

A NOTE ON DIPHTHONGIZATION

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O. Within Romance linguistics the diphthongs present a problem of long standing both for what concerns the cause of their existence and the way in which they developed in their phonetic reality. Particularly the difference between the falling diphthongs (e.g. OFr. éy from VLt. é) and the rising ones (e.g. OFr. yé from VLt. e¹) has caused extensive debate (cf. Spore 1972). This note attempts to formulate the basic issue at stake in the Romance phenomenon of diphthongization and to consider them in the light of various interesting approaches to diphthongization put forward in the recent literature.

I. Three different attempts at elucidating diphthongization -- Labov, Yaeger and Steiner (1972) (henceforth LYS); Andersen (1972); Stampe (1972) -- all appeared in the same year. A brief summary of these studies will make it possible to appreciate their importance with respect to the Romance problem.

In LYS the emphasis is put on the empirical foundations of the surface phonetic description of diphthongs in connection with their socio-linguistic embedding (variation, variable conditioning, and apparent time evolution within the various dimensions in one speech community). The ensuing framework hypothesizes general tendencies for vowels understood as being locked into a system subject to chainshifts which involves both monophthongs and diphthongs. So-called peripheral vowels ({+peripheral} is one manifestation of {+tense} , i.e. extreme vocalic articulation in terms of extreme F1 and F2 values compared with 'normal' articulations of the same vowels) are distinguished from non-peripheral (=lax) ones. Within vocalic subsystems² (monophthongs, diphthongs of various kinds), three basic tendencies are identified as relevant in chainshifts:

- (1) (a) peripheral vowels rise (e.g. e: > i:)
 (b) non-peripheral vowels fall in upgliding diphthongs (e.g. iy > ey > sy)
 (c) back vowels become fronted (e.g. u > ü > i) (p. 106/7)

Three additional principles define vocalic behavior across different subsystems in situations of chainshift:

- (2) (a) tense/long vowels may develop inglides while rising from mid to high (cf. (1a); e.g. e: > i:ə)
 (b) high ingliding vowels become monophthongized (excluding the ones from (2a)), non-low tense monophthongs become upgliding diphthongs (e.g. i:ə > i: ; e: > e(:)y)
 (c) maximally open upgliding diphthongs may become tense/long monophthongs (e.g. a(:)y > ɛ: or a:) (p. 228)

The crucial aspect of this framework describing vocalic space is the fact that the monophthongal and the diphthongal manifestations of vowels are lumped together into one coherent system subject to chainshifts within each subsystem or across such subsystems (cf. p.219; Fig.5-1,2). As the principles in (2) state there is mobility between ingliding, upgliding, and monophthongal forms of vowels; the rising diphthongs are also comprised in the picture, but, as their absence from (2) indicates, they remain marginal in LYS.

Andersen (1972) sees diphthongization as a much broader phenomenon, including not just the commonly accepted vowel-plus-glide manifestations, but all intrasegmental variation affecting syllabics and syllable slopes. He defines diphthongization as intrasegmental variation of an otherwise distinctive feature ranging over its two polar values in such a way that the unmarked value of this feature in the given context is always first (23), and the marked value follows in second position within the heterogeneous segment. This primary (phonetic) diphthongization may be followed by phonological polarization such that the originally single segment changes to a sequence of segments. Concentrating on the vocalic diphthongs involving a glide, the intrasegmental distribution principle of 'unmarked - marked', plus an auxiliary principle identifying the more sonorous element of the diphthongal se-

quence as the normal center of syllabic intensity ('intensity shift', 24), assure a particular linear order for the glide in relation to the vowel. For a phonetic diphthongization yielding the segmental diphthongs (ei), (ie), (eɛ), (ɛe) this system predicts the respective surface interpretations {ei}: {ie}; {eɛ} > {iɛ}; {ɛe} > {ɛi}.

The framework of Natural Phonology (cf. Stampe 1969) organizes vowels basically in the space formed by the axes of sonority (high - mid - low vowels; i.e. i - e - ɛ; or ü - ö - oe) and of color (palatal-labial; four chromatic types are defined: (1) achromatic = non-palatal, non-labial; e.g. ɪ, ʏ, ʌ; (2) monochromatic = labial; e.g. u, o, ɔ; (3) monochromatic = palatal; e.g. i, e, ɛ; (4) bichromatic = palatal and labial; e.g. ü, ö, oe). The fundamental tendencies of vowels in this space are described by innate processes such as raising (preferably affecting chromatic vowels; e.g. ɛi > ei > ii³), lowering (affecting achromatic vowels; e.g. ɪi > ʌi > ai), bleaching (affecting lax vowels preferentially; e.g. ii > ɪi, ou > ʌu), and a number of other such processes (cf. Miller 1972). Circumscribed by these natural tendencies of monophthongal vowels the phenomenon of context-free diphthongization is described by Stampe by the formulation in (3):

(3) Diphthongization⁴

$$\left(\begin{array}{l} \text{chromatic} \\ v \end{array} \begin{array}{l} \text{!high} \\ \text{!tense} \end{array} \right) \rightarrow \{-tense\} \{-syl\}$$

i.e., the higher and tenser a chromatic vowel, the more likely it is that such a syllabic segment may split up into a lax syllabic phase followed by a non-syllabic segment. The primary effect of this diphthongization is the sequential polarization of sonority vs. color characteristics of the source monophthong. Some such diphthongizations include e.g. e: > ei, i: > ii, o: > ou, u: > uu, etc. The non-syllabic segment will keep its optimum shape of a glide for accentuating color, whereas the syllabic segment will follow the path of normal vowels in terms of potential bleaching, lowering, and other such processes (cf. the illustrations under these headings above). In the Great Vowel Shift of English, Stampe (1972:583) postulates evolutionary chains such as the one in (4):

(4) i: > ii > ei > Ai > ai

involving the steps diphthongization > lowering > bleaching > lowering

These three approaches outlined above are motivated by largely different underlying questions, and they describe only partially overlapping data. In particular, they differ in their account of the characteristics of the different types of vocalic diphthongs: Only LYS distinguish clearly between ingliding, upgliding, and rising diphthongs, whereas in Stampe (1972) only upgliding diphthongs are mentioned; Andersen (1972) treats again all three types, but he assigns totally different underlying causes to ingliding vs. upgliding and rising diphthongs⁵. To what extent then can these approaches offer insight into the Romance problem of upgliding vs. rising diphthongs? For the purpose of discussing this question, it will be useful to introduce here the necessary basic data from the history of the Romance languages.

II. From the Vulgar Latin vowel system⁶ (which is at the basis of most Romance languages; cf. (5)), characterized by three vocalic heights with one front and one back series, the two chromatic low vowels, stressed e and o, underwent generally diphthongization to yé and wó respectively at an early time (arguably starting not later than between III and V century AD; cf. Spore 1972:306-24). The relevant language-specific conditions for the application of this diphthongization rule are given in (6).

(5) Vlt. stressed vowels / i e ɛ a ɔ o u /

Diphthongization: é > yé ; ó > wó

(6) Conditions for Diphthongization

(a) everywhere under stress (e.g. Castilian)

(b) in open syllable under stress (e.g. French, Italian)

(c) before high vowel (segment) under stress (e.g. Southern Italian)

The examples in (7) illustrate the different possibilities with typified forms.

- (7) (a) $\underline{e}, \underline{o}$ in open syllable before non-high final vowel:
 Vlt. p \acute{e} de > Cast. p{y $\acute{e}}$; It. p{y $\acute{e}}$ de; Fr. p{y $\acute{e}}$; SIt. p{ $\acute{e}}$ de
 Vlt. r \acute{o} ta > Cast. r{w $\acute{e}}$ da; It. r{w $\acute{o}}$ ta; (OFr. c{w $\acute{e}}$ r from Vlt. *c \acute{o} re);
 SIt. r{ $\acute{o}}$ ta
- (b) $\underline{e}, \underline{o}$ in open syllable before high vowel⁷:
 Vlt. b \acute{o} nu > Cast. b{w $\acute{e}}$ no; It. b{w $\acute{o}}$ no; SIt. b{w $\acute{o}}$ nu, b{ $\acute{u}}$ nu
- (c) $\underline{e}, \underline{o}$ in checked syllable before non-high final vowel:
 Vlt. f \acute{e} sta > Cast. f{y $\acute{e}}$ sta; It. f{ $\acute{e}}$ sta; Fr. f{ $\acute{e}}$ te; SIt. f{ $\acute{e}}$ sta
 Vlt. gr \acute{o} ssa > Cast. gr{w $\acute{e}}$ sa; It. gr{ $\acute{o}}$ ssa; Fr. gr{ $\acute{o}}$ sse; SIt. gr{ $\acute{o}}$ ssa
- (d) $\underline{e}, \underline{o}$ in checked syllable before high vowel:
 Vlt. v \acute{e} ntu > Cast. v{y $\acute{e}}$ nto; It. v{ $\acute{e}}$ nto; SIt. v{y $\acute{e}}$ ntu, v{ $\acute{í}}$ ntu
 Vlt. gr \acute{o} ssu > Cast. gr{w $\acute{e}}$ so; It. gr{ $\acute{o}}$ sso; Fr. gr{ $\acute{o}}$ s; SIt. gr{w $\acute{o}}$ ssu,
 gr{ $\acute{u}}$ ssu

The environmental conditions in (6a-c) are widely different since they refer to syllable type (cf. (6b)), to phonetic content of contextual segments (cf. (6c)), and to general absence of segmental regulatory environments (cf. (6a)). In addition, in languages characterized by environmental restrictions of type (6a) or (6b), a segmental environment typical of umlaut, i.e. a following high segment \underline{y} , prevents diphthongization of \underline{e} and \underline{o} . These were apparently raised to \underline{e} and \underline{o} respectively, removing them from the scope of the (later) diphthongization rule. Thus the umlauting environment operates both as a trigger for diphthongization (in languages of type (6c)), and as a prohibitive condition in other languages (cf. (8)).

- (8) Vlt. f \acute{o} lya > Cast. h{ $\acute{o}}$ ja, not *h{w $\acute{e}}$ ja
 OProv. f{w $\acute{e}}$ lha, not *f{ $\acute{o}}$ lha in certain dialects⁸

The important aspect of this diphthongization is that whatever the language-particular situation, if there was diphthongization of $\underline{e}, \underline{o}$, it is generally not possible to document or even reasonably reconstruct a primitive stage where the result of the initial diphthongization would have been an ingliding or an upgliding diphthong: thus it must be assumed that these cases started out already as rising diphthongs.

A smaller number of Romance languages (a subset of those which un-

derwent the diphthongization of $\underline{\acute{e}}$, $\underline{\acute{o}}$ knew a second, later round of diphthongizations affecting the mid vowels \underline{e} , \underline{o} , less frequently \underline{a} , rarely \underline{i} , \underline{u} .⁹ The first results here show invariably upgliding diphthongs ($\underline{e} > \underline{ei}$, $\underline{o} > \underline{ou}$). The environmental condition is uniform in that this diphthongization happens in open syllable under stress as in (9).

- (9) Vlt. véla > OFr. v{éy}le > v{óy}le
 Vlt. amóre > OFr. am{ów}r
 Vlt. páne > OFr. p{áy}n

The crucial question is whether this primordial difference between rising and upgliding diphthongal results is significant, i.e. why there are (almost) no cases of $\underline{\acute{e}} > \underline{\acute{ey}}$ and/or $\underline{\acute{o}} > \underline{\acute{oy}}$. Or must it be attributed to chance that the results look as they do in Romance?

III. Within Romance linguistics, F. Schürr developed an interpretation of this problem in a series of articles and monographs.¹⁰ He argues that the difference between the ascending and the descending diphthongs (rising vs. upgliding) is highly significant: As demonstrated by the uniform environment of the open syllable for the falling diphthongs, only this situation can be regarded a 'spontaneous' diphthongization not triggered by any directly identifiable segmental context (taking syllable level information such as stress to be non-segmental). The reason for this spontaneous diphthongization is to be sought in the attested lengthening of stressed vowels in open syllable. On the other hand; the ascending diphthongs from $\underline{\acute{e}}$, $\underline{\acute{o}}$ are claimed to be the result of segmental environmental induction, namely by the following high vowel as in (6c) (either Cl.Lt. $\underline{-\acute{i}}$ or $\underline{-u}$ or else \underline{y}). But for Schürr all diphthongization of \underline{e} , \underline{o} in Romance started out as a type (6c) umlauting diphthongization¹¹ with subsequent heavy restructuring of the environment to yield in addition to some preserved specimens of umlaut diphthongization (such as part of the Southern Italian dialects) also the more widespread generalized diphthongizations (6a) and (6b) (e.g. Spanish and Italian, respectively). The phonetic function, and thus the origin, of the breaking of the vowel into a rising diphthong would be the anticipation of the high articulation of the (usually) final vowel across one

syllable into the initial phase of the stressed syllable, actually a type of glide insertion process resulting from a persistent slip of the tongue (cf. Fromkin 1971). Schürr's two crucial claims then are that umlaut must yield a rising diphthong (if the result is a diphthong at all), and that spontaneous diphthongization is always falling (presumably upgliding or ingliding).

Fitting Schürr's account of Romance diphthongization into either the framework of Natural Phonology or of LYS leads to the recognition that there is general agreement as to the spontaneous/natural diphthongization: It is due to lengthening/tensing/peripherality, and it leads to upgliding diphthongs, at least for the mid vowels under discussion here (cf. (3) and (2c) above). For the Romance ascending diphthongs the provisions of Natural Phonology are (not yet) sufficient if it should be the case that this umlaut diphthongization of ɛ, ɔ represents a universally valid tendency (=natural process) for vowels; in the absence of any compelling evidence it might be better to assume that we are dealing with an idiosyncratic aspect of the Romance situation, a non-natural rule of unknown origin: In this way it would be comprehensible why this change affects exclusively low chromatic vowels (and not {'high} ones as postulated in (3)), and why it yields the reverse order for the syllabic and the non-syllabic elements in the resulting diphthong. LYS are not able to offer much more help either: The subsystem of rising diphthongs is claimed to be connected to the one of ingliding vowels (cf. Fig.5-1,2 and corresponding discussion 226-8), but the supporting data are taken from Romance and are consequently not independently convincing (226). For LYS the speculative origin of ɥɛ from ɛ̃ might be as in (10):

(10) $\acute{\epsilon} : > (?) \acute{\epsilon} : \partial > \acute{e} : \partial > \acute{i} : \partial > (?) \acute{y}\acute{\epsilon}$

by ingliding, raising of peripheral vowels, syllabicity adjustment
 Whatever the justification of this chain of changes in general (the same hypothetical evolution has some currency in Romance linguistics, cf. Alarcos Llorach 1968:222-4; cf. also the mentioned variation in the Southern Italian results in (7)) this type of evolution cannot be accepted as correct for all those Romance languages which preserved the original distinction between é and ɛ̃, o-and ɔ̃ even in the diphthongs: Italian shows {ɥɛ} and

{wó), not *{yé) and *{wó). Clearly an explanation or even adequate description is lacking. On the other hand, for what concerns Natural Phonology, it is important to take into consideration that this framework is able to make correct predictions as to the evolution of the syllabic segment not only of upgliding diphthongs (for which it is adapted) but also for rising ones (which it does not recognize otherwise); coloring, raising, lowering, bleaching can be transposed from the 'natural history' of one type of vocalic subsystem (in the sense of LYS) to another. Thus in Castilian, the diphthongization of é, é results in yé and wé; but the result wé is not immediate. Older stages of Castilian, and still modern phases of surrounding dialects (cf. Menéndez Pidal 1950:121-39, 144-52), show the alternate manifestations wó, wá, wó, sometimes even in free variation. Beside yé there is dialectally also yá attested, however not *yó. These alternate forms can be understood as the result of an evolution é > yé > yá > ya by the processes of diphthongization, bleaching, and lowering. In a parallel way the back series would consist in this chain: o > wó > wá > wa or we by the processes of diphthongization, bleaching, and lowering or coloring; we > wó by color assimilation (?) (cf. Stampe 1972 and Miller 1972, 1973 for similar evolutionary chains concerning falling diphthongs). Thus the validity of the predictions about the evolution of the syllabic elements in diphthongs does not depend in this framework on the linear arrangement of the vowel and the glide elements. For LYS the single subsystems are more autonomous in terms of being subject to different particular processes, i.e. in their interpretation a falling diphthong, consisting of V G, and a rising one, G V, usually do not exhibit the same evolutionary behavior for what concerns the vowel; rather the subsystem difference is more crucial (cf. LYS 1972:219-28). Yet the same range of surface variation in the manifestations of rising diphthongs can be described in the LYS approach as in Stampe's. In LYS the evolution of wo to we would be understood more as a chainshift (wo > wá > wa > wae > wé > we) consisting of non-peripheral lowering followed by peripheral raising of the syllabic element (cf. their pattern 1; Fig.4-1) according to the principle (1c) that back vowels get fronted. This same principle also accounts for the non-attested result *yó from é: front vowels do not get backed without specific circumstances. So for both Natural Pho-

nology and LYS the major problem is the unsolved origin of the rising diphthongs of Romance, and the fact that these diphthongizations do not constitute generally a fragment of a larger, coherent chainshift involving vowels.

Andersen's account presents another problem with respect to the Romance data. For any diphthongization it must first be determined which distinctive feature is at the basis of the phonetic polarization. Consider the specifications for \underline{e} and \underline{e} as Andersen (1972) would present them:¹²

- (11) e : {+vocalic; +tns; -dif; -comp; -grv; -flat}
 ϵ : {+vocalic; +tns; -dif; +comp; -grv; -flat}

The resulting phonetic diphthongs include thus all of the manifestations shown in (12).

- (12) (a) Possible segmental diphthongs¹³ from VLt. / \acute{e} / consisting in the phonetic diphthongization of:

| | | | |
|------------|---|---------------|------------------|
| {+vocalic} | → | {+voc} {-voc} | ($e\acute{e}$) |
| {+tense} | → | {+tns} {-tns} | ($e\grave{e}$) |
| {-diffuse} | → | {+dif} {-dif} | (ie) |
| {-compact} | → | {+com} {-com} | (ϵe) |
| {-grave} | → | {-grv} {+grv} | ($e\gamma$) |
| {-flat} | → | {-flt} {+flt} | ($e\ddot{o}$) |

- (b) Possible segmental diphthongs from VLt. / $\acute{\epsilon}$ / consisting in the phonetic diphthongization of:

| | | | |
|------------|---|---------------|--------------------------------|
| {+vocalic} | → | {+voc} {-voc} | ($\epsilon\acute{\epsilon}$) |
| {+tense} | → | {+tns} {-tns} | ($\epsilon\grave{\epsilon}$) |
| {-diffuse} | → | {-dif} {+dif} | (ϵi) |
| {+compact} | → | {+com} {-com} | (ϵe) |
| {-grave} | → | {-grv} {+grv} | ($\epsilon\Lambda$) |
| {-flat} | → | {-flt} {+flt} | (ϵoe) |

These results are not encouraging, since the only forms which could phonetically be interpreted to yield \underline{ey} for the upgliding, and $\underline{ye}/\underline{v\epsilon}$ for the rising diphthongs of Romance are the diffuseness polarization of / e / > { ie } and the diffuseness or compactness diphthongizations of / ϵ / > { ϵe } > { ϵi }. But for Romance the situation should be reversed so that / $\acute{\epsilon}$ / yields the

rising and /e/ the upgliding diphthong! Possibly this is due to an imperfection in the feature system employed; consider e.g. the consequence of replacing the feature {±vocalic} with {±syllabic}. A phonetic diphthongization along this axis will naturally yield the series of upgliding diphthongs $\underline{i} > \underline{ii} > \underline{iy}$; $\underline{e} > \underline{ee} > \underline{ey}$; $\underline{ɛ} > \underline{ɛɛ} > \underline{ɛy}$. On the assumption of a different markedness status of syllabicity the diphthongization of /ɛ/ could even yield the rising diphthong $\underline{yɛ}$: $\underline{ɛ} > \underline{ɛɛ} > \underline{ɛy}$. However the problems with this account of diphthongs are numerous: The validity of the feature system, the correctness of the markedness distribution, and the indeterminacy as to which distinctive feature produces an actual diphthong (cf the diffuseness and compactness diphthongizations in (12b)) -- all three of these independently hypothetical components of phonological structure are simultaneously open to criticism. Thus it will not be possible to come to any coherent conclusion about diphthongization due to the number of uncontrolled covariables.¹⁴ The one feature where Andersen's account seems to be more motivated than either Stampe's or LYS's is that Andersen is not forced to treat diphthongization as a fragment of a chainshift in the vocalic space: This is exactly the situation of Romance $\underline{ɛ}$, $\underline{ɔ}$.

IV. There are some interesting data bearing on the issue of the spontaneity/naturalness of rising vs. upgliding diphthongs in Romance. Straka (1959) presents evidence that in French, Czech, and other languages the effect of (extreme) lengthening of vowels in open syllable is to break these overlong (=!tense) vowels in such a way as to produce an offglide which consists in a raised articulation after {-low} vowels, i.e. producing an upgliding diphthong, and in a lowered articulation after {+low} vowels, i.e. producing an ingliding diphthong; thus $\underline{i}:: > \underline{i:i} > \underline{i:i}$; $\underline{e}:: > \underline{e:e} > \underline{e:i}$; but $\underline{ɛ}:: > \underline{ɛ:ae} > \underline{ɛ:a}$; etc. All such diphthongs are falling (upgliding or ingliding) as predicted by Schürr and stated by Stampe. Straka interprets this situation to mean that diphthongization, if spontaneous, produces falling diphthongs: the difference between the upgliding and the ingliding results of {-low} vs. {+low} vowels is claimed to be the starting point for the end result of rising diphthongs from the {+low} vowels. Straka thus postulates an intimate relationship between ingliding and rising diphthongs,

in the same way as LYS (cf. (2) above, and their Fig.5-1,2). An example of such spontaneous diphthongization producing ingliding manifestations for ɛ, ɔ is offered by Schürr (1918-19.II:50-3).

(13) Spontaneous diphthongization of ɛ, ɔ in Modern Romagnolo (SE corner of Po basin, Italy)

- (a) /ɛ̃/ Imola: frad{ɛ̃:}l , burd{ɛ̃:}l
 Faenza: frad{áẽ^ð}l , burd{áẽ^ð}l
 Ravenna: frad{ɛ̃^ð}l , t{ɛ̃^ð}ra (countryside)
 Meldola: b{ɛ̃:}l or b{ɛ̃^ð}l ; b{ɛ̃:}la or b{ɛ̃^ð}la
 Cesena: frad{áe}l , burd{áe}l , b{áe}l(a)
- (b) /ɔ̃/ Imola: k{ɔ̃:}l , n{ɔ̃:}ster
 Forlì: k{á:}l , n{á:}ster
 Imola: k{ɔ̃:}l or k{ɔ̃^ð}l , n{ɔ̃:}ster or n{ɔ̃^ð}ster
 (countryside)

For Schürr it is however clear that this type of diphthongization cannot lead to a rising diphthong (cf. Schürr 1918-19.II:1-180). But this claim cannot be upheld in the face of some other data from Southern France (dialect of Quérigut). This particular local dialect of Provençal described by Séguy (1954) shows spontaneous diphthongization of its vowels ɛ, ɔ under length and stress. The results vary on an intra-speaker and intra-item basis between a monophthong and a full rising diphthong. Consider the data in (14).

(14) Diphthongization in Quérigut (Provençal):¹⁵

- (a) /ɛ̃/ pikar:èl , kūr:è , p:è p.è {ɥ:}
 pe:è , küre::è {eɛ̃:}
 sulyé::è , kūré::è {eɛ̃:}
 (no examples) {ɥɛ̃:}
- (b) /ɔ̃/ k:òp , m.òrt , :òli {ɔ̃:}
 ratiso:òm , ak:o:òda {oɔ̃:}
 ratisó::òm , tró:òp {oɔ̃:}
 défw:òra , mw:òrt {wɔ̃:}

(Séguy 1954:309)

As a consequence it cannot be taken for granted any longer, following Straka (1959), that any spontaneous diphthongization of ɛ, ɔ must result in a fal-

ling (=ingliding) diphthong; the dialect of Quérigut offers a case where at least within the range of precision of impressionistic transcription, free variation between a long monophthong and a rising diphthong is documented. This constitutes evidence against Straka's interpretation of the lengthening effect on vowels as a universal in phonetic space: It may, or may not, be the case that low vowels produce ingliding diphthongs and non-low vowels yieldupgliding ones. The same data also destroy Schürr's universal claim that spontaneous diphthongization cannot yield a rising diphthong: on the other hand, the claim that rising diphthongs may be the result of umlaut is not affected.

In addition to the cases where e breaks up into a diphthong of rising or upgliding character, it is also possible to document 'spontaneous' diphthongization of e to an upgliding diphthong. This happened in the Franco-provençal dialect of Charmey (Fribourg, Switzerland) as reported by Gauchat (1905) and Hermann (1929). Gauchat noted for e the realizations e, e^e, and e^y with the oldest speakers most consistently using the monophthong and the youngest ones the diphthong e^y (39-42). Hermann caught a slightly more advanced stage of this diphthongization with further elimination of the original monophthong; the e^y of Gauchat had in the meantime acquired a lowered variant ae^y (e.g. v{e}t ~v{e^e}t ~ v{e^y}t ~ v{ae^y}t 'il voit'; cf. Hermann 1929:211-2). On the back side, the ô in the already existing diphthong vô (e.g. pwôrta) had developed between the study of Gauchat and the one by Hermann a frequent variant vâô in parallel to the slightly earlier evolution of â to aô (Gauchat 1905:42-7; Hermann 1929:208-10); thus a rising diphthong may further break in its syllabic part into an upgliding diphthong. The significant aspects are the fact that e and o can also yield upgliding diphthongs in addition to rising and ingliding manifestations, and that e and o may diphthongize without any further vocalic changes taking place in their potential chainshift area of the vocalic subsystem.

V. Not only is it the case that the type of diphthong resulting from a spontaneous diphthongization of e, o is unpredictable in terms of present knowledge about this problem, but it is also well known from the history and dialect variations of Romance languages that rising and ingliding diphthongs frequently substitute for each other over time and space. A typi-

cal case is the history of French; cf. (15).

(15) French diphthong evolution:

| | | | | | |
|----|----------------------------------|------|-------|---|---------|
| ɛ̃ | > yɛ̃ | VLt. | péde | > | p{yé}d |
| ɔ̃ | > wɔ̃ > ... > wé > ... > ó , óe | VLt. | *côre | > | c{óe}r |
| é | > éy > ... > óy > ... > wɛ̃ > wá | VLt. | véla | > | v{wá}le |
| ó | > ów > ... > éw > ... > ó , óe | VLt. | sólu | > | s{óe}l |
| á | > áe > ... > é̃ , é , (yé) | VLt. | pátre | > | p{é̃}re |

(cf. Pope 1952:88 503-56)

In the Italian dialects of the Marche, Abruzzi, Calabria, and Puglie we find frequently in parallel existence the rising diphthongs wɔ̃, wɛ̃ and the ingliding manifestations úɔ̃, úa, úo (Rohlf's 1949:8 123; Schür 1956:142). All these phenomena of extensive variability of diphthongal manifestations taken together lead to the recognition that any account of diphthongization must offer a coherent framework for permitting and constraining these crossovers from one vocalic subsystem to another, as it is attempted in the descriptive schemata shown in LYS (219-28). Yet their presentation cannot constitute an explanation of intraspeaker variation between e.g. monophthong and rising diphthong (Quérigut), rising and ingliding diphthong (Italian dialects), or monophthong and upgliding diphthong (Charmey). This intra-speaker variation, and the fact that the acoustic individuality of fullfledged rising vs. upgliding vs. ingliding diphthongs should be sufficient to prevent wrong identification by the listener, make any explanation based on surface reinterpretation in the language learning stage unattractive (alleged ambiguity of input leading to 'imperfect learning'). Rather this imprecision in the reproduction of diphthongs must be backed up by an output-oriented explanation of diphthongs as functionally unitary phenomena consisting of sequential segments (following the line of Andersen's segmental diphthongs). Being unitary in their function (whatever the empirical correlate of this property may be) the diphthongs will equally well fulfill their role in any compatible surface form (rising, upgliding, ingliding, in addition to monophthongal), thus predicting that their surface manifestations could change rather frequently (an idea already expressed by Alarcos Llorach 1968:223). If according to Stampe (1972:581) diphthongs have a syllabic function where the se-

quential realization serves to reduce the complexity of the single segmental articulation by distributing the basic features of color and sonority over different segments, it will not matter a great deal whether the particular diphthong is realized as an upgliding or rising diphthong (e.g. ew or we in (15)), or whether the glide or the vowel represents the chromatic aspect (we and wo in Old Castilian, wo and yo for ɔ in Chioggia, Italy; cf. Rohlfs 1949:§115), or whether the more closed or the more open element carries syllabicity (wɔ̄ and uɔ̄, uɔ̄ in Central and Southern Italian dialects). The underlying oneness of monophthongal and various diphthongal manifestations of a syllabic nucleus would also be adequate to make a needed distinction between glide insertion and deletion processes as opposed to true diphthongization and monophthongization. Such an explanation remains however a desideratum for future research.

Notes

¹In the following, ɛ designates a low front, ɔ a low back rounded vowel; y and i, w and u are used interchangeably; ɥ in general designates a glided non-syllabic segment; ʏ stands for a slightly raised articulation of a given vowel; â is used for a velarized a; length is indicated by : after the affected segment (except for the transcriptions in (14) below). Frequently only the relevant diphthongal portion of an item is given in phonetic transcription, the remainder following established orthographic tradition. Note also that ae and oe represent monophthongs (palatalized a and a low front rounded vowel respectively). -- I would like to thank Hans Hock for valuable suggestions and comments on an earlier draft of this note. Responsibility for any shortcomings rests solely with the author.

²The relevant subsystems are given in LYS (1972:Fig.5-1,2). They are listed in extenso on p.220:

| subsystem | symbol | example | tenseness | distribution |
|---------------------|--------|---------|-----------|--------------|
| short vowel | Ŷ, V | ê, e | lax | -- |
| long vowel | V: | i:ə | tense | -- |
| ingliding diphthong | V(:)h | i: | tense | lax |
| upgliding diphthong | VG | ey, ei | lax | tense |
| rising diphthong | GV | yɛ(:) | lax | tense |

³The examples for these processes are taken in this instance from diphthongal developments discussed in Stampe (1972) rather than from the monophthongal chains typically observed in language learning as discussed in Miller (1972). This choice is however not crucial.

⁴In this formalism $\{!f(x)\}$ stands for 'more $f(x)$ ' as indicated in the interpretation following (3); cf. Stampe 1972:581.

⁵Ingliding diphthongs are laxness diphthongizations in his framework, whereas the other two diphthong types result indirectly from the diphthongization of some tonality or sonority feature: cf. below (11), (12) for some discussion. -- Other views of diphthongization as glide insertion (e.g. Harris 1969:161-3 for Spanish, or Haudricourt-Juilland 1970:48-57 for Romance) constitute rough descriptions of historical correspondences, but not of actual evolution; thus they cannot assume explanatory function.

⁶For basic information about Romance diphthongization, cf. Lausberg 1963: §§168-82; this is also the source of the Romance illustrations unless otherwise indicated. Cf. also Spore (1972) for discussion of different approaches to diphthongization in the history of Romance linguistics.

⁷Only conveniently representable examples have been included in these illustrations; e.g. VLt. v_̄ntu yields in OFr. vānt due to the nasal consonant and thus is not topical in this context. The SIT. dialects show both rising diphthongs such as y_̄ and high monophthongs or ingliding diphthongs such as i: or i:ɔ in response to unlaut environments. Only the rising diphthongs have evidential force in this context due to the imprecise information available on the history and present conditions in these dialects, especially for what concerns the ingliding diphthongs.

⁸In the context of the fact that Castilian has generalized diphthongization of ɔ̄, ɔ̄ in any environment, whereas Old Provençal does not have any diphthongization of ɔ̄, ɔ̄ outside of this situation. (Cf. (6), (7) above).

⁹The case of VLt. u > ü in various Romance languages interferes with what might otherwise be a diphthongization; even this change has repeatedly been identified as a diphthongization: cf. Stampe (1972:587). The evidence is in general negative for this interpretation. Cf. also LYS (100, 194-7) for some discussion of the Romance situation, and in particular the high vowels.

¹⁰Cf. especially Schürr 1918-19, 1956a, 1956b, 1962. The following account is based mainly on Schürr 1956b. Cf. Spore (1972:290-5) for a negative assessment of Schürr's position within Romance linguistics.

¹¹The fact pointed out earlier (cf. (8) above) that unlaut had as its result not only diphthongs but also raised monophthongs is interpreted by Schürr to mean that these monophthongs are monophthongized reflexes of earlier rising diphthongs, he supports this hypothesis with explicit data from Romagnolo (1918-19.II:131-88). An interesting claim deriving from

this position is that once diphthongization has affected a vowel it will not be possible for this vowel to revert to its exactly same monophthongal form; remonophthongization implies the application of some assimilative processes (e.g. \underline{e} > ... > \underline{ye} > \underline{ye} > \underline{e}). Thus in the case of Tuscan dialects, especially modern Florentine, where the earlier diphthongization of \underline{e} > \underline{ye} is now lost and \underline{e} is restored, the change can be observed not as a tendential monophthongization (which should yield some other result) but as an outright deletion of \underline{y} (cf. De Mauro 1963:390).

¹²The situation for \underline{e} , \underline{o} is the same mutatis mutandis. The postulated tenseness of \underline{e} and \underline{e} is not ascertainable independently: the fact that these vowels did occur long and stressed in the same environments (open syllable) after the collapse of Classical Latin vowel quantity distinctions seems to support the position taken here.

¹³The judgments determining marked vs. unmarked values for the single features follow the examples set in Andersen (1972): even if the linear order of the polarized features should be reversed, there is no way that a rising diphthong could be derived from \underline{e} .

¹⁴Other problematic aspects of Andersen's approach are his treatment of the difference between the various types of diphthongs (cf. fn (5) above); the basic inability to explain any chainshift phenomena if they do occur (cf. however the advantage of this position indicated in the text); and the virtual exclusion of triphthongs as natural extensions of diphthongs (cf. below for Charmey \underline{wq} > \underline{wq} ; or OFr. \underline{elC} > \underline{eC} > \underline{eacC} > \underline{eacC} > \underline{eacC} > \underline{eC} > \underline{oC} ; cf. Pope 1952:383, 388, 502, 540).

¹⁵The phonetic transcription in the right margin follows the system used in this paper; the other data are given according to Séguy (1954): \underline{e} , \underline{o} = mid vowels; \underline{e} , \underline{o} = low vowels: length can be $\underline{.}$ (short), $\underline{:}$ (long), $\underline{::}$ (overlong); these length symbols precede the relevant segment (308).

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