Anna M. Thornton (Università dell'Aquila & IP/CNR, Roma)
annathor@kant.irmkant.rm.cnr.it

STEM ALLOMORPHS OR SUFFIX ALLOMORPHS?
ON ITALIAN DERIVATIVES WITH ANTESUFFIXAL GLIDES.

This paper examines Italian derivatives with the suffixes *-ale, -oso, -ario* and *-are* which display /j/ or /w/ between the stem of the base and the suffix. These derivatives are not generated by categorical rules. Rather, they conform to schemata of the sort of those discovered by Bybee & Slobin (1982). The bases of derivatives with /w/ conform to a source-oriented, phonologically and partially morphologically defined schema, which establishes as prototypical for the insertion of /w/ bases ending in C$t. Bases which insert /j/ can be captured with similar schemata, but a subpart of the derivatives which display /j/ between stem and suffix, those in *-iale*, can be described also as the result of a morphophonological or readjustment rule inserting /j/ between certain stem-final suffixes and *-ale*.

0. Introduction

This paper addresses a question of allomorphy in Italian. There is a set of Italian denominal adjectival suffixes, *-ale, -oso, -ario*, and one denominal verbal suffix, *-are*[1], which sometimes appear preceded by orthographic <i> or <u>, which can be realized phonologically as high vowels /i,u/ or glides /j,w/ (cf. (1a)). Following my own usage, I will consider these segments glides. Examples of words showing the alternance under discussion are given in (1b). At first sight it seems that the glides appear unpredictably in contexts (1bii-iii) which are virtually identical from the segmental point of view to the ones in which no glide appears (1bi). Our task is then to discover conditions that govern the appearance vs. absence of the glides in derivatives of this kind.

(1) Pretheoretical overview of the data
a.   Suffixes
        -ale/-iale/-uale $[[X]_N + \text{suffix}]_A$
        -oso/-ioso/-uoso   "
        -ario/-iario/-uario   "
        -are/-iare/-uare $[[X]_N + \text{suffix}]_V$
b.   Examples of derivatives[2]

-ale   i.   strad+a   ii.   mond+o   iii.   grad+o
                strad+ale   mond+i+ale   grad+u+ale

---

[1] A more precise citation form for this suffix would be *-0-a*, that is, a zero suffix which forms verbs from adjectives and nouns, and is associated to the first verbal conjugation, distinguished by the thematic vowel *-a-*: for convenience, this suffix will hereafter be referred to as *-are*, a citation form which is homophonous with the infinitive ending of the verbs which it forms; by no means it should be implied, though, that I take the infinitive (inflectional) ending as having category-changing power.

[2] Representation is in the standard orthography of Italian. Glosses are not provided for lack of space. The boundary symbol "+" is used pretheoretically in (1), just to show the result of a blind segmentation procedure.

-oso	i.	ferr+o	ii.	mister+o	iii.	mostr+o
		ferr+oso		mister+i+oso		mostr+u+oso
-ario	i.	second+o	ii.	fond+o	iii.	cens+o
		second+ario		fond+i+ario		cens+u+ario
-are	i.	sched+a	ii.	distanz+a	iii.	accent+o
		sched+are		distanz+i+are		accent+u+are

I have collected a corpus of derivatives of the kind presented in (1bii-iii), by selecting all the derivatives of this kind present in a reverse dictionary of Italian[3], and in five dictionaries of Italian neologisms of the Eighties[4]. The number of words with each final shape in the corpus is shown in (2):

(2)   Number of words with each final shape in the corpus

iale	uale	ioso	uoso	iario	uario	iare	uare
95	49	19	27	15	17	29	12

The data in (2) must be compared with the overall number of derivatives with each of the four suffixes. In fact, there are about 850 derivatives in -ale, about 540 in -oso, about 360 in -ario, and many denominal verbs in -are[5] in which these suffixes are not preceded by any glide. Clearly, the derivatives which display a glide between the root of the base and the suffix are the exception rather than the rule. We will now try to determine what conditions the appearance of the glides.

1.   Derivatives with /w/

Historically, most of the bases of the derivatives with /w/ go back to Latin fourth declension nouns, whose stem ended in -u; there are, however, a number of derivatives from bases of other kinds, as the data in (3) show:

(3)   Bases of derivatives with /w/ (total = 82)
        Derivatives already existing in Latin are <u>underlined</u>.
        Neologisms are in **boldface**.

a.   Descendants of Latin fourth declension nouns (-u stems) (total = 48)
        Examples:

accento 'stress'	-->	accentuale; accentuare 'to accentuate'
arco 'bow, arch'	-->	<u>arcuare; arcuato</u> 'to bend; bent, arched'
caso 'case'	-->	<u>casuale</u> 'casual'
lusso 'luxury'	-->	lussuoso 'luxurious'
porto 'harbour'	-->	portuale, <u>portuoso</u>, portuario

---

[3] Based on the merging of Zingarelli (1983) and Garzanti (1987), two dictionaries of usage including around 100.000 words each. Courtesy of Tullio De Mauro.

[4] Quarantotto (1987), Cortelazzo & Cardinale (1989), Vassalli (1989), Forconi (1990), Lurati (1990).

[5] The data about the number of derivatives in -ale, -oso and -ario are drawn from an unpublished database constructed by Burani & Thornton, based on Ratti et al. (1989), a reverse dictionary based on an abridged dictionary of Italian, containing about 45.000 lemmata. It is hard to determine the number of denominal verbs in -are because in a reverse dictionary they are not set apart from underived verbs in -are. In BDVDB (Thornton, Iacobini, Burani 1997) they are 187 over a total of 1007 verbs in -are, that is 18,6%. Projecting from this percentage, I have estimated the number of denominal zero-suffixed -are verbs in a 45.000 lemmata dictionary at about 900.

b.   Descendants of Latin nouns alternating between fourth and second declension
(total = 8)
Examples:

tumulto 'riot'   -->   <u>tumultuoso</u> 'tumultuous'

punto 'point'   -->   puntuale 'punctual'

c.   Descendants of Latin nouns of the second declension (*-o* stems)
(total = 18)
Examples:

santo 'saint'   -->   <u>santuario</u> 'sanctuary'

mostro 'monster' -->   <u>mostruoso</u> 'horrible'

talento 'talent'   -->   **talentuoso** 'talented'

delitto 'crime'   -->   delittuoso 'criminal'

d.   Descendants of Latin nouns of the third declension (-C stems)
(total = 4)

monte 'mount'   -->   <u>montuoso</u> 'mountainous'

ponte 'bridge'   -->   pontuale (rare)

voluttà 'pleasure'   -->   <u>voluttuoso, voluttuario</u>

bound root *mens-* 'month'   -->   <u>mensuale</u>'monthly' (rare, antiquated)

e.   New bases (not attested in Latin according to Lewis & Short)

brevetto 'patent'   -->   **brevettuale** (Rainer 1997)

contorno 'contour'   -->   **contornuale**

percento 'per cent'   -->   percentuale

rapporto 'relationship'   -->   **rapportuale**

These bases do not share any morphological property, except being almost all of masculine gender. We will comment later on the relevance of this feature.

From the segmental point of view, though, it is striking that the overwhelming majority of the bases (95,1%) has a root ending in a coronal anterior segment. However, a root ending in such a segment does not automatically yield the insertion of a /w/ glide before one of our suffixes, as there are over 300 derivatives in *-ale*, and about 100 derivatives in *-oso* and in *-ario*, from bases whose root ends in a coronal anterior segment which do not display a /w/ glide between root and suffix (examples: *fato* 'fate' > *fatale* 'fatal', *dialetto* 'dialect' > *dialettale* 'dialectal', *naso* 'nose' > *nasale* 'nasal', *cultura* 'culture' > *culturale* 'cultural', *spirito* 'humor' > *spiritoso* 'humorous', *sasso* 'stone' > *sassoso* 'full of stones'). The property of the root of ending in a coronal segment, then, seems to be at most a necessary, but by no means a sufficient condition, to yield a derivative with a /w/ between root and suffix. Therefore, it cannot be incorporated in a phonological rule or a readjustment rule.

I would like to propose that this condition functions rather as a schema, in the sense of Bybee and Slobin (1982) and Bybee and Moder (1983).

These authors introduce the concept of schema in relation to the past tenses of English irregular verbs. These past tense forms "are rote-learned and stored in the lexicon, but this does not prevent speakers from formulating generalizations about these forms. These generalizations are [...] [called] SCHEMAS. A SCHEMA is a statement that describes the phonological properties of a morphological class [...]. It is not a constraint which rigidly specifies what can and cannot occur, but it is rather a much looser type of correlation [...]" (Bybee & Slobin 1982:267).

Bybee & Slobin (1982:279) exemplify their notion of schema with a class of English verbs whose past tense has the shape in (4) :

(4)　　　...æŋ(k)] verb
　　　　　　　past

They comment that "the schema defines a prototype of the category (in the sense of Rosch & Mervis 1975), in that *sing* or *drink* are the best exemplars -- but *swim* and *begin* may also belong to the category because they end in nasals, although not velar nasals" (Bybee & Slobin 1982:279).

The theory of Bybee and colleagues, then, is that a schema defines the prototype of a category that functions as a natural class, i. e. a schema defines/describes a class by referring to its prototype, which is defined on the basis of its phonological shape. The phonological shapes of the members of the class form a series of family resemblances rather than sharing a discrete set of features. The "most common and best exemplars" of the class conform to the schema, i.e. to the prototype.

Using this notion of schema, and the idea that morphological classes, like natural categories, can be defined not by a necessary and sufficient set of features but by their clustering around a prototype, we could say that there is a prototypic shape of the root of bases displaying the /w/ between root and suffix; bases whose root differs from the prototype by one feature only often still behave like the prototype, i.e. belong to the class of bases which insert a /w/, while progressively more distant bases display progressively less often the /w/ between root and suffix.

The prototype of bases displaying /w/ is shown in (5):

(5)　Root ends in　　　　C$t
　　　i.e., root ends in a Coda Consonant followed by a
　　　[- Continuant, - Sonorant, - Voice, Coronal, +Anterior] C

Bases differing from the prototype by one or more features are schematized in (6):

(6)　a.　Root ends in　　C$s　　[+ Continuant]
　　　b.　Root ends in　　V$t　　no Coda Consonant
　　　c.　Root ends in　　V$s　　no Coda Consonant, [+ Continuant]
　　　d.　Root ends in　　C$n　　[+ Sonorant]
　　　e.　Root ends in　　V$n　　no Coda Consonant, [+ Sonorant]
　　　f.　Root ends in　　C$k　　not Coronal
　　　...

The number and percentage of bases of each type in the corpus are shown in (7).

(7)

Final shape	Number of bases	Percentage	Cumulative percentage
C$t	51	61,4%	61,4%
C$s	10	12,0%	73,4%
V$t	9	10,8%	**84,2%**
V$s	3	3,6%	
Other Coronal	6	7,2%	
Other	4	4,8%	

It is clear that the majority of bases that have a root allomorph ending in /w/ either correspond to the prototype or differ from it by only one feature.

A chi-square test was run to determine whether the distribution of the bases in the first three rows differed significantly from what could be expected given the number of bases with the relevant shape in the language. It turned out that the difference between the prototype and the C$s shape was not significant (χ^2 (1) = 0,69, p = n.s.), while the difference between the prototype and the V$t shape was highly significant (χ^2 (1) = 22,81, p <.001).

This leads to the hypothesis (already put forward by Bybee & Moder) that there is a hierarchy among the features characterizing the prototype: having a closed syllable before the last segment is more important than having exactly /t/ as last segment. This means that prosodic conditions are more important than segmental conditions in defining the shape of the prototype.

Even more striking are the data which result from taking into account only the bases of the "new" derivatives with /w/, i. e. the bases of those derivatives that did not exist in Latin (according to Lewis & Short). These data are shown in (8).

(8) Number and percentage of new derivatives from bases with different final shapes

Final shape of the base	Number of derivatives	Percentage	Cumulative percentage
C$t	47	68,1%	68,1%
C$s	9	13,0%	81,1%
V$t	6	8,7%	**89,8%**
C$n	2	2,9%	
d	3	4,3%	
k	1	1,4%	

It seems that in the history of Italian the likelihood for a new derivative displaying a root allomorph with a final /w/ to come up was directly proportional to the closeness of the base to the prototype defined by the schema in (5), and decreased abruptly for bases whose root differs from the prototype by more than one feature.

The characteristics recognized by Bybee & Slobin in the schemas for English irregular past tenses, and considered by these authors as general characteristics of all morphological schemata, are the ones in (9):

(9)   Characteristics of the schemas for English irregular past tenses
        (a) Their defining properties are phonological and can range over more than one segment [...].
        (b) Classes of items covered by schemas are defined in sets of family resemblances, not by sets of strictly shared properties [...].
        (c) Though schemas do not in themselves change features, they are used in lexical selection; and they may serve as the basis of new formations occasionally, either in speech errors [...] or in so called analogical formations [...].
        (Bybee & Slobin 1982:285)

90

The schemata we have established to describe the class of bases that may insert a /w/ before one of the suffixes in (1a) have the characteristics (9b) and (9c); as far as characteristic (9a) is concerned, although the definition of our schema is primarily phonological, some morphological conditions seem to play a role: the bases should be masculine, and should not contain the suffix *-mento*, although it has the relevant phonological shape. The generalization in (10) holds both in the attested lexicon and in neologisms:

(10)   -mento --> mentale, *-mentuale
e.g.   ornamento -->   ornamentale   *ornamentuale
         fondamento -->   fondamentale   *fondamentuale

There is one characteristic, however, which distinguishes the schema we have established to describe the set of bases that may undergo a /w/ insertion from Bybee & Slobin's schemata. They claim that schemata are product-oriented generalizations: one of their schemata "does not relate a base form to a derived one, as a rule does, but describes only one class of forms (the product class, in terms used by Zager 1980)" (Bybee & Slobin 1982:267). Our schema in (5), instead, is not product-oriented but base oriented (or "source-oriented", in Zager's terms): the relevant conditions are defined over the base and not over the derivative (or at least, there is no gain in defining them over the derivative).

So it seems that the study of the Italian bases which insert a /w/ before certain suffixes has led us to widen the concept of morphological schema, to include also source-oriented generalizations that define classes of bases rather than classes of outputs.

2. Derivatives with /j/

I have been able to collect 118 bases which have at least one derivative in which one of the suffixes in (1a) is preceded by /j/. There is no strong historical relation among these bases, comparable to belonging to the Latin IV declension for the bases of /w/ derivatives.

At first sight, it is striking that many of the bases of the derivatives inserting /j/ end in certain suffixes, as shown in (11):

(11)   Number of bases in *-tore, -anza, -enza* which have one or more /j/ derivatives

-tore	(deverbal suffix forming agent nouns)	15
-anza	(deadjectival/deverbal suffix forming quality nouns)	5
-enza	"	48

So we could hypothesize that at least in these cases it is the suffix in the base which is responsible for the glide insertion, and we could try to write a readjustment rule inserting /j/ after these suffixes. But there are two problems with this account. In the first place, about half of the derivatives with /j/ would remain unexplained, as they do not come from bases with these suffixes; some examples are given in (12):

(12)   *ministero* 'ministry' > *ministeriale* 'ministerial', *mondo* 'world' > *mondiale* 'world-wide', *razza* 'race' > *razziale* 'racial', *grande* 'big' > *grandioso* 'grand', *umile* 'humble' > *umiliare* 'to humiliate', *terzo* 'third' > *terziario* 'tertiary'

More crucially, there are counterexamples to the generalization that bases with these suffixes yield a derivative with /j/. These counterexamples are shown in (13):

(13)   Derivatives from bases in *-anza, -enza, -tore* without /j/

-ale: semenzale, influenzale, pastorale, elettorale, dottorale[6]
-oso: burbanzoso, baldanzoso, speranzoso, **vacanzoso**
-ario: scadenzario
-are: burbanzare, fidanzare, speranzare, quietanzare, incombenzare, piacenzare, cadenzare, scadenzare, mordenzare, agenzare, urgenzare, influenzare, addottorare

Therefore, it is not possible to predict the occurrence of /j/ before one of our suffixes on morphological grounds, at least if we want to predict the distribution of /j/ in the attested lexicon.

Nevertheless, before abandoning the hypothesis of a morphological condition on the appearance of /j/, let us revise the quantitative distribution of this glide with bases in *-anza, -enza* and *-tore* in the attested lexicon (excluding neologisms). The number of derivatives with and without the glide for each base and suffix combination is shown in (14).

(14)   Number of derivatives with and without /j/ for each base and suffix combination

-anza	*-ale*	*-ario*	*-oso*	*-are*
with /j/	4	1	1	5
without /j/	-	-	4	4
-enza	*-ale*	*-ario*	*-oso*	*-are*
with /j/	42	8	5	7
without /j/	2	1	-	8
-tore	*-ale*	*-ario*	*-oso*	*-are*
with /j/	14	-	-	-
without /j/	2	-	-	1

We will come back to these data in section 4.

As far as the data observable in the attested lexicon are concerned, the best way of accounting for derivatives with /j/ between stem and suffix seems to be the hypothesis of the existence of phonologically defined schemata. There are two schemata around which the majority of the derivatives with /j/ cluster. They are shown in (15).

(15) Schemata of the bases which yield /j/ derivatives
a.   **"ts" schema**
       Prototype: Root ends in C$ts,
                    i.e., Root ends in   C$C [- Sonorant, - Voice, Coronal, +Anterior]
                                          /\
                             [- Continuant] [+ Continuant]

---

[6] To these, we can add the couple of synonyms *rettorale/rettoriale* (observed by Sgroi 1997).

Shapes differing from the prototype by one feature:

Root ends in C$t   lacks the [+ Continuant] C
Root ends in C$s   lacks the [- Continuant] C
Root ends in V$ts   lacks the Coda Consonant

b. **"r" schema**
Prototype: Root ends in V$r, i.e., Root ends in an open syllable followed by a [+ Sonorant, + Continuant, + Voice, Coronal, +Anterior, - Lateral] C

Shapes differing from the prototype by one feature:

Root ends in V$l   [+ Lateral]
Root ends in C$r   Coda Consonant

The table in (16) shows the number and percentage of bases with each final shape.

(16)

Final shape	Number_of bases	Percentage	Cumulative percentage
a. C$ts	55	46,6%	46,6%
C$t	8	6,8%	53,4%
C$s	2	1,7%	**55,1%**
b. V$r	29	24,6%	24,6%
V$l	6	5,1%	29,7%
C$r	2	1,7%	**31,4%**
			86,5%

A chi-square test showed that the difference between the number of bases in the prototype and in the second and third row in (16a) respectively is highly significant (C$ts vs. C$t: χ^2 (1) = 129,73, p < .001; C$ts vs. C$s: χ^2 (1) = 20,47, p <.001).

The table in (17) shows the number and percentage of new derivatives with /j/ from bases of different final shapes:

(17)

Final shape	Number_of derivatives	Percentage	Cumulative percentage
a. C$ts	77	62,6%	62,6%
C$t	1	0,8%	63,4%
C$s	1	0,8%	64,2%
V$ts	1	0,8%	**65,0%**
b. V$r	24	19,5%	19,5%
V$l	6	4,9%	24,4%
C$r	2	1,6%	**26,0%**
			91,0%

Here again, bases conforming to the prototype are the vast majority, and prosodic conditions prove more important than segmental ones in defining the prototype.

Now that we have seen the schemata at work with derivatives which display a /j/, we can compare them with the schema at work with /w/ derivatives.

The interesting thing is that there are certain phonological configurations that could be marginal members of classes defined by two different schemas, yielding different glides. For example, roots ending in C$s differ from roots ending in C$t (prototype of the class defined by the schema in (5)) only in the feature [+continuant], and from roots ending in C$ts (prototype of the class defined by the schema in (15a)) by the lack of the [-continuant] unit. The prediction, in such a case, would be that we should find, at least occasionally, derivatives from bases of these shapes with both glides. This prediction is borne out by data such as the ones in (18):

(18) C$s root   derivative with /j/   derivative with /w/

      asse 'axis'   *assiale* 'axial'   –
      sesso 'sex'   –   *sessuale* 'sexual'

3. Productivity

Let us consider now the neologisms formed with our suffixes, to see whether the glides appear with new derivatives, besides appearing in part of the attested lexicon.

The formation of denominal verbs with a -O-*are* suffix seems to be slightly, if at all, productive in contemporary Italian (cfr. Iacobini & Thornton 1992). Therefore, we will concentrate on the three adjectival suffixes.

All three are productive in a Schultinkian sense, i. e. new words are formed with them in contemporary Italian. For -*oso* and -*ario*, though, the number of neologisms from bases that match the prototype of one of the schemata we have defined are so few as to render almost inconclusive the evidence. With -*ario* there are no neologisms with any of the glides, and a couple of glideless neologisms from bases that correspond to a schema: *eccedentario, carcerario*. With -*oso*, there is one neologism with /w/, *talentuoso*, and no glideless neologism from bases that match the C$t schema; the schemata for /j/, on the contrary, seem inactive, as there are glideless neologisms from bases that match them both: *vacanzoso, incazzoso, caciaroso, ceroso, paperoso*, the last three, crucially as we will see, from feminine bases. It is with -*ale* that derivatives with a glide from bases that match one of the schemata are encountered more frequently: there are 6 -*uale* neologisms from C$t bases (*rapportuale, gestuale, fattuale, oggettuale, progettuale, conflittuale*), 9 -*iale* neologisms from C$ts bases (*adolescenziale, dirigenziale, tangenziale, emergenziale, coscienziale, consulenziale, demenziale, differenziale, vertenziale*), and 8 -*iale* neologisms from V$r bases (*manageriale, teenageriale, datoriale, amatoriale, genitoriale, monitoriale, settoriale, autoriale*). There is also an occasional extension of the /j/ to a non prototypical base (*Bardot --> bardottiale*). Counterexamples (i.e., neologisms without a glide from bases which match one of the schemata) exist, but are few: some derivatives from feminine bases (*giuntale, figurale, congiunturale*) and *cantautorale*, from the blend *cantautore* 'singer-author'. It is possible that masculine gender is a morphological condition to be added also to the definition of the prototype of the V$r schema, as derivatives from feminine bases that match the phonological definition of this schema fail to display the glide

also with *-oso*, as we have seen. Neologisms in *-iale* from bases of the V$r shape are all from nouns ending in the Agentive/Instrumental suffix *-tore* or from English bases with the comparable suffixes-*er*, *-or*, (*manageriale, teenageriale, monitoriale*); neologisms in *-iale* from bases of the C$ts shape are all from bases in *-enza* .

4.   Concluding remarks

To conclude, let me summarize my findings and the analysis which I propose for the two sets of data we have seen.

In the case of /w/ insertion, I think the best analysis is that certain bases, those which correspond to a prototype described by the phonologically and morphologically definable, base-oriented schema in (5), may have or develop a root allomorph ending in /w/, which is employed in the derivation of adjectives in *-ale* and occasionally in *-oso*, and which is observable in the attested lexicon also in derivatives in *-ario* and *-are*. Productivity is scanty (only 7 neologisms), as expected with morphological processes regulated by a schema rather than by a rule.

Bybee & Moder, following Rosch, call our attention to the factor of 'cue validity' as predictor of the productivity that a morphological class defined by means of a schema can attain.

According to Rosch, "cue validity is a probabilistic concept: the validity of a given cue X as a predictor of a given category Y [...] increases as the frequency with which cue X is associated with category Y increases, and decreases as the frequency with which cue X is associated with categories other than Y increases" (Rosch 1978:30).

In the case of the category of bases which display a root allomorph ending in /w/, the cue validity of the schema we have established is very low, as most of the bases that match the prototype in the language do not in fact display a glide-final root allomorph. There are almost 2000 masculine bases whose root ends in C$t, and only 51 have a root allomorph with final /w/.

So the schema for root allomorphs with final /w/ is not very productive, but, as some of the schemata discovered by Bybee and colleagues, it can "serve as the basis of new formations occasionally" (Bybee & Slobin 1982:285, cfr. (9) above). There are in fact a few neologisms in *-uale* and *-uoso* from bases that conform to the prototype, and in a pilot test I have been able to elicit oral production of *-uale* derivatives from bases which do not have an established adjectival derivative in the language and whose phonological shape conforms to the schema in (5).

As far as cases in which a /j/ appears, different analyses are possible. If we want to take into account all the attested lexicon, the analysis will be parallel to the one offered for /w/ derivatives: certain bases, conforming to one of the two phonologically defined schemas in (15), may have a root allomorph ending in /j/, which is employed in derivatives with one of the suffixes in (1a).

But another analysis is possible for the derivatives in *-iale*: if we go back to the data in (14), we can see that the presence of one of the three suffixes *-anza*, *-enza* and *-tore* has high cue validity in predicting that a derivative in *-ale* will display a /j/ before this suffix, as there are very few counterexamples to this generalization. So if we hypothesize the existence of morphologically defined schemata such as the ones in (19), which define a base containing one of these suffixes as prototypic for derivatives in -/jale/, such schemata would have a high cue validity, contrary to the low cue validity of the purely phonologically defined schemata in (15).

(19)   Morphologically defined schemata for derivatives in -*iale*

    a.   Base ends in -*anza*
    b.   Base ends in -*enza*
    c.   Base ends in -*tore*

The morphologically defined schemata in (19) are not mutually exclusive with the phonologically defined ones in (15). Of course there is overlapping between the sets of bases captured by the morphologically defined schemata in (19a-b) and the phonologically defined schema in (15a), and by the schema (19c) and the schema (15b). But the interesting point is that the two sorts of schemata have different cue validity: this is quite low for the phonologically defined schemata in (15), but quite high for the morphologicaly defined ones in (19).

According to Bybee's (1988) approach, in which the difference between rules and schemata is not qualitative, but purely quantitative, in that "rules are highly reinforced representational patterns or schemata" (Bybee 1988:135), we would predict that a "highly reinforced" schema, i.e. a schema with high cue validity, such as the ones in (19), is almost non-distinct from a rule. And in fact, this is the case: remember that all but one of the neologisms with -*ale* from bases conforming to the morphologically defined schemata in (19) display the /j/ and conversely, only one neologism displaying the /j/ (*bardottiale*) is not derived from a base defined by one of the schemata in (19). This categorical behaviour is typical of a productive word formation rule.

So, if we do not aim at generating all the attested lexicon, but limit our aim to the characterization of productive processes only, the establishment of a morphological condition is possible. As we have seen, /j/ appears in neologisms only in derivatives with -*ale* from bases ending in the suffixes -*enza*, -*tore* or English -*er*, -*or*. In this case, we might analyze the data both as cases of morphologically governed base allomorphy (as in (20a)) or of morphologically governed suffix allomorphy (as in (20b)):

(20)   Two possible analyses for the appearance of /j/ in neologisms with -*ale*

a.   +tor]$_N$ --> +tori]$_N$ /__+ale]$_A$
    +enz]$_N$ --> +enzi]$_N$ /__+ale]$_A$
    ...

b.   +ale]$_A$--> +jale]$_A$ /   +tor]$_N$ $\Big\}$ +_____
                   +enz]$_N$
                   +er]$_N$
                   +or]$_N$

The decision between analyses (20a) and (20b) is up to a point arbitrary, as both correctly describe the facts.

Analysis (20a) would be preferred on historical grounds, as the source for the observed allomorphy is in the fact that the Latin suffix -*entia* yielded derivatives in -*entialis* and the Latin suffix -*torius* (+*tor*+*ius*) yielded derivatives in +*torialis*, which then formed the model for analogical creations in -*enziale*, -*toriale* from Italian bases in -*enza*, -*tore*.

Analysis (20b) would be preferred on economic grounds, as it reduces the number of allomorphic entities in the language (only the suffix -*ale* would have an allomorph, vs. the four suffixes +*tore*, +*enza*, +*er* and +*or*). But in the age of morphology by itself it is

not clear whether the reduction of allomorphy must be pursued as the most desirable outcome.

I believe the decision will have to be taken on more general grounds, considering also the tendency in allomorphic phenomena in other parts of the Italian language and in other languages.

References

Bybee, J.L., 1988, "Morphology as Lexical Organization", in M. Hammond & M. Noonan (eds.), *Theoretical Morphology*, San Diego et alibi, Academic Press, 1988, 119-141.

Bybee, J.L. & Slobin, D.I., 1982, "Rules and schemas in the development and use of the English past tense", *Language*,58, 265-89.

Bybee, J.L. & Moder, C.L., 1983, "Morphological classes as natural categories", *Language*, 59, 251-270.

Cortelazzo, M., e Cardinale, U., 1989, *Dizionario di parole nuove 1964-1987*, Torino, Loescher.

Forconi, A., 1990, *Dizionario delle nuove parole italiane*, Milano, SugarCo.

Garzanti, 1987 = *Il grande dizionario Garzanti della lingua italiana*, Milano, Garzanti.

Iacobini, C. & Thornton, A.M., 1992, "Tendenze nella formazione delle parole nell'italiano del ventesimo secolo", in *Linee di tendenza dell'italiano contemporaneo*, a cura di B. Moretti, D. Petrini & S. Bianconi, Roma, Bulzoni, 25-55.

Lewis & Short = *A Latin Dictionary*, Oxford, OUP, 1984.

Lurati, O., 1990, *3000 parole nuove. La neologia negli anni 1980-1990*, Bologna, Zanichelli.

Quarantotto, C., 1987, *Dizionario del nuovo italiano*, Roma, Newton Compton.

Rainer, F., 1997, "Le condizioni d'impiego dell'allomorfo in -*u*- (tipo: *man-u-alis*) in latino e in italiano", *Bollettino della Società di Linguistica Italiana (SLI)*, XV,2, 77-79.

Ratti, D., Marconi, L., Morgavi, G., Rolando, C., (a cura di), 1989, *Flessioni, rime, anagrammi: l'italiano in scatola di montaggio*, Bologna, Zanichelli.

Rosch, E., 1978, "Principles of categorization", in E. Rosch & B.B. Lloyd (eds.), *Cognition and Categorization*, Hillsdale, NJ, Erlbaum, 27-48.

Rosch, E. & Mervis, C.B., 1975, "Family resemblances: Studies in the internal structure of categories", *Cognitive Psychology*, 7, 573-605.

Sgroi,S.C., 1997, "I derivati in -*iale* e in -*uale*: dai prestiti lessicali all'induzione di morfema", *Bollettino della Società di Linguistica Italiana (SLI)*, XV,2, 95-97.

Thornton, A.M., Iacobini, C., Burani, C., 1997, *BDVDB. Una base di dati per il Vocabolario di base della lingua italiana*, Roma, Bulzoni.

Vassalli, S., 1989, *Il neoitaliano. Le parole degli anni Ottanta*, Bologna, Zanichelli.

Zager, D., 1980, *A real-time process model of morphological change*, Buffalo, SUNY Dissertation.

Zingarelli, N., 1983, *Vocabolario della lingua italiana*, XI ed., Bologna, Zanichelli.