kitib+um+l+ok
 (71) kitib+um+l+om
 (72) ma kitib+em+s
 (73) ma kitib+um+l
 (74) šurub+om 'he
 (75) šurub+um+l+om
 (76) šurb+ut+i"+l+

(68)-(73) and (74)-(76)
 suffix is always -um-; ;
 on whether or not the pi
 tion makes no difference

- (77) kitb+et 'she w
 (78) kitb+it+ek 'sh
 (79) šurb+ot 'she c
 (80) šurb+ut+ok 'sh

It is clear that th
-it (which is harmonized
 the 3rd person plural su
 final position and only
 assume that the 2nd pers
 suffix may never be in i
 To front -um and -kum we

- (81) FVM u + i /

3.2.2 In principle RVH
 schema of rules (82), appl

- (82) VH $\left[\begin{array}{c} \text{V} \\ \text{-low} \\ \text{-around} \end{array} \right] +$
 if a=, ther

y for you-pl.'

ic vowel is /i/ may be de-
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 'for you-pl.' with [ma
 ' The derivations follow:

) n+jurr+u"+l+kim+š

n+jurr+u"+l+kim+š
 n+jurr+u+l+kim+š

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 round vowels do not trig-

Several vowels may be harmonized in sequence; compare in particu-
 lar (66) with (51).

- (65) šurb+it+ek + šurb+ut+ok
 (66) šurb+it+u"+l+ek + šurb+ut+u"+l+ok

As in Mellieħa, we can write an iterative rule:

- (67) RVH i + u / $\left[\begin{array}{c} V \\ +\text{round} \end{array} \right] C_0 _ _$

3.2.1 There is, however, an important difference between Mellieħa
 and Qormi. For we get:

- (68) kitib+em 'he wrote them'
 (69) kitib+um+l+i 'he wrote them to me'
 (70) kitib+um+l+ok 'he wrote them to you'
 (71) kitib+um+l+om 'he wrote them to them'
 (72) ma kitib+em+š 'he did not write them'
 (73) ma kitib+um+l+i'+š 'he did not write them to her'
 (74) šurub+om 'he drank them'
 (75) šurub+um+l+om 'he drank them from them'
 (76) šurb+ut+i'+l+em 'she drank it-fem from them'

(68)-(73) and (74)-(76) prove that in internal position the pronoun
 suffix is always -um-; in final position it is -om or -em, depending
 on whether or not the preceding vowel is round. In contrast, posi-
 tion makes no difference for the suffix -it:

- (77) kitb+tet 'she wrote'
 (78) kitb+it+ek 'she registered you'
 (79) šurb+ot 'she drank'
 (80) šurb+ut+ok 'she drank you'

It is clear that the underlying form of the feminine marker is
-it (which is harmonized only if a round vowel precedes it), while
 the 3rd person plural suffix is underlyingly -um (fronted only in
 final position and only if a non-round vowel precedes it). I shall
 assume that the 2nd person pl. marker is underlyingly -kum: as this
 suffix may never be in internal position, there is no possible test.
 To front -um and -kum we need an additional rule:

- (81) FVM u + i / $\left[\begin{array}{c} \vee \\ -\text{round} \end{array} \right] C_0 _ C_1 \#$

3.2.2 In principle RVH (67) and FVM (81) are collapsible into the
 schema of rules (82), applied iteratively from left to right:

- (82) VH $\left[\begin{array}{c} V \\ -\text{low} \\ -\text{around} \end{array} \right] + [\text{around}] / \left[\begin{array}{c} V \\ [\text{around}] \end{array} \right] X _ Q \#$
 if $\alpha = -$, then $Q = C_1$ (X and Q are abbreviatory variables)

Schema (82) captures the fact that there is one basically similar process involved in both (67) and (81). However, there is some evidence that (67) and (81) should be kept apart. For some speakers the harmonization of the epenthetic vowel is optional; we thus have:

(83) n+jurr+ul+kum or (84) n+jurr+il+kem

Both (83) and (84) are derived from /n+jurr+l+kum/ as follows:

(83)	n+jurr+l+kum	(84)	n+jurr+l+kum
V-epenth.	n+jurr+il+kum	RVM	---
RVM	n+jurr+ul+kum	V-epenth.	n+jurr+il+kum
FVM	---	FVM	n+jurr+il+kim
lowering	n+jurr+ul+kom	lowering	n+jurr+il+kem

There is no way to account for (84) if RVM and FVM are collapsed. The fact that (84) is acceptable to speakers (although I do not think it is the most common form) seems to indicate that the fronting and the rounding should be kept distinct despite their being closely related.

4.0 Siġġiewi (Malta) and Gozitan dialects are representative of the second group of dialects. In the vernacular of these villages, the determining factor for Vh is the quality of stem vowels only. Stem vowels are functionally [-back] or [+back]. The functional sets are:

(85)	i	u	i ^h	u ^h
	⋮	⋮	i ^o	u ^o
	⋮	⋮	e:	o:
	⋮	⋮	⋮	⋮
	⋮	⋮	a:	a:

Long a is realized back and sometimes rounded but functions as a front vowel with respect to Vh. In general, former long [a:] has been raised to [i^h] and back [a:] to [u^h]; in a few cases [a:] has been retained when it was preceded by h and backed: e.g.,

(86) kħad+it 'it got blue'

The other source for [a:] is the coalescence of two short vowels after deletion of a weak intervocalic pharyngeal consonant¹⁵. Where these vowels functioned historically as front vowels, the present-day reflex is a long a, whose back quality may be explained as for (86); where the vowels functioned as back vowels, the reflex is [o:].

(87) la:b+et 'she tied' (compare with (89))

(88) mo:d+et 'she chewed'

I will assume that the set I refer to as [+back] does not include this [a:].

4.1 With this provision in mind, we may now say that in Siġġiewi [+back] stem vowels condition the rounding of a subsequent I:

(89) rabt+ot 'she t
(90) ħurb+ot 'she d
(91) mo:d+ot 'she c
(92) du^or+ok 'your l
(93) n+bu^os+ok 'I k
(94) kitb+et 'she w
(95) ħal+et 'she c

Non-radical back vowels c

(96) kitib+u^h+l+ek '

Once triggered by a I, no matter what materia short i is derived from I

(97) ħurb+ut+i^h+l+ok
(98) salvaj+ni^h+l+ok
(99) salvaj+ni+i^h+l+ok

Examples (97)-(99) show the harmonizing vowel to be harmonizing vowel of /-it/ the harmonization of /-it/ the quality of stem vowels; these Principle is needed:

(100) RVM I + U / $\begin{bmatrix} V \\ + \\ r \end{bmatrix}$

The variable X stands for the application of

(101) rabt+it+i^h+l+ek

	V	⋮
	+back	⋮
---	radical	---
r	a	bt+
r	a	bt+it+i

As in Qormi, the 3rd pharyngeal position but either [-um] to [-im], however, de vowel and not on the qualit

(102) kitib+un+l+em 'h
(cf. Qormi (71))

In (102) the vowel is front stem vowels, but in (71) the round vowel. The fronting:

one basically similar pro-
ver, there is some evidence
for some speakers the harmo-
nization; we thus have:

+kəm

+l+kum/ as follows:

n+jurr+l+kum
nth. n+jurr+l+kum
n+jurr+l+kim
ing n+jurr+l+kem

and FVM are collapsed. The
though I do not think it
that the fronting and the
air being closely related.

are representative of the
r of these villages. The
stem vowels only. Stem
The functional sets are:

u[~]
u^o
o:
.....
a:

ed but functions as a
, former long [a:] has
in a few cases [a:] has
backed; e.g.,

of two short vowels af-
ter a consonant¹⁵. Where
it vowels, the present-
may be explained as for
vowels, the reflex is [o:].

(89)

ack
radical] does not include

say that in Siġġiewi
f a subsequent i:

- (89) rabt+ot 'she tied'
(90) šurb+ot 'she drank'
(91) mo:d+ot 'she chewed'
(92) du°r+ok 'your house'
(93) n+bu°s+ok 'I kiss you'
(94) kitb+et 'she wrote'
(95) ħælm+et 'she dreamed'

Non-radical back vowels do not trigger VII. Compare, e.g., with (93):

- (96) kitib+u°+l+ek 'he wrote it to me'

Once triggered by a back stem vowel, VII applies to any subsequent
i, no matter what material may intervene; but, as (99) shows, when a
short i is derived from [i^c:] it is never harmonized.

- (97) šurb+ut+i°+l+ok 'she drank it-fem from you-sg'
(98) salvaj+ni°+l+ok 'we saved for you-sg'
(99) salvaj+ni+i°+l+ok 'we saved it for you'

Examples (97)-(99) show that vowels need not be adjacent to the har-
monizing vowel to be harmonized. In (97) the conditioning factor for
the harmonization of /-it/ and /-ek/ into [-ut] and [-ok] is the qual-
ity of STEM VOWELS; these two pronouns are thus harmonized indepen-
dently. Hence a rule applied under the Simultaneous Application
Principle is needed:

$$(100) \text{RVH } I \rightarrow U / \left[\begin{array}{c} \text{v} \\ \text{+back} \\ \text{radical} \end{array} \right] X _ Q^{\#}$$

The variable X stands for a schema of values; Q is a connected var-
iable. The application of rule (100) is demonstrated:

- (101) rabt+it+i°+l+ek → rabt+ut+i°+l+ok 'she tied it for you'

:v	:	:	:	:	:
:back	:	:	:	:	:
:radical	:	:	:	:	:
r	:	:	:	:	:
:	:	:	:	:	:
r	:	:	:	:	:
:	:	:	:	:	:

As in Qormi, the 3rd plural person marker is always [-um] in in-
ternal position but either [-um] or [-im] in final. The fronting of
[-um] to [-im], however, depends solely on the frontness of the stem
vowel and not on the quality of the vowel immediately preceding.

- (102) kitib+um+l+em 'he drank them from them'
(cf. Qormi (71) kitib+um+l+om)

In (102) the vowel is fronted because of the front quality of the
stem vowels, but in (71) the vowel remains round since it follows a
round vowel. The fronting rule in Siġġiewi is:

$$(103) \text{ FVH } \underline{U} \rightarrow \underline{I} / \left[\begin{array}{c} \text{V} \\ \text{-back} \\ \text{radical} \end{array} \right]_{C_0} \text{-C}_1 \#$$

RVH and FVM are collapsible into the following schema:

$$(104) \left[\begin{array}{c} \text{V} \\ \text{-low} \\ \text{-around} \end{array} \right] + [\text{around}] / \left[\begin{array}{c} \text{V} \\ \text{aback} \\ \text{radical} \end{array} \right] \text{X_Q}\#$$

if a=, then Q=C₁

This might be a spurious generalization: there is an asymmetry in the treatment of I and U. Whereas I is always subject to VH, U in internal position is not. Schema (104) obscures this asymmetry.

4.2 In Gozo, pronouns -it and -ik behave as they do in Siġġiewi. But we find the following forms:

- (105) kitib+im 'he wrote them'
 (106) kitib+im+l+im 'he wrote them to them'
 (107) kitib+u"+l+im 'he wrote it to them'
 (108) rabat+um 'he tied them'
 (109) rabat+um+l+um 'he tied them for them'
 (110) rabat+i"+l+um 'he tied it-fem for them'

Forms (105)-(110) show that the form of the plural pronoun, -im or -um, depends on the quality of the stem vowels. As facts stand so far, there is no reason to choose between /i/ and /u/ as the underlying vowel. We could as well postulate a vowel unspecified for the feature [back] and write a rule such as:

$$(111) \text{V} \left[\begin{array}{c} \text{V} \\ \text{+high} \end{array} \right] + [\text{aback}] / \left[\begin{array}{c} \text{V} \\ \text{aback} \\ \text{radic.} \end{array} \right] \text{X_Q}\#$$

4.3 There is, however, some evidence in Gozitan that the underlying vowel is /i/. When the harmonizable vowel is separated from back stem vowels by two contiguous front vowels, it may fail to undergo VH. When, on the contrary, it is separated from front stem vowels by contiguous back vowels, we always get [i] as expected:

- (112) rbat+ni+i"+l+im¹⁶ 'we tied it-fem for them'
 (113) rbat+ni+l"+l+um
 (114) kitb+u+u"+l+im 'they wrote it-masc to them'
 (115) *kitb+u+u"+l+um

If the underlying vowel were unspecified (or /u/) we would expect (114) to be as acceptable as (112).

5.0 VH may also apply regressively to prefixes ni-, ti- and ji- (cf. §1.1). The prefixal vowel harmonizes to U when the adjacent stem vowel is U. In SM and a number of dialects, the prefixal vowel does not harmonize if it is contiguous to a coronal obstruent:

- (116) jo+froh 'it empties'

- (117) jo+ilom 'he
 (118) jo+krob 'he
 (119) jo+rbot 'he
 (120) jo+?rob 'he
 (121) jo+nfoj 'he
 (122) ji+tlob 'he
 (123) ji+šrob 'he

If the coronal obstruent applies normally (but not prevent progressive

- (124) jo+bzo? 'he
 (125) jo+fto? 'he
 (126) jo+rbot+ok '
 (127) i+ross+ok '

This restriction on re It seems to be optional: the influence of SM.

- (128) ju+šurb+u '
 (129) ju+tuib+u '

Some speakers, however: logy with SM [jišorbu

5.1 The restriction compared with the fail uous front vowels in

6.0 Maltese dialects Although it may have VH is now a morphophoneme, in all dialects. adjacent vowels: consonant and the focus. whether they are adjacent be skipped over.

6.1 Jensen (1974) relevant material is all rule.¹⁷ He asserts the features common to the skipped over. But the ditions in Maltese are allowed to intervene consonants are allowed over, as we have seen that Jensen's Relevant possible to determine or to any subsequent trices of the harmoni

- (117) jo+ɣlom 'he dreams'
 (118) jo+krob 'he sighs'
 (119) jo+rbot 'he ties'
 (120) jo+rɔb 'he approaches'
 (121) jo+nfoɣ 'he spends'
 (122) ji+tlob 'he requests'
 (123) ji+ʒrob 'he drinks'

if the coronal obstruent is not contiguous to the stem vowel, VH applies normally (but note that, as in (126), a coronal obstruent does not prevent progressive VH in any dialect).

- (124) jo+bzo? 'he spits at'
 (125) jo+fto? 'he unstitches'
 (126) jo+rɔt+ok 'he ties you'
 (127) i+rɔs+ok 'he packs you'

This restriction on regressive VH does not obtain for all dialects. It seems to be optional in some villages, reintroduced perhaps under the influence of SM. Thus in Zebbuġ (Malta), the forms are:

- (128) ju+ʒurɔ+u 'he drinks it'
 (129) ju+tulb+u 'he requests it'

Some speakers, however, use [jiʒurbu] or [jitulbu], possibly by analogy with SM [jiʒorbu] and [jitolbu].

5.1 The restriction on the propagation of regressive VH should be compared with the failure of progressive VH to apply after two contiguous front vowels in Gozo (§4.3).

6.0 Maltese dialects provide abundant material for the study of VH. Although it may have been introduced into Maltese for phonetic reasons, VH is now a morphophonological process, and a fairly sophisticated one, in all dialects. In some dialects, the process may affect only adjacent vowels: consonants alone may intervene between the determinant and the focus. In other dialects, VH affects subsequent vowels whether they are adjacent or not: consonants as well as vowels may be skipped over.

6.1 Jensen (1974) claims that it is possible to predict what irrelevant material is allowed between the determinant and the focus of a rule.¹⁷ He asserts that relevant segments are defined by the set of features common to the input and to the focus; other segments may be skipped over. But this "Relevancy Condition" makes incorrect predictions in Mellieħa and Gozo: for Mellieħa it predicts that vowels are allowed to intervene (which they are not), and for Gozo that only consonants are allowed (but both consonants and vowels may be skipped over, as we have seen). As far as VH rules are concerned, I think that Jensen's Relevancy Condition is misdirected. Surely it is not possible to determine if a VH rule will apply to adjacent vowels only or to any subsequent vowel just by looking at the phonological matrices of the harmonizing vowel and the harmonizable vowel. Maltese

ing schema:

X_Q#

ere is an asymmetry in the subject to VH, U in interthis asymmetry.

they do in Siġġiewi. But

hem'
m'

hem'
-them'

plural pronoun, -im or -is. As facts stand so / and /u/ as the underowel unspecified for the

itan that the underlying s separated from back it may fail to undergo from front stem vowels by expected:

for them'

c to them'

/u/) we would expect

xes nI-, tI- and jI- (cf. hen the adjacent stem the prefixal vowel does al obstruent:

dialects suggest instead that we should look at the morphological relationships between the vowels in question. When there is no difference in morphological status between harmonizing and harmonizable vowels, only consonants may intervene. When there is a difference, however, vowels may also intervene. Interestingly, Finnish VH, as analyzed by Itkonen¹⁸, supports this analysis. There may be cases of VH applying to non-adjacent vowels which can be described in phonological terms only. I feel, however, that we should examine these cases carefully to see what morphological relationships obtain between the segments under consideration.

Footnotes

1. This study is based on fieldwork accomplished in summers from 1973 to 1977. I wish to thank the French Embassy in Malta and the Maltese Government for granting me a research scholarship in 1974 and 1975. I am particularly grateful to my informants and to the students at the Royal University of Malta who helped me conduct the fieldwork. I am also indebted to Larry Hyman and Stephen Anderson for valuable suggestions and to Linnea Lagerquist for helping to make the final version of this paper more correct. The data, the analysis and all remaining errors are mine alone.
2. Malta was taken by an army from Kairouan (Tunisia) in 870, and the Muslims ruled for 220 years. Since then the archipelago has been ruled by different Christian neighboring states. Today it is an independent republic within the British Commonwealth.
3. As, e.g., in [ittajpja] 'he typed'.
4. "[u^o]" stands for a slightly downgliding [u] or a lax long [u]. "[i^o]" likewise stands for a downgliding [i] or a lax long [i].
5. Notice that the stem is Semitic in (13) and Romance in (14).
6. This is also true for other aspects of VH in Maltese with respect to [a/æ], [i^o/o^o] and [e^o/o^o] alternations.
7. There is also a contextual lowering of i to e: i→e/___C#.
8. There is no underlying short vowel in absolute final position, although vowels are generally realized as short in this position. VH never applies to these vowels in any dialect.
9. Notice that the negative forms for (22b) and (28b) are [ma kitb+it+š], [ma šorb+ot+š]. See footnote 7 for the alternation between [i] and [e].
10. For a possible approach to this problem, see Brame (1974).
11. Brame (1974) may not account for forms like (41) since his rule is simply: i+o / oC_o___
12. In rural dialects non-low long vowels are diphthongized; tense long i and u have split into eⁱ/uⁱ and i^o/o^o respectively (at least in Gozitan dialects); lax downgliding i^o and u^o come from æⁱ and aⁱ by a raising process. Long vowels æⁱ, aⁱ and oⁱ have been formed from the coalescence of short vowels in contact after deletion of a weak intervocalic pharyngeal glide.
13. Long and short o are derived. The lowering rule is: i→e/___C₁#. Compare with SM (footnote 7).
14. Notice that salva is a R stem.

15. See footnote 1
16. Notice that i for harmonization
17. See Jensen (19
18. See Campbell (1 for VH (like Verg in VH application

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ng rule is: $i \rightarrow e / \underline{\quad} C_1 g$.

15. See footnote 12.

16. Notice that \underline{i} in $\underline{-ni-}$ is underlyingly \underline{i}° and is not a candidate
for harmonization in (112) and (113).

17. See Jensen (1974):680.

18. See Campbell (to appear: 3.1.). Notice also that recent treatments
for VH (like Vergnaud-to appear-)fail to account for restrictions
in VH application. See §5.1.

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APPENDIX

The map and the chart show how Maltese dialects cross-classify.



	Harmonizing Vowels	Group	UR 3rd pl. pronoun	Fronting rule	Restr. on regr. VH	'he killed'
SM	o	I	om	no	yes	?atɛl
Qormi	v [+tround]	I	um	yes	yes	?utɔl
Siġġiewi	v [back radical]	II	um	yes	yes	?utɔl
Zebbuġ	v [back radical]	II	um	yes	no	?utal
Mellieħa	u	I	im	no	yes	?ætɪl
Gozo	v [+back radical]	II	im	no	no	?ætɪl

SOME REPA
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There has been a long history of cross-national phenomena in Maltese sequences. These are referred to as "misunderstandings" (Clarificat 1972), "contingencies" (others), are defined as at least two different types of "contingencies" which turn is misunderstood by the listener and there is a misinterpretation of this misinterpretation. This misinterpretation is shown in

- (1) J: If
 ha
 F: If
 J: Is

This paper attempts to repair in two ways. The primary classification repairs on the basis of misunderstanding involving formal criteria. In section (2) I suggest diverse roles in discourse misunderstanding.

1. Most of the work on established systems for the classification of criteria such as participant initiates the request takes, and how the request (Schegloff & Garvey, 1975, Christia) has been given, however, the source of misunderstanding in the literature seems to be that the message happens to the listener such that the message is interpreted as a number of discourse-sequences which have not been