On the evolution of Portuguese -ão

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1. In the diachronic study of a language, there are some developments which may, by a greater or lesser effort, be reasonably explained, or at least fitted into the general pattern of the language, while other developments may exist which consistently defy elucidation or explanation. Of the unexplainable phenomena, at least two major categories may be discerned: those developments which seem totally sporadic or isolated, and those which, although mysterious, carry the promise of a hidden solution, due to striking internal consistencies, and thus merit further investigation. An example of this latter category is provided by the world-final nasal diphthong [ẽ w̃] in Portuguese, spelled -*ão* or -*am*. This diphthong has three principal sources in the earlier stages of Portuguese; namely, -*om* [õ], -*am* [ẽ], and the already present -*ão*. These early Portuguese forms derive, in turn, from a number of Latin endings, the sum total of which is represented below:

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-ANT   ⎫
       ⎬ -am
-ANEM  ⎭                          
-ANUM  ⎫                          
       ⎬ -ão ───────────────── -ão
*-ADŬNT ⎭
-ŌNEM  ⎫
-ŬNT   ⎬ -om
*-ŬDĬNEM⎭
```
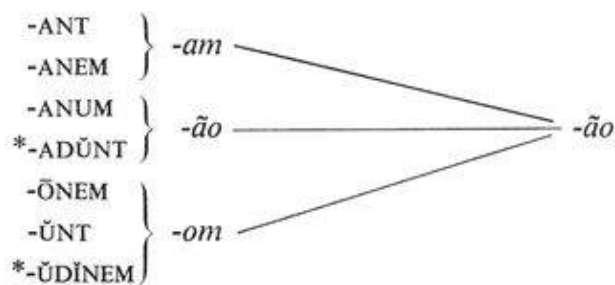
It is thus possible to see that a great variety of Latin endings, which were in large measure kept apart in the other Romance languages, all merged in Portuguese to the nasal diphthong -*ão*, which initially had a rather limited origin, as shown above. This rather startling merger naturally arouses the quest for an overall solution encompassing the entire series of developments. And thus, some of the greatest figures of Portuguese and Romance philology have responded to the quest, leaving for posterority an impressive array of conflicting and incomplete theories, each competing for the title of a definitive solution. After so many only partially successful attempts, still another paper on the same subject may seem superfluous and indeed impertinent; for this, the author begs the indulgence of the readers. However, owing to the lack of an acceptable solution, and to the 15 years which have elapsed since the last original attempt was made to find one, it was felt that a fresh look at the problem might serve to place some of its many facets in the proper relief. Following in such giant footsteps, the present undertaking makes no claim for a definitive solution. Rather, an effort is made to survey some of the more influential studies which have dealt with the

Portuguese final -*ão*, and to outline their major points of strength and weakness, this being followed by a few brief remarks intended as suggestions for further research.

2. In looking over the series of mergers eventually leading to the modern Portuguese -*ão*, many scholars have seen in analogy the key to an ultimate solution, since the ending -*ão*, originally of quite limited distribution, appears to have engulfed a number of other endings. One of the first investigators to look for an explanation in analogy was Edwin Williams, who first in an article[1] and then later in his book[2], has formulated a hypothetical model of analogical creation. In order to posit analogy as a factor in linguistic change, it is first necessary to find a plausible kernel from which analogy can be assumed to have spread. Surprisingly enough, Williams finds this kernel in the verbal paradigms, although the diphthong -*ão* (from Latin -ANUM) already existed in several common nouns. For Williams, it is the verb form *vão* (O. Port. *vãao*), for which he claims the etymon *VADŬNT, that triggered the process of analogy in the verb system. Williams notes, in many medieval texts, the spelling *vãao*, as opposed to such forms as *dam* (M. Port. *dão*), *estam* (M. Port. *estão*), etc. and concludes that the unusual form *VADUNT is at the root of such discrepancies. Huber[3], however, feels that *vão* is in itself an analogical creation, coming from Latin VANT: "*vam* (*van*) ist an *am*, *dam* und *estam* angeglichen." This fact is noted by Rodrigues Lapa[4], who chastizes Williams for some of his reconstructions. Replying to Lapa, Williams[5] notes that Huber used data taken randomly from several time periods, while his own study had used only 'definitive paleographical editions' or early texts. He also notes that Huber gives no indication of the sound that early Portuguese -*am* stood for.

Whatever the origin of *vãao*, for Williams, this verb formed the prototype for other verbs like modern *estão*, *são*, *dão*, etc., as well as for the various tense endings in -*am*. From the verbs, the analogical leveling toward an ending in -*ão* spread to the nouns, influenced by nouns already containing -*ão*, coming from Latin -ANUM: "As common as *ir* among verbs are *mão*, *irmão*, and *cristão* among nouns. And thus, for example, *cam* and *visom* became *cão* and *visão*[6]".

Another attempt at tracing the path of analogy in the development of final -*ão* comes in the richly detailed study of José Inês Louro[7]. The principal purpose of Louro's paper is to prove the non-Portuguese origin of such words as *catalão*, *alemão*,

[1] EDWIN B. WILLIAMS, *The Portuguese final -ão*, Language 9 (1933), 202–206.

[2] EDWIN B. WILLIAMS, *From Latin to Portuguese*, Philadelphia ²1962.

[3] JOSEPH HUBER, *Altportugiesisches Elementarbuch*, Heidelberg 1933, p. 201.

[4] RODRIGUES LAPA, review of EDWIN B. WILLIAMS, *The Portuguese final -ão*, BF 3 (1934), 331–332.

[5] EDWIN B. WILLIAMS, *Uma carta a propósito do ditongo -ão*, Boletim de Filologia 5 (1936), 197–198.

[6] HUBER, *op. cit.*, p. 178.

[7] JOSÉ INÊS LOURO, *Origem e flexão dalguns nomes portugueses em -ão*, BF 13 (1952), 37–65.

etc., which he does admirably. In the course of discussion, however, he briefly reviews some previous theories on the confusion of endings leading to modern Portuguese -*ão*, after which an alternative solution is proposed. Louro believes that the first step toward confusion occurred when the endings (spelled) -*am* and -*om*, i. e. [ẽ], and [õ], respectively, developed a paragogic final -*e*, thus creating a word-final hiatus: *cam* > **cãe, razom* > **razõe*, etc. The forms in **-õe* then became fused with those in **-ãe* (p. 54): "Nessas condições, o *õ* da terminação fonética -*õe* ... era natural que tivesse tendência a abrir-se, a recuar o ponto de articulação por força da nasalidade em hiato ... bastaría agora uma pequena influência de -*ãe* ... para que as duas terminações se identificassem fonéticamente na última." The final passage of **-ãe* to -*ão* is then explained as being due to a combination of three factors. First, the existence of paradigms such as **alemãe* (for *alemão*): *alemãa* vs. *irmão*: *irmãa* played a role in the confusion. Louro claims that forms such as **alemãe* would naturally evolve a final *o* to comply with the general pattern for masculine singular nouns and adjectives. Second, the language already contained forms in -*ão*[8]. Finally, the word-final position in which the hypothetical diphthong **-ãe* found itself caused the **e* to be replaced by *o* "por se terminar com a boca fechada".

Several difficulties arise in considering Louro's interpretation of the data. First, the hypothetical initial stage at which the paragogic *e* was attached to -*am* and -*om* is completely unattested, and indeed Louro gives us no indication as to why such a vowel should have been added. It is also not clear why **-õe* and **-ãe* should have merged, since they are neatly kept apart in a variety of plural forms, as well as in such pairs as *põe*: *pães*. Turning now, to Louro's three points for the change from **-ãe* to -*ão*, the first point may be easily refuted by the plurals of the words in -*ão*, which retained their etymological nasal diphthongs: *irmãos, pães, razões*, etc. Louro's third point, that of ending a word with the mouth closed, is an unprovable assertion, and hence cannot be reckoned either for or against his other arguments. Altogether, this leaves us with the analogy with words like *irmão* and *cristão* being supported on the hypothetical changes -*am* > **-ãe* and -*om* > **-õe*.

Following Louro, and providing the most recent attempt at finding a solution to the problem of Portuguese -*ão* in analogy, as well as the most recent study of the problem itself, is the paper of Gunnar Tilander[9]. Tilander feels that a great force toward the change -*am* > -*ão* came from the lack of the desinence -*o* in the earlier words, but he does not posit the intermediate stage **-ãe* which Louro used (p. 298):

A coexistência das palavras importadas em -*am* e das indígenas em -*ão* de palavras de uso frequente fez crer que as formas em -*ão* deviam-se encontrar ao lado das em -*am*, o que teve por consequência a formação, por via de analogia, de novas formas em -*ão*

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[8] Presumably only nouns, since Louro doubts the existence of the form *VADŬNT,

[9] Gunnar Tilander, *Porque -am, -om se tornaram -ão em Português? Revista de Portugal* 24 (1959), 293–303.

para as palavras cuja forma em -*am* existe só primitivamente. A terminação -*ano* >
-*ão* levou a melhor sobre -*am*. A razão da predominância de -*ano* (-*ão*) é manifesta.
As formas em -*am* pareceram anormais pela falta da desinência *o*. Por isso não perten-
cem elas ao fundo próprio da língua, tendo sido tiradas de línguas estrangeiras. É por
isso que se criaram as formas em -*ano* -*ão* ao lado das -em -*am*, à maneira das palavras
indígenas *mano, christiano* ... etc.

Remarking further on this development, he notes (p. 302): "A terminação -*am* pela
falta da desinência -*o*, pareceu anormal e contra o génio da língua." Tilander explains
the change from -*om* > -*ão* as taking place in a single step, starting with *som* (> sŭNT)
> *são*, modeled after *dam* (*dão*), *ham* (*hão*), *estam* (*estão*), etc. Eventually, the ending
-*ão* spread to all instances of -*om* in both nouns and verbs (p. 300): "A terminação
-*am* (-*ão*) não se contentou com as vitorias obtidas sobre as desinências verbais,
saindo do seu proprio domínio para fazer novas conquistas no domínio dos substan-
tivos à terminação -*om*."

Tilander's arguments withstand attack much better than those of Louro, being
based on a sounder pattern of posited developments. One may again question, how-
ever, the importance of the lack of -*o* in the Old Portuguese words in -*am*, since the
plural forms were not correspondingly modified. In fact, there are a number of general
arguments which can be raised against any proposed solution which relies entirely on
analogy. The first is the aforementioned case of the plurals of nouns and adjectives
in -*ão*, which retain the etymological diphthongs. If analogy were such a strong
force, one should surely expect the plural forms to have been leveled as well, perhaps
to *-*ãos*[10]. Another factor which argues against a monolithic analogical approach
is the wide variety of classes involved in the confusion. Not only nouns, but also
verbs were affected, including the following categories: present, simple preterite,
present subjunctive, pluperfect, future, conditional, imperfect. Furthermore, the
change to -*ão* occurred in both stressed and unstressed position. This total merger
of -*am* and -*om* to -*ão*, free not only of grammatical but also of phonological condi-
tioning factors, presents a serious and, at least up until now, insurmountable, obstacle
to any investigator seeking the answer in simple analogical leveling.

3. Evidently feeling that explanations based on analogy provided insufficient tan-
gible evidence, a number of scholars have attempted to find a purely phonetic basis
for the rise of Portuguese -*ão*. One of the first to suggest that only regular sound
shifts were involved was Meyer-Lübke[11], who tersely remarked: "Aus *one* entstand
zunächst *o* ... in Verbindung mit dem velaren *o* war der Nasal selbst velar. Durch
Dissimilation entstand daraus $\widetilde{ao}$ und schließlich das heutige *ão*, das nun identisch

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[10] Analogical laveling is presently taking place in most modern Portuguese dialects, but to
the statistically most common ending, -*ões*.
[11] WILHELM MEYER-LÜBKE, *Grammatik der Romanischen Sprachen* I: Lautlehre, Leipzig 1890,
p. 314.

ist mit dem Reflexum von -ANUM." Another early investigator who evidently favored a phonetic solution, although not as explicitly as Meyer-Lübke, was Jules Cornu[12]. However, at another point in his monograph (p. 727), Cornu claims analogical formation for the shift of ŭDĪNE $> õe > ão$. From this we may infer that, while he presented no fully worked out theory, Cornu believed that more than one factor was responsible for the general evolution of -ão.

A rather novel set of proposals was offered by Carolina Michaëlis[13], who states (p. 30) that the suffixes -om and -am "tiveram uma evolução curiosa: *fonetica* no periodo arcaico; *analogica* na epoca de transição." For D. Carolina, the prime motivating force behind the change of -am and -om to -ão was the desire to break the oxytonic form of such words, which sounded 'rude' to the Portuguese ear. Thus, she believes that the o of -ão originally had syllabic value during the epoch of confusion. The necessity of adding this final o is rather vividly portrayed: "Esses monossilabos, pronunciados talvez grosseiramente, soavam aos ouvidos de estrangeiros como ladrar de cães." Presumably, this process was later extended, by an undefined process of analogy, to all the forms which presently contain the diphthong -ão, both in stressed and in unstressed position.

Perhaps the best known of the early attempts at finding a phonetic basis for the evolution of Portuguese -ão is contained in the remarks of Leite de Vasconcellos[14]. Like Carolina Michaëlis, Leite believed that the final sounds represented orthographically as -am and -om were unpleasant to Portuguese speakers, thus calling for remedial action (p. 143 N 6):

> Suponho que em certa epoca repugnaram ao ouvido as vogaes nasaes -ã e -õ em fim de syllaba, e que ellas recebaram o apoio da vogal -o d'onde -ão e -õo ... depois -õo desenvolveu-se em -ão, ou por dissimilação, ou por confusão com a outra terminação -ão dos nomes que vinham de -ANU e -ANE, ou espontaneamente.

Thus, like D. Carolina, Leite believed that -ão was originally bisyllabic. An identical solution, although admitting of some analogical creation toward the end, may be found in the work of J. J. Nunes[15].

A similar proposal, although much less complete than that of Leite, was offered by E. Bourciez[16], who simply stated: 'un mot a. ptg. *razom* se prononçait avec une sort de résonance *razõo*, d'où par dissimilation *razão*.' In a later study on the same topic, however, his son J. Bourciez[17] claims that -ã and -õ diphthongized

[12] JULES CORNU, *Die Portugiesische Sprache*, in: GRÖBERS *Gr*.I, p. 715–803, especially p. 791.

[13] CAROLINA MICHAËLIS DE VASCONCELLOS, *Inéditos de D. Carolina Michaëlis, RLu.* 28 (1930), 16–41.

[14] J. LEITE DE VASCONCELLOS, *Lições de Philologia Portuguesa*, Lisbon 1911, p. 139–145.

[15] J. J. NUNES, *Compêndio de Gramática Histórica Portuguesa*, Lisbon 1919, p. 233–235.

[16] E. BOURCIEZ, *Éléments de linguistique romane*, Paris [5]1967, p. 403.

[17] J. BOURCIEZ, *Notes sur la résonance nasale des diphtongues accentuées du Portugais*, in: *Mélanges d'études portugaises offerts à M. Georges Le Gentil*, Lisbon 1950, p. 61–67.

directly to *-ãw* and *-õw* without the intermediate bisyllabic stage posited by Leite,
D. Carolina, and E. Bourciez.

Later investigators were quick to jump on the weaknesses of such manifestly
incomplete theories. Williams[18] notes that Leite's reason for the fact that O. Port.
bõo became *bom* instead of **bão* was that *bõo* was still bisyllabic at the time of the
events in question. But, observes Williams, Leite claimed that forms like *razom* had
to acquire an additional *o*, whence **razõo*, and therefore the entire argument is
circular and invalid. The same criticism may also be leveled against D. Carolina and
E. Bourciez.

Leite's theory is strongly disapproved of by Silveira Bueno[19], who is displeased
because 'a explicação simplista de Leite de Vasconcellos, que a vogal *o* surgiu como
"encôsto" e inaceitável porque nada explica' (p. 79). With regard to the final
remark, one wonders how many other theories would fall beneath Silveira Bueno's
axe if his criterion of acceptability were applied elsewhere. Responding thus to the
challenge to find a solution, Silveira Bueno makes use of the theory of spontaneous
diphthongization of Menéndez Pidal. He states (p. 79–80) that diphthongization of
-am and *-om* was "nada mais do que consequência natural do acento intensivo",
in other words, that the vowels diphthongized under the tonic stress. The question
of why unstressed *-am* and *-om* also diphthongized is left for the reader to answer.
One also notices in the Portuguese language a number of words such as *pá*, *só*, etc.,
in which stressed vowels did not diphthongize in final position, as well as hundreds
of words containing undiphthongized stressed nasal and oral vowels in word-internal
position. Thus, before Silveira Bueno's claims about the effects of the stress accent can
be accepted, they must be further refined to account for all these discrepancies.

Although contained in one of the earliest available studies, some of the most
perceptive and provocative observations on the development of Portuguese *-ão*
may be found in the unparalleled paper of Oskar Nobiling[20]. Nobiling noted that,
especially in the Brazilian dialects which he personally studied, nasal vowels never
appeared alone in word-final position, but were followed by a sort of glide element
which was homorganic with the nasal vowel. His description of this process (p. 136s.)
is worth quoting at length:

> In allen andern Fällen folgt dem Nasalvokal ein gleichfalls meist flüchtiger nasaler
> Reibelaut, der dadurch entsteht, daß die Zunge nicht während der ganzen Zeit, in der
> das Gaumensegel gesenkt bleibt, in derselben Stellung verharrt, sondern gegen deren
> Ende sich der Wandung der Mundhöhle da, wo sie ihr am nächsten ist, noch mehr nähert,
> bis zu derjenigen Entfernung, die den Konsonanten [j] und [g] entspricht. Die so ent-

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[18] *From Latin to Portuguese*, p. 178; also "The Portuguese final *-ão*".
[19] FRANSISCO DA SILVEIRA BUENO, *A formação histórica da Língua Portuguesa*, Rio de Janeiro
1958, p. 79.
[20] OSKAR NOBILING, *Die Nasalvokale im Portugiesischen*, NS *11* (1903), 129–153.

stehende Nasal-Frikativa ist also mit dem vorhergehenden Vokal gleichartig, so daß wir nach [ĩ] und [ẽ] ein [j̃], nach [ã] ein [g̃], nach [õ] und [ũ] ein [g̃] mit Lippenrundung, das der Einfachheit wegen durch [w̃] bezeichnet werden mag, erhalten.

Turning his attention to the problem of Portuguese *-ão*, Nobiling observed that one could, in Brazil, hear pronunciations such as [bõw̃] for *bom* and [lãw̃] or [lãg̃] for *lã*. He therefore postulated that, in Medieval Portuguese, *-am* and *-om* diphthongized spontaneously to *-ão* and *-õw*, respectively, after which *-õw* further developed to *-ão*, through a process of "dissimilation". Again, the question as to why this subsequent dissimilation should have occurred is left unanswered.

4. In dealing with the evolution of Portuguese *-ão*, there is one major problem which has been neglected until this point, but which has provided a stumbling block that has impeded or even halted every attempt at a solution. This is the existence, in modern Portuguese, of words with stressed word-final [ẽ] and [õ], words such as *lã*, *irmã*, *bom*, *som*, etc. Historically, the forms in *-a* came from Latin -ANA, while those in *-om* derive from Latin -ONUM. The existence of these forms thus poses a question which must be answered by any scholar aspiring to a complete solution: why didn't such forms as *lã* and *bom* evolve in the same manner as other medieval Portuguese words in *-am* and *-om* to yield **lão* and **bão*? The answers to this question have been many, and the controversy equally abundent. Some investigators, finding no answer, chose to remain silent on this topic, and therefore their studies are automatically rendered incomplete. Others, however, met the challenge with a wide variety of proposed solutions.

Carolina Michaëlis[21] states that words like *bom* and *dom* were not true examples of word-final nasal vowels, since they were frequently found in combinations like *bom dia*, *Dom Antônio*, etc. However, such words may in fact appear phrase-finally in expressions such as *é bom*, etc. In addition, there remains the problem of the words in *-ã*, a matter which D. Carolina refrains from mentioning.

Leite de Vasconcellos[22] asks himself why *lã*, *bom*, etc. didn't evolve into the diphthong *-ão*. He then answers his own question: "É que *lã* vem de *lãa* < lat. LANA e *bõ* de *bõo* < lat. BŎNU, e na epoca em que *pã* se transformou em *pão*, e *razõ* em *razão* ainda *lãa* e *bõo* não haviam evolucionado em *lã* e *bõ*, e não podiam pois amoldar-se a *pã* e *razõ*." Leite thus believes that the final (orthographic) vowels of the early forms *lãa*, *bõo*, etc., had syllabic value, thus preventing the nasal vowel from diphthongizing. However, as Williams, Silveira Bueno, and others were quick to point out, Leite also claimed that *razõo* acquired a final (syllabic) *o* before evolving to *razão*; thus, the whole lot should have fallen together. The fact that it didn't sends Leite's entire argument to the linguistic junkpile, together with those of Carolina Michaëlis and E. Bourciez.

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[21] CAROLINA MICHAËLIS DE VASCONCELLOS, *op. cit.*, p. 27.
[22] LEITE DE VASCONCELLOS, *op. cit.*, p. 143 N 6.

Following along much the same lines, Nobiling[23] believes that the forms written in -*ãa* and -*õo* were distinguished from those in -*am* and -*om* through their "quantity", even though they were monosyllabic. This statement has, in turn, been questioned by Williams[24], who wonders, for example, what the difference is between an originally single *õ* and a "contracted" *õ*. Like the other analogy-centered studies, however, Williams himself offers no alternative solution, merely remarking that the existence of forms like *lã* and *bom* renders Nobiling's theory untenable. How his own theory is saved from confrontation with these forms we are left to guess.

In his study on the Portuguese nasal diphthongs, J. Bourciez[25] claims that, while the forms in -*am* and -*om* were diphthongized directly, forms like *bõo* and *lãa* remained unaltered, since they were still bisyllabic. This argument does not share with those of Leite the defect of circularity, since in claiming that -*am* and -*om* were immediately diphthongized, there is no reason to suppose that a pair like *bõo: razom* would have suffered the same fate. Responding to this claim of Bourciez, however, Louro[26] declares: "Além doutras insuficiências ou incertezas ... note-se que a hipótese da manutenção do *o* final, fonético, em *bõo* é pouco ou nada provável." This rejoinder may well be true, but nowhere in his paper does Louro offer an alternative solution; in fact he ignores the problem altogether. The same criticism may be leveled against the other studies which have claimed an analogical basis for the evolution of Portuguese -*ão*. These studies have unanimously condemned attempts at finding a phonetic solution, particularly as regards the treatment of *lã*, *bom*, etc., but a counterexplanation for the differential treatment of the latter forms has never been offered.

5. In the preceding sections a number of studies have been reviewed which attempted to explain the development of Portuguese -*ão*, resulting from several mergers. It has been seen, in particular, that explanations based entirely on analogy leave many questions unanswered, and do not adequately account for the fact that the merger of -*am* and -*om* to -*ão* took place both in stressed and in unstressed position, in all grammatical categories. Such explanations have also left untouched the problem of why words like *bom*, *lã*, etc., did not undergo the usual process of diphthongization, as well as the problem of the various plural forms of nouns in -*ão*, which should have been analogically "leveled". On the other hand, theories based on a purely phonetic change, while possessing much intrinsic appeal, have also been by and large insufficient, either through inherent defects or through lack of detail. For example, even if -*am* and -*om* had spontaneously diphthongized, the phonetic theories are hard-pressed to explain the eventual merger of *-*õw* to -*ão*.

[23] NOBILING, *op. cit.*, p. 151–152.
[24] WILLIAMS, *From Latin to Portuguese*, p. 179.
[25] BOURCIEZ, *op. cit.*, p. 61–62, 65.
[26] LOURO, *op. cit.*, p. 55 N.

It may well be the case that a complete solution to the problem of Portuguese -*ão* is beyond the reach of the current state of knowledge. However, before abandoning all hope it should be noted that in many ways the two opposing theories, that of analogy and that of spontaneous phonetic change, are complementary. That is to say, that some of the problems which remain unsolved by the one theory may perhaps be fitted into the other, and vice versa. Therefore, before concluding this survey, I should like to make some highly tentative suggestions in an attempt to synthesize some of the more astute observations of the earlier studies.

As a preliminary observation, it should be mentioned that, contrary to the opinion of Leite (*Lições*, p. 140), the final *e* of Latin forms like RATIŌNE, CANE, etc., was lost *before* either the loss of intervocalic *n* in Portuguese or the general process of vowel nasalization[27]. Therefore -*om* and -*am* did not derive from the earlier *-õe* and *-ãe*, as Leite believes. This may be further demonstrated by looking at the dialects of Galicia, where intervocalic *n* was lost, as in Portuguese, but where final *n* was conserved. Here we find forms like *can*, *pan*, etc., pointing to the early apocope of the final *e*. In fact, Grandgent[28] believes that final *e* fell very early throughout all of Romania, probably before the eighth century. Thus, there can be no question of -*am* and -*om* already being diphthongs in early Portuguese.

Returning to the subject of the nasal diphthongs, it is noteworthy that *all* instances of word-final nasal vowels in Portuguese became diphthongized[29]. Not only did -*am* and -*om* merge as [ẽw̃], but -*em* became [ẽj], which is still the way it is pronounced in many Portuguese dialects. This exceptionless diphthongization of final nasal vowels cannot be readily explained by any currently available theory of analogy, but points instead to a spontaneous process, at least in the initial stages. In trying to imagine the actual mechanism of such a spontaneous diphthongization, the general observations of Nobiling cited earlier are quite helpful. Nobiling has observed, in many modern Portuguese dialects, that word-final nasal vowels do not stand alone, but are followed by "ein nasaler Reibelaut". The reasons for this diphthongization, on the other hand, either in the contemporary dialects, or in medieval Portuguese, are difficult if not impossible to ascertain with any degree of accuracy. It may be, as suggested by Carolina Michaëlis, that word-final stressed nasal vowels sound somehow harsh and unacceptable. However, this does not explain the diphthongization of *unstressed* final nasal vowels, as mentioned above. A further point to be made here is that there is no evidence, either in the early rhymes or in the modern dialects, that

[27] Cf. WILLIAMS, *The Portuguese final -ão*, p. 202.

[28] C. H. GRANDGENT, *An introduction to Vulgar Latin*, New York 1934, p. 102.

[29] It is of course irrelevant whether or not *ī* and *ū* diphthongized to *īj* and *ūw*, since there was no other vowel to which these diphthongs could assimilate, being already as high as possible. One can hear, however, in various modern Portuguese dialects, the diphthongized pronunciation of final *ī* and *ū*.

the *o* of *-ão* coming from *-am* and *-om* ever had syllabic value. This lack of evidence also fails to support those theories which claimed that the *o* arose to conform to the masculine-singular pattern, as does the fact that the final *-em*, stressed or unstressed, also diphthongized.

Another possible factor to be considered is the stress accent, as suggested by Silveira Bueno. More than tonic stress, however, must have entered into the picture to diphthongize unstressed nasal vowels as well. The factor of analogy could perhaps be brought in at this point, except that there is no evidence that stressed *-am* was diphthongized any earlier than its unstressed counterpart. It is also noteworthy that final stressed oral vowels did not ordinarily diphthongize, nor did stressed vowels in word-internal position.

The remarks of Nobiling suggest that the answer may lie in a purely physiological explanation; i. e. that speakers find it difficult to release a word-final nasal vowel without some sort of accompanying glide element[30]. For such a glide element to become firmly fixed in pronunciation would not be an impossible state of affairs, for one has only to look at the numerous developments in Portuguese such as TĒLAM > *tea* [téa] > *teia* [téja].

Nobiling noted, in the dialects he studies, a tendency for *-ã* to become [ẽw̃], and for *-õ* to become [õw̃]. His observations are far from being unique, for the literature abounds with similar statements. For example, in his compendium of dialectological studies, Leite de Vasconcellos[31] noted the shift of *-ã* to *-ão* in Entre Douro e Minho. In the superbly detailed study of the 'carioca' dialect of Rio de Janeiro, undertaken by Antônio Houaiss[32], one finds the complete spontaneous shift of *-õ* to *-ão*, thus lending further support to the theory of spontaneous diphthongization. The spontaneous diphthongization of *-ã* has even been recorded in the remote dialects of Goa by Dalgado (p. 65)[33].

If one accepts the fact that old Portuguese *-am* and *-om* spontaneously diphthongized, for whatever reason, the next question which must be faced is the change from *-õw* to *-ão*. It is clear that such a change may be viewed as a process of dissimilation, but it is not equally evident that dissimilation may be taken as the actual *cause* of the shift, as suggested by Nobiling, Bourciez, and others. Speaking of this shift, for

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[30] In French, another language containing nasal vowels, one may also note a transitional element after word-final nasal vowels. This glide element is not necessarily homorganic with the preceding vowel, but is most often realized as a weakened [ŋ], or as the back, unrounded glide which Nobiling has represented as [ğ].

[31] J. LEITE DE VASCONCELLOS, *Esquisse d'une dialectologie portugaise*, Lisbonne ²1970, p. 97.

[32] ANTÔNIO HOUAISS, *Tentativa de descrição do sistema vocálico do português culto na área dita carioca*, in: *Anais do primeiro congresso brasileiro de língua falada no teatro*, Bahia 1958, p. 217–317, esp. p. 285.

[33] SEBASTIÃO DALGADO, *Dialecto Indo-Português de Goa, Revista Lusitana 6* (1900), 63–84.

example, Bourciez remarks[34]: "L'*o* ... devient d'abord [õu̯], puis la différence d'aper-
ture augmente entre les deux éléments et l'on a [ãu̯] par suite d'une consolidation
dont le premier élément fait ici les frais." This statement, while evidently intended as
an explanation, is in reality nothing more than a simple description of the net results.
In addition, it is not strictly accurate to state that the change from *-õw to -ão
resulted in an increase in aperture, for -ão is realized as [ẽw̃], and the same pronun-
ciation was also in effect during the merger of -am and -om to -ão[35]. The vowel [ẽ]
is not generally lower than [õ], but is a fronted and unrounded transform of it. The
vowel [ɐ] has served as a point of convergence for many diphthongal modifications
in Portuguese. For example, in both the nasal diphthongs, and (in many dialects)
the oral diphthongs whose first element was *a*, this vowel has been raised to [ɐ].
Also, in many dialects of Portugal, including the dialects of Lisbon and Coimbra,
the diphthongs [ẽj] and [ej] have been modified to [ẽj] and [ɐj], respectively. This
convergence may be rather strikingly demonstrated by a schematic representation
such as the following:

$$
\begin{array}{ccc}
 & i & u \\[4pt]
e \rightarrow & ɐ & \leftarrow o \\[2pt]
 & \uparrow & \\[2pt]
ɛ & a & ɔ
\end{array}
$$
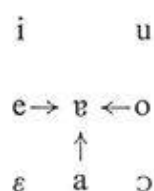
If, as the developments in Portuguese strongly suggest, the diphthongal convergence
phenomena described above are more than mere coincidence, then the nasal diphthong
*-õw, resulting from the diphthongization of -om, could logically be expected to
evolve to -ão, if it were to evolve at all. While the tendency for the first element of
diphthongs to converge may well have provided the impetus for the evolution of
*-õw to ão, it is likely that analogy also played an important role in this process.
The final merger of -om and -ão appears to have occurred after -am and -ão had
merged[36], and thus the diphthong -ão was by this time quite common, being found
not only in nouns but in a large number of verb forms as well. Thus, a well-established
pattern was available upon which the change of *-õw to -ão could be based. At this
point, a slightly modified version of Tilander's theory, cited earlier, would admirably
fit the situation.

The analogical possibilities, together with the general convergence of diphthongs,
provide a plausible, although certainly not foolproof, theory for the shift of -om to
-ão. A further problem encountered by proponents of a purely analogical theory,

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[34] J. BOURCIEZ, *op. cit.*, p. 64.
[35] WILLIAMS, *From Latin to Portuguese*, p. 30.
[36] WILLIAMS, *From Latin to Portuguese*, p. 177.

that of the divergent plural forms of words in -ão, may be rather simply explained under the theory of spontaneous diphthongization. Since the plural forms already contained diphthongs (as well as a final consonant), there would be no reason for further modification.

The final matter which must be dealt with concerns the modern Portuguese forms in -ã and -om. As noted above, such forms are now undergoing diphthongization in many contemporary Portuguese dialects. One must nonetheless face the question of why these forms did not participate in the general merger of -am, -om, and -ão in early Portuguese. Those studies which have attempted to answer this question have all assumed that the forms in question, coming from Latin words in -ANA and -ONUM, contained a final vowel which was in some way lengthened or otherwise differentiated from the other words in -am and -om. While opponents of such theories have been harsh in their criticism, the striking fact remains that it was precisely those forms whose endings resulted from the loss of n between two similar vowels which apparently remained unaffected. Clearly, then, there was some factor other than a remote etymological difference which served to distinguish just those words. Claiming that the vowels in the early forms written as bõo, lãa, etc., were phonemically geminated is, however, difficult for many to accept, since phonemic vowel length disappeared during the Vulgar Latin period, and it is unlikely that it would have been reintroduced many centuries later merely to distinguish a handful of forms.

Considering, first, those forms presently ending in -om, it is interesting to note that they all derive from Latin -ŏNUM; i.e. with the first vowel of the ending being the short, open o: BŏNUM > bom, TŏNUM > tom, SŏNUM > som, *DŏNUM > dom, etc. This is significant since it may be seen that when the intervocalic n fell, it left behind two *unlike* vowels in hiatus: the first, an open (nasalized) [ɔ̃], and the second, a closed [o], later probably raised to [u]. Thus, immediately following the loss of n, a form such as bõo would have been realized as [bɔ̃o] or [bɔ̃u]. Such a hiatus of two unlike vowels differs from a single vowel of extra length in that it is a reasonably stable configuration, which could exist indefinitely. The nasalization of the first vowel could slowly spread to the second vowel, as happened with the other nasal diphthongs. Thus, if forms like bõo were pronounced with two dissimilar vowels in hiatus at the time of the confusion of endings, these forms would remain untouched by the entire process. At some point after the general merger of nasal diphthongs, the final o or u of words like bõo, being unstressed, could have reduced to a glide, thus producing a diphthong. Such a diphthong, occurring after the other nasal diphthongs had fallen together, would not necessarily have to become [ẽw̃], but could simplify instead to [õ], much as the oral diphthong ou [ɔw] has simplified to [o] in most parts of the Portuguese-speaking world. It is, however, not even necessary to assume that words like *[bɔ̃u] actually became diphthongs, for the history of Portuguese is characterized by the reduction of hiatus combinations by way of a single vowel, for

example: SŌLAM > *soa* > *só* [sɔ], SAGĬTTAM > *saeta* > *seta* [sɛta], MAJŌREM > *maor*
> *mor* [mɔr]. Thus, following a long line of parallel developments, a form such as
*[bõu] could have simplified to [bõ], its present realization, without going through
the diphthong stage. Such a path of development actually appears more plausible,
since by positing no intermediate diphthongized stage, there is no room for confusion
with the words in -*ão*. When the pronunciation of such words reached [õ], the diph-
thongization and shift toward -*ão* could occur, which is happening today in many
Portuguese dialects, as noted above.

   Some special factor also prevented the words in -*ã* from joining in the early shift
to -*ão*. Again, it seems more than coincidental that it should be just those forms
resulting from the loss of *n* between two *a*'s which should be distinguished. One pos-
sible explanation for this fact may lie in the treatment of unstressed final *a*. In most
modern dialects of Portuguese, unstressed final *a* is realized as [ɐ], and it is likely
that this pronunciation is very old, dating to the earliest stages of the language [37].
If this is so, then following the loss of intervocalic *n*, forms like *lãa* were probably
pronounced *[lãɐ] [38]. The actual phonetic result would not be discernible as a
hiatus of two discrete vowels, but rather as a sort of 'vowel of changing color', much
as in the pronunciation of the word *hear* in parts of the southern United States.
Such a variable aperture, while not creating a true diphthong, would nonetheless be
sufficient to prevent early Portuguese forms like *lãa* from shifting to -*ão*. Once the
two *a*'s came together, with the full nasalization of the first *ã* to [ɐ̃], the resulting
ending in [ɐ̃] would be susceptible to diphthongization just as the other forms in
-*am*, and such diphthongization is taking place in many contemporary dialects.

   6. A definitive solution to the problem of Portuguese -*ão* will probably not be
forthcoming anytime in the near future, and most certainly does not emerge from
the remarks contained in the preceding section. The purpose of this paper was to
bring to light some interesting observations, and to present some very tentative guide-
lines for future research. If this study serves to reopen discussion on this hitherto
unsolved problem, it will have more than fulfilled its purpose.

Newark State College, Union (New Jersey)   *John M. Lipski*

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[37] WILLIAMS, *From Latin to Portuguese*, p. 40, 208. For another view of the development of *a*,
cf. G. DE VASCONCELLOS ABREU, *A gradação prosódica de A*, *Revista Lusitana 1* (1887), 30–34.

[38] It is not necessary to assume that the nasal vowel had shifted to [ɐ̃], since, not occurring be-
fore an obstruent or a word boundary, it would not be in a position to be fully nasalized. This
parallels the eventual loss of the weak nasalization in words like *boa* (<BŌNAM), *lua* (<LŪNAM),
etc. Only after the two *a*'s had fallen together would full nasalization raise the first *a* to its present
realization.