Hiatus and rising diphthong-favoring contexts in Catalan*

Teresa Cabré - Pilar Prieto

teresa.cabre@uab.es - pilar.prieto@uab.es

Departament de Filologia Catalana - Universitat Autònoma de Barcelona

1 Introduction

In Catalan, lexical unstressed high vowels ([i],[u]) can either constitute the nucleus of a syllable (i.e., *universitat* [uniB´rsi»tat], *imitar* [imi»ta]) or become glides [j], [w] in the context before and after a vowel, surfacing either as diphthongs of rising sonority [j,w]V (*quasi* [»kwazi], *estació* [´st´»sjo], *àvia* [»aBj´]) or as diphthongs of falling sonority V[j,w] (*vailet* [b´j»lEt], *eina* [»Ejn´], *brau* [»bRaw], *cuina* [»kujn´][1]. In contrast with sequences of falling sonority, which are most often pronounced as diphthongs, up until recently the Catalan language has shown a very systematic tendency to pronounce as hiatus all lexical sequences of vocoids of rising sonority such as *m*[i»ç]l, *p*[i»a]*no*, *d*[i´]*dema*, *c*[i´]*nur*, *clar*[i»a]*na*. Whereas this tendency is still very strongly settled at the beginning of the word, diphthongs have been generalized at the end of the word in all Catalan varieties in items such as *justíc*[j´], *victòr*[j´], *nac*[»jo] or *imaginac*[»jo]. In one of his first Catalan grammars, Fabra (1912) already noted an early tendency to contract into a diphthong sequences of rising sonority in postaccentual environments such as llànt[j´], ingèn[w´], in nominal affixes such as *comprens*[»jo], *flex*[»jo], and in some other unstressed positions such as *var*[j´]*bilitat*.[2] Nevertheless, the prescriptive grammars of the language still portrait the old pronunciation of these sequences as hiatus: for instance, the recent oral guidelines by the Institut d'Estudis Catalans (1990) recommend that practically all vocoid sequences of rising sonority should be pronounced in hiatus in a formal register.[3]

Today there exists an ever stronger trend to pronounce as diphthongs sequences traditionally pronounced as hiatus. Indeed, all of the studies dealing with rising

* We are grateful to J.I. Hualde, M. Kenstowicz, E. Bonet, M.R. Lloret, J. Mascaró and M. Wheeler for helpful suggestions and comments during the preparation of this paper. Thanks are due to all our informants and colleagues who have patiently answered our questionnaire. This work has benefited from the participation of both authors in the following research grants: BFF2000-0403-C02-02, Ministerio de Educación y Cultura; 2000XT-00032, Xarxa Temàtica, Generalitat de Catalunya and 2001 SGR 00150 DURSI, Generalitat de Catalunya.

[1] Note that, in contrast with neighboring languages such as Spanish or French, the diphthongs *iu* and *ui* are pronounced in Central Catalan as sequences of falling sonority, that is, with the nucleus in the first high vowel: *cuina* [»kujn´], *piu* [»piw].

[2] Joseph Pau Ballot (1747-1821) already noticed a pronunciation with a diphthong in items such as *oració*, *unió*, *victòria* or *desgràcia*. One of the main pieces of evidence he presents is the scansion of these words in poems by Francesc Vicens Garcia (1582-1623).

[3] This recent prescriptive document issued by the Institut d'Estudis Catalans states that "the diphthongisation of sequences such as *condició*, *ciència*, etc. is only admissible in the general territory in an informal register." (Institut d'Estudis Catalans 1990:15)

diphthong/hiatus contrasts have acknowledged this phenomenon by highlighting both the dialectal and idiolectal variation the process is subject to (Oliva 1977, Recasens 1991, 1993; Bonet & Lloret 1998; Jiménez 1999). As Recasens (1993:113) remarks, "the degree of variation this process displays reveals the existence of a changing process to favor a pronunciation with diphthong (a newer one) over a pronunciation with hiatus (an older one)." The fact that among young speakers *clariana* is often pronounced [kl´»Rjan´] rather than [kl´Ri»an´] distinctly reflects the state of variation this process is subject to. It is a well-accepted fact that variation is often a passing stage signalling change in progress. As Kiparsky notes, "sound change can be assumed to originate through synchronic variation in the production, perception and acquisition of language, from where it is internalised by language learners as part of their phonological system." (Kiparsky 1995:657-8)

Language contact with Castilian Spanish (and also French) has often been identified as one of the external factors that have influenced the increasing tendency to diphthongisation in Catalan.[4] As is well-known, the unmarked pronunciation of a vocoid sequence of rising sonority in Spanish is a diphthong: *d*[»je]*nte*, *m*[»je]*l*, *ser*[»ja]*l*, *rad*[»jo]*logo*, *prec*[»jo]*so*.[5] Roughly the same situation occurs in French: *bruit* [»b"Ái] 'noise', *nuit* [»nÁi]t 'night', *croire* [»k"wa"] 'to believe', *trois* [»t"wa] 'three', *rien* [»"jE)] 'nothing', *mien* [»mjE)] 'mine', *soigner* [swa»¯e] 'to soothe', *défié* [de»fje] 'to defy', *confiance* [ko˘)»fja)˘s] 'trust'.[6] The Catalan tendency, thus, can be inscribed within a general diphthongisation propensity present in all Romance languages: among them, Catalan represents one of the most conservative varieties, French, Portuguese and Italian being the most innovative.[7]

The aim of this paper is to account for the present-day lexical distribution of the rising diphthong/hiatus alternation in Catalan and, specifically, explore the prosodic patterns and tendencies found in such data. The empirical exploration is a worthwhile task that can yield clues as to why we find more resistance to diphthongisation in certain environments and less in others, and, ultimately, help in revealing the development and origin of such tendencies.

---

[4] As Recasens (1991:155) points out, "it is very plausible to think that Castilian and French pronunciations have favored the tendency to diphthongise through the existence of loanwords (*siesta*, *travieso*, (...). This influence can be seen in the fact that generally traditional words without a parallelism in Castilian are pronounced with hiatus (*flabiol*, *oliós*), while other words with a clear Spanish correlate are often pronounced with diphthongs (*pacient*, *nerviós*, *acció*)."

[5] Despite the well-known anti-hiatus trend shown by the Spanish language, there are some residual contexts where exceptional hiatus appear. For a comprehensive descriptive study of "unexpected" hiatuses, cf. Hualde (1992, 1999) and Colina (1999).

[6] The French data comes from our own observations and from Tranel (1987:116ff). It is worth mentioning that the only systematic exception is due to a special segmental restriction which disallows a glide after a complex onset composed of a stop or a fricative followed by a liquid. For instance, *lou-er* 'to rent' is pronounced [»lwe] but *clou-er* 'to nail' is pronounced [klu»e]; and *li-er* 'to tie' is pronounced [»lje] but *pli-er* 'to fold' [pli»e]. This topic has also been discussed by Kaye & Lowenstamm (1984:137).

[7] Some examples of Portuguese and Italian diphtongs may be found in Mateus & Andrade (2000) and Saltarelli (1970).

The data will be accounted for in a very intuitive way in terms of a correspondence-based OT analysis (Prince & Smolensky 1993; McCarthy & Prince 1994, 1995; Benua 1995). The tendency to diphthongise in this language can be regarded as an intrincate process closely guided by prosodic conditions. A prosodic/identity constraint analysis allows us to capture the interplay between both prosodic and identity pressures together with the variation found in the data: a few differences in the ranking of prosodic and identity constraints can explain the dialectal variation found in rising diphthong/hiatus distribution within the Central Catalan area, and concomitantly, can account for the direction that change has taken in this language.

2. **The basic contrasts**

Catalan language exhibits some well-known preferences for a diphthong or a hiatus solution in certain specific cases. Vocoid sequences of rising sonority are pronounced obligatorily with a diphthong in the following environments:

(a) After a velar consonant ([k], [g], [*f*]) the unstressed back vowel [u] is always a glide: *quasi* [»kwazi], *quan* [»kwan], *guant* [»gwan], *ungüent* [uN»gwen], *aigua* [»aj*f*w´], *qüestió* [kw´s»tjo], *evacuar* [´B´»kwa], *vàcua* [»bakw´], *quatre* [»kwatR´], *quota* [»kwçt´], *guatlla* [»gwa¥¥´], *quòrum* [»kwçRum] (cf. also exceptions like *coet*, *coent, cuassa* and *cuota*, pronounced with hiatus).[8]

(b) When the high vowel constitutes the onset of the syllable: *iaia* [»jaj´], *iuca* [»juk´], *iode* [»jçD´], *ioga* [»jç*f*´], *iogurt* [ju»*f*ur], *ianqui* [»jaNki], *noia* [»nçj´], *veiem* [b´»jEm], *joiós* [Zu»jos], *peuet* [p´»wEt], *cacauet* [k´k´»wEt], *reialme* [r´»jalm´]. To our knowledge, the exceptions to this consistent pattern are the bisyllabic words *ió* [i»o], *IEC* [i»Ek], *hiat* [i»at].

(c) In postaccentual positions (*històr*[j´], *ingèn*[w´], *sandàl*[j´], *Cecíl*[j´], *misericòrd*[j´]) and in derived nominal suffixes with *-ció* (*afirmac*[»jo], *un*[»jo]). To our knowledge, all varieties (and speakers of all ages) have generalized the presence of a diphthong in these environments.[9]

Conversely, hiatus appear quite systematically in word-initial position in short words: *t*[i»o], *p*[i»ç]*c*, *m*[i»ç]*p*, *m*[i»ç]*l*, *T*[i»a], *p*[i»a]*no*, *d*[u»a]*na, v*[i»ç]*la*, *b*[i»E]*la*, *c*[i´]*nur*, *d*[i´]*lecte*, *d*[i´]*dema*, regardless of the accentual status of the sequence itself.

In the rest of the contexts, the data display a remarkable degree of variation between a hiatus or a diphthong solution and authors have not noticed the

[8] These types of sequences have been considered underlying sequences /k^{w}/, g^{w}/ by Wheeler (1979). In contrast with the back vowel, the front vowel [i] does not diphthongise obligatorily in this context (e.g. quiosc [ki»çsk]).

[9] Contexts with the sequence [u]V are somewhat less prone to diphthongise: *pèrd*[u´], *vàl*[u´], except for cases in (a) such as *vàcua*.

presence of clear patterns in one direction or another. Our aim in the following sections will be to discover and account for the regularities and tendencies which guide the speaker's decisions in all lexical environnements.

3. The role of prosody

Lexical sequences of rising sonority in current Catalan phonology display a high degree of variation that seems to be influenced by a number of factors. Prosody is one of the components that clearly govern such diphthong/hiatus contrast and is perhaps one the less well-studied factors. One of the first pronouncements regarding the importance of foot structure on this process relates to the role word bisyllabicity has in ruling out diphthongisation. Recasens (1993:114) points out that bisyllabic words in Central Catalan "have been resistant to diphthongisation whether or not the vocoid sequence belongs to the same morpheme." Thus, items such as *tió* [ti»o], *pioc* [pi»çk], *crioll* [kRi»ç¥], *miol* [mi»çl], *miop* [mi»çp], *du-al* [du»al], *fi-ar* [fi»a], *ni-ar* [ni»a], *su-or* [su»o] are almost always pronounced with two syllables, regardless of its morphological structure. Very clear evidence in favor of a productive bisyllabic enforcement in Catalan phonology is provided by the process of hypochoristic formation. The following examples in (1) illustrate the fact that, whereas the base form usually contains a rising diphthong, its corresponding truncated form unexpectedly surfaces with hiatus (Cabré 1993:118ff, Cabré 1998:15ff).[10]

(1) Hypochoristic Formation

Sebast[»ja]	T[i»a]
Concepc[»jo]	C[i»o]
Encarnac[»jo]	C[i»o]
Gabr[»jE]l	B[i»E]l
Dan[»jE]l	N[i»E]l
Dam[»ja]	M[i»a]
Martir[»ja]	T[i»a]

[10] The diphthong pronunciation of these base forms is typical of the general Central Catalan variety.

There are other environments in which hiatus *vs*. diphthongisation can be motivated by prosodic factors. The strong presence of hiatuses in word-initial position in items such as *p*[i»a]*no, d*[i»a]*na, d*[u»a]*na, j*[u»e]*va, b*[i»E]*la* could be attributed to a prosodic bisyllabic enforcement applied to lexical roots, leaving aside the fact that this pattern might have initially arisen through an analogical pattern (*d*[»i´] > *d*[i»a]*ri*; *v*[»i´] > *v*[i»a]*ri* , etc.). Note that all of the words above end in a gender mark [u, ´], which makes them otherwise similar to bisyllabic words with a zero gender marker like *tió* [ti»o], *pioc* [pi»çk], *lluert* [¥u»Ert]. In contrast to this, diphthongisation has been patently favored in postaccentual environments (historically, *àv*[i´] became *àv*[j´] and *històr*[i´] > *històr*[j´]. This fact can be regarded as a process of prosodic optimisation through the preference of the trochee, the predominant foot in the language.

In order to better understand the prosodic conditions which favor and disfavor diphthongisation, we administered a questionnaire with 357 common words and 24 nonsense words to 25 speakers of Central Catalan —the reader can see the questionnaire in the Appendix. The data cover the following six main types of prosodic configurations of the word you have in (2). Note that the first vocoid in the sequence of two vocoids VV is always a high vowel [i] or [u]. Also bear in mind that CV in parenthesis expresses syllable optionality and optional complex onsets and codas are not represented. Finally, longer words were also included in the questionnaire and will be analized separately.

(2) CVv¤ (miol, tió, dual) CVCVv¤CV (moniato, saviesa)

CVv¤¤CV (diana, jueva) CVCVv¤¤ (camió, enciam)

CVVCv¤ (CV) (diadema, violí) (CV)Cv¤¤¤CVV (història, llàntia)

Table (3) illustrates the hiatus vs. diphthong solution adopted by the speakers in each of the relevant prosodic configurations under study arranged according to the amount of exceptions. The table also includes the conservative varieties' solutions[11] in case they clearly contrast with the general dialect: for example, groups 4 and 5 include the general outcome in the first line (cf. *clar*[»ja]*na*, *cam*[»jo]) and the conservative output in the second line in parentheses (cf. *clar*[i»a]*na*, *cam*[i»o]).

[11] In our view, conservative varieties of Centraal Catalan are used by speakers of peripherical regions such as Banyoles and Tarragona and also by older speakers of the Barcelona area (ages 50 and above).

(3)

	Common words	Nonsense words
1	t[i»o], m[i»ç]l, s[u»o]r, T[i»a], C[i»o], d[u»a]l	t[i»a], p[u»a]
2	d[i»a]na, d[u»a]na, j[u»e]va, b[i»E]la, f[i»a]nça	t[i»a]ta, p[u»a]pa
3	d[i´]dema, c[i´]nur, p[u´]sia, p[i´]nista	t[i´]tà, p[u´]pà
4	mon[»ja]to, clar[»ja]na, id[»jo]ma, conf[»ja]nça, sav[»jE]sa, lit[»wa]na (conserv. var.: mon[i»a]to, clar[i»a]na, id[i»o]ma, …)	tat[»ja]ta, pap[»wa]pa (tat[i»a]ta ...)
5	cam[»jo], Dan[»jE]l, lit[»wa], enc[»ja]m, jul[»jç]l (conserv. var.: cam[i»o], Dan[i»E]l, enc[i»a]m, …)	tat[»jo], pap[»wo] (tat[i»o] ...)
6	històr[j´], ingèn[w´], llànt[j´], perpèt[w´]	tàt[j´], pàp[w´]

The questionnaire results in the table reveal the existence of a clear contrast between words falling in one of the first three groups (1,2,3) and the rest (4,5,6), separated in the graph by a double line. That is, even though they also sporadically admit a pronunciation with a diphthong, there is a very strong quantitative preference to pronounce the items in the first three groups with a hiatus (t[i»o], d[i»a]na and d[i´]dema). In other words, despite the fact that speakers may differ in the way they pronounce some specific items, very clear regularities and tendencies emerge from the data. We also contend that there is a gradation in the resistance to diphthongisation that is directly reflected in the number of exceptions to the general norm: the number of exceptions progressively increases as we move down (or up) to the center of the table ($1 < 2 < 3$; $4 > 5 > 6$), that is, groups 3 and 4 are the ones displaying more degree of variation.

It is worth pointing out that data from older generations and conservative varieties of Central Catalan (5 out of 25 speakers) show a definite weaker tendency to diphthongise: speakers from this variety pronounce with hiatus almost all lexical items except for those words in the last group (separated by a double line in the table above).[12] In general, words belonging to groups 4 and 5 display a contrast between both varieties (mon[»ja]to vs. mon[i»a]to; cam[»jo] vs. cam[i»o]), as the examples in (4) illustrate.

[12] The only systematic exceptions of hiatus in group 5 for conservative varieties are words ending in suffix –*ció* and its allomorphs. We discuss this data later in the paper. More work is still needed to establish the facts about the geographical distribution of the diphthong/hiatus contrasts in Catalan.

(4)

Conservative varieties	Innovative varieties
mon[i»a]to	mon[»ja]to
id[i»o]ma	id[»jo]ma
corr[i»ç]la	corr[»jç]la
barr[i»a]da	barr[»ja]da
conf[i»a]nça	conf[»ja]nça
mar[i»E]ta	mar[»jE]ta
sav[i»E]sa	sav[»jE]sa
av[i»o]	av[»jo]
cam[i»o]	cam[»jo]
jul[i»ç]l	jul[»jç]l
enc[i»a]m	enc[»ja]m
fil[i»a]l	fil[»ja]l
com[i»a]t	com[»ja]t
Dan[i»E]l	Dan[»jE]l
lit[u»a]na	lit[»wa]na

General anti-diphthong environments (1,2,3) are those in word-initial position:[13] potential bisyllabic words (e.g., *t*[i»o], *m*[i»ç]*l, b*[i»a]*ix*), bisyllabic roots (*d*[i»a]*n-a*, *d*[u»a]*n-a*, *v*[i»ç]*l-a*, *d*[i»a]*bl-e*) and initial bisyllabic feet to the left of the stress (*d*[i´]*dema*, *c*[i´]*nur*, *p*[u´]*sia*). We might speculate that hiatuses in the latter two cases might have arisen through morphological analogy (*v*[»i´] > *v*[i»a]*ri* > *v*[i´]*rany*; *r*[»i´] > *r*[i»e]*ra* > *r*[i´]*rol*) and might have been generalized and extended to other contexts by analogy through gradual lexical diffusion (*c*[i´]*nur*, *d*[i´]*dema*), following the well-attested fact that lexical diffusion is very often conditioned by a phonological rationale (Kiparsky 1995). Yet, a compelling argument supporting the idea that synchronically we are dealing with an emerging prosodic pattern is the fact that we are facing a systematic prosodic pattern of initial hiatuses that applies to many more examples than the ones related morphologically: in other words, it is not possible to find a paradigmatic explanation for the presence of hiatus in words such as *p*[i»a]*no*, *b*[i»E]*la*, *j*[u»e]*va*, *d*[u»a]*na*, *l*[i»a]*na*, *d*[i»a]*leg*, *d*[i´]*lecte*, d[i´]*dema*, *c*[i´]*nur, p*[u´]*sia*.

These patterns, though, are not exceptionless. Common exceptions to initial bisyllabicity are words containing *ie, ue* sequences which are precisely the result of Spanish historical diphthongisation (*s*[»wE]*c*, *d*[»wE]*l*, *qu*[»je]*t*, *s*[»wE]*ter*,

[13] Hualde (1999) has also observed that lexical hiatuses are extremely frequent in word initial position in Castilian Spanish (*p*[i»a]*no, cl*[i»e]*nte*, *V*[i»a]*na, r*[i»e]*l*, *r*[i»e]*ndo*, *d*[i»u]*rno*). He confesses, though, that he does not know what could be the motivation behind such a pattern: "What could be the reason for this preference for hiatus in initial position, which goes against the general 'anti-hiatus' preference in the language? Here I must confess ignorance. It could be that there is some phonetic or other reason for it, having to do, for instance, with articulatory ease or with parsing. Or, on the contrary, the reason could be an accident of lexical distribution, starting from a small bias in this direction and progressively the strong becoming stronger." (Hualde 1999).

c[»jE]*ncia*, *p*[j´]*tat* or *V*[»jE]*na*) and words starting with a velar consonant (*q*[»wa]*n*, *g*[»wa]*nt*, *q*[»wa]*si*). As we will see in longer words, distance to primary stress also conditions glide formation in these cases (cf. *dialecte* [di´»lEkt´] vs. *dialectologia* [«dj´l´ktulu»Zi´]).

Words belonging to the last three groups are generally pronounced with a diphthong in the innovative variety. Even though we find some counterexamples, the quantitative patterns found in the questionnaire are again strinkingly clear: words belonging to group 4 (cf. *clar*[»ja]*na*, *guard*[»jç]*la*, *tap*[»jç]*ca*, *ax*[»jo]*ma*) or group 5 (cf. *cam*[»jo], *jul*[»jç]*l*, *av*[»ja]*t*) show a very strong preference for a diphthong. By looking at the near-minimal pairs in (5), it is immediately obvious that there is a clear contrast between sequences appearing at the beginning of the word (left-hand columns) and sequences appearing in word-medial and word-final position (right-hand columns).

(5)

Word-initial	Word-medial	Word-initial	Word-final
f[i»a]nça	conf[»ja]nça	m[i»ç]lpon[»jç]l	
b[i»ç]leg	rad[»jç]leg	v[i»a]l	triv[»ja]l
r[i»ç]tacorr[»jç]la		d[i»e]nt	ad[»je]nt
f[i»a]ble	conf[»ja]ble	t[i»o]	cam[»jo]
r[i»a]da	barr[»ja]da	C[i»o]	nac[»jo]
c[i»a]tica	man[»ja]tica	n[i»a]r	Dam[»ja]

This contrast does not obtain in conservative varieties of Central Catalan: as we have seen in (3), these varieties strongly favor the presence of a hiatus both in stressed word-medial sequences (cf. *mon*[i»a]*to, clar*[i»a]*na*, *id*[i»o]*ma*, *lit*[u»a]*na*, *var*[i»a]*ble*, *barr*[i»a]*da*, *man*[i»a]*tic*, *corr*[i»ç]*la*) and word-final sequences (cf. *cam*[i»o], *jul*[i»ç]*l*, *av*[i»a]*t*, *Dan*[i»E]*l*, *Dam*[i»a], *com*[i»a]t, *pon*[i»ç]*l*). In fact, Oliva (1977), speaker himself of a conservative variety, already remarked the contrast between *as*[i»a]*tic*/*Às*[j´] and *glor*[i»E]*ta*/*glòr*[j´]. The only systematic exception to this generalization occurs with words ending in nominal suffixes with [»sjo] (*il·lus*[»jo], *afirmac*[»jo], *reflex*[»jo]), revealing that some analogical pattern might be playing an important role in initiating such a tendency.[14]

Finally, we find that the most favoring environment for diphthongisation (and historically one of the first to diphthongise) is a word-final postaccentual syllable in words such as *històr*[j´], *justíc*[j´], *ingèn*[w´], *àv*[j´].[15] We have evidence for penultimate stress in these words from the XVII century onwards. Diphthongisation in this context can be easily explained by the strong prosodic

[14] Oliva (1977) also makes reference to the effect of preceding *s* on diphthong formation: he notes the contrast between *acc*[»jo], *dicc*[»jo] and *ficc*[»jo] (parsed in two syllables) with *av*[i»o], *cam*[i»o] and *mun*[i»o] (parsed in three syllables).

[15] Majorcan and Roussillon Catalan have resolved such historical antepenultimate stress patterns by deleting the final vowel: *història* → *histori, família* → *famili.*

preference for trochaic feet (and the avoidance of antepenultimate stress) shown by the Catalan language: *històr*[i´] > *històr*[j´]; *àv*[i´] > *àv*[j´]. To our knowledge, all varieties (and speakers of all ages) have generalized the presence of a diphthong in these environments. Yet, even though hiatus are strongly dispreferred in postaccentual environments, we also found that the sequence *ua* is significantly less prone to contract into a diphthong (cf. *vàl*[u´], *fàt*[u´], *pèrd*[u´]).[16]

Distance of the vocoid sequence from the main word stress is another factor which conditions glide formation: the greater the distance is, the greater the tendency to pronounce a diphthong. In general, a hiatus appears when the stress is located in the vowel next to the high vowel (*d*[i»a]*leg*, *d*[i»a]*ri*, *d*[i»a]*metre*) or one syllable to the right (*d*[i´]***frag****ma*, *c*[i´]**nur***, d*[i´]g***nòs****tic*, d[i´]***gra****ma*). Once the stress moves further to the right, the same sequence is pronounced with a diphthong (*d*[j´]go**nal**, d[j´]cro**ni**a, *c*[j´]*nu**rat***, *d*[j´]*pa**só***, *d*[j´]*posi**ti**va*). The productivity of such pattern can be seen in (6) —we mark in boldface the stressed syllable:[17]

(6)	d[i»a]leg		d[i´]**lo**ga	d[j´]lo**gar**	d[j´]loga**ré**
	d[i»a]ble		d[i´]**bò**lic	d[j´]ble**jar**	d[j´]boli**cal**
	v[i»ç]la	v[iu]**lí**	v[ju]li**nis**ta	v[ju]lonce**lis**ta	
	d[u»a]l		d[u´]**lis**ta	d[w´]li**tat**	
	r[i»a]lla	r[i´]**ller**	r[j´]lle**jar**		

This apparent syllable-counting effect can be understood as a prosodic tendency to enforce a bisyllabic foot to the left of the stress. This easily explains why a hiatus appears in forms such as *d*[i´]*loga* and a diphthong in forms such as *d*[j´]*logar* and *d*[j´]*logaré*. Another possible way to express this tendency might be that the hiatus in the case of *d*[i´]***lo****ga* or *d*[i´]***ble****ssa* is a way to maintain a rhythmic alternation in the pretonic syllables.

We also examined whether or not the presence of morphological boundaries blocks diphthongisation from applying. It is clear that vowel contraction into a rising diphthong is quite systematic across morpheme boundaries separating nominal and verbal suffixes, provided the fact that such sequences are located in diphthong-favoring prosodic environments: comedi-ant [kum´»Djan], paci-ent [p´»sjen], soci-al [su»sjal], estudi-ar [´stu»Dja], estalvi-aré [´st´lBj´»Re].

[16] Badia i Cardús (2000:81) also points out that "in words with postaccentual *u*, diphthongisation is less frequent than with postaccentual *i*; thus, hiatus is maintained in the former case, especially in words shorter than four syllables."

[17] This phenomenon has also been reported in Spanish. As Hualde (1999) points out, "in hiatus words, the stress always falls either on the second vowel in hiatus or in the following syllable, but not further to the right. Thus there is *d*[i»a]*blo, d*[i»a]*metro, d*[ia]*fragma,* but *d*[ja]*gonal, d*[ja]*pasón* and even *d*[ja]*metral.*" Navarro-Tomás (1948:159) explains some cases of exceptional hiatus in Spanish as a result of analogical pressures: *diario* 'daily newspaper', *diana* 'bull's eye', *diurno* 'diurnal'.

The above data has made manifest that the prosodic configuration of the word plays a very substantial role in guiding Catalan speakers' decisions on diphthongisation: enforcement of common prosodic patterns can easily explain why hiatuses are clearly preferred in word-initial position and diphthongs in postaccentual environments. Yet, we still can wonder whether Catalan speakers have generalized such prosodic patterns and apply them regularly to borrowings or to nonce words. The results of the questionnaire with nonsense words basically gives us a positive answer to this question: the fact that the same prosodic patterns emerge in the pronunciation of nonce words reveals that speakers must have a productive knowledge of such prosodic patterns and that they use them actively in the pronunciation of new items.

In sum, even though the process of diphthongisation of rising sonority sequences might have been initially conditioned by a complex amalgam of phonological, morphological and lexical information, this phenomenon has evolved into one basically conditioned by prosodic structure. Nevertheless, it is also clear that we cannot speak of a complete categorical regularity but rather of a very strong quantitative tendency following this direction.

4. The enforcement of prosodic patterns

The data reviewed in the preceding section has made manifest that the choice between a hiatus or a rising diphthong in Catalan lexical sequences is to a significant extent guided by prosody. We claim that rising diphthongs are derived from a sequence of two vowels and surface as the result of the interaction between a battery of prosodic constraints.[18]

To account for the presence of an obligatory back glide after a velar consonant (*q*[»wa]*tre*, *adeq*[»wa]*r*, *q*[»wa]*n*), we propose the existence of a segmental constraint which disallows the presence of a high back vowel after a velar consonant, namely, *C_{velar}uV. Even though these sequences have been considered as underlying sequences /k^{w}/, /g^{w}/ by Wheeler (1979), there are contexts in which the vowel and the corresponding glide alternate (cf. *liq*[»uu] > *liq*[»wa]r; *evac*[»uu] > *evac*[»wa]*r*; *adeq*[»uu] > *adeq*[»wa]*r*), thus providing evidence in

[18] The phonemic or derived status of prevocalic glides in Catalan has been a matter of discussion in Catalan phonology. For exemple, Wheeler (1979:198) argues for a phonemic status of same glides; for Bonet & Lloret (1998:179) all glides are phonemic, depending on the speaker's pronunciations: "There are contexts in which [j], [w] never alternate with their corresponding vowels: *aire* [»ajR´], *noi* [»nçj], *quaresma* [kw´»REzm´], *deia* [»dEj´], *iambe* [»jamb´], *nació* [n´»sjo] (in many Catalan varieties), etc. In these cases we assume we have a glide underlyingly /j/ o /w/ (thus, the underlying form of a word such as *nació* would be /nA'sjon/. In cases where there is variation across dialects or speakers between a glide and a vowel, we assume that underlying forms also can vary depending on the speaker. Thus, a word like *diana* has the underlying form /di»an+a/ for those speakers which systematically pronounce [di»an´] and the underlying form /»djan+a/ for those speakers which systematically pronounce [»djan´]". Other analyses argue that underlying high vowels /i/, /u/ become glides under some prosodic restrictions unless they are marked as nucleus (Serra 1996) or [+ stress] (Jiménez 1999).

favor of its non-phonemic status. The constraint *C_{velar}uV conspires against the well-known correspondence condition which tends to keep the identity between phonological input and output (IDENT I-O). The tableau in (7) illustrates how the candidate *liq*[u»a] is not chosen because it crucially violates this segmental constraint. Notice that for ease of presentation we show the input in written form with morphological barriers and with main stress already assigned.

(7) liqu+'a(r)

Candidates	*C_{velar}uV	IDENT_I-O
a. liq[u»a]	*!	
☛ b. liq [»wa]		*

With regards to the position of prevocalic glides within the syllable structure, Bonet & Lloret (1998:63-64) and Jiménez (1999:68) assume that they are part of the onset because of the tendency of complex onsets to prevent glide formation from applying (*Adr*[i»a]*na*, *afl*[u»e]*nt*, *vidr*[i»e]*ra.* Yet, as we mentioned before, this tendency is subject to variation and tends not to be active in cases which can be prosodically motivated: *àmpl*[j´], *indústr*[j´], *pàtr*[j´], *patr*[ju]*tisme*, *segr*[j´]*nenc*, *calandr*[»jE]*ta*, *alexandr*[»ja], *amfitr*[»jo]. Even though we believe that there are no conclusive arguments favoring any particular position, we will assume that prevocalic glides are part of the nucleus and thus contribute weight to the syllable. An argument supporting this claim is the fact that antepenultimate stress is impossible in Catalan whenever the penultimate syllable of the word contains a branching nucleus: **enráb*[j´]*da*, **clár*[j´]*na*, **líl*[j´]*na*.[19] One should bear in mind , however, that this is not crucial assumption of our analysis of the diphthongisation data.

We claim that there is a force which universally favors diphthongisation on every stressed syllable. As Borowsky (1986: 261) notes, "it is equally commonly noted that stressed syllables attract material. Based on these observations many studies have presented arguments showing that material is resyllabified from an unstressed syllable to a stressed syllable in some way or other". We adopt STRESS-TO-WEIGHT (Kager 1999:268)[20] as the prosodic constraint which expresses the crosslinguistic tendency for stressed syllables to acquire more segmental material and phonological weight. For innovative varieties STRESS-TO-WEIGHT is ranked higher than IDENT I-O and therefore the existence of output forms such as *mon*[»ja]*to* and *jul*[»jç]*l* is correctly predicted, as the tableaux in (8) illustrate:

[19] In Spanish it is generally assumed that the prevocalic glides are part of the nucleus (cf. Hualde 1991). As Harris (2000) point out "prevocalic glides form a complex nucleus when preceded by a less sonorous segment: s[C n[GV]...]." One of the main arguments in favor of this assumption is the fact that antepenultimate stress is ruled out if the penultimate has a branching rhyme: **Venézwela*, **Marácaibo*, **Salámanca*. In contrast with Catalan, [w] and [j] easily coocur with complex onsets: *prueba*, *prieto*, *pliegue*.
[20] "Stress-to-Weight: If stressed, then heavy" (Kager 1999:268).

(8) moni'at+o

Candidates	STR-to-WEIGHT	IDENT I-O
a. mon[i»a]to	*!	
☛b. mon[»ja]to		*

juliəol

Candidates	STR-to-WEIGHT	IDENT I-O
a. jul[i»ç]l	*!	
☛b. jul[»jç]l		*

We argue that there is another competing force which tends to preserve hiatus in order to maintain root bisyllabicity, ROOT-BIN. ROOT-BIN must dominate STRESS-to-WEIGHT to explain why glide formation is blocked from applying in initial stressed syllables of bisyllabic roots (cf. m[i»ç]l and d[i»a]na). As we can see in the two tableaux in (9), candidates m[»jç]l and d[»ja]na are ruled out because they crucially violate the dominating constraint ROOT-BIN, as follows:[21]

(9) mi'ol

Candidates	ROOT-BIN	STR-to-WEIGHT
a. m[»jç]l	*!	
☛ b. m[i»ç]l		*

di'an+a

Candidates	ROOT-BIN	STR-to-WEIGHT
a. d[»ja]na	*!	
☛ b. d[i»a]na		*

With the conditions expressed so far (ROOT-BIN >> STRESS-to-WEIGHT >> IDENT I-O) we can predict a diphthong/hiatus solution whenever the high vocoid is located immediately before the stressed vowel (cf. *mon*[»ja]to, *jul*[»jç]*l* vs.

[21] Note that the constraint prohibiting *C_{velar}uV sequences overrides root bisyllabicity, as the following handful of words demonstrates: *q*[»wa]*si*, *q*[»wa]*n*, *g*[»wa]*nt*, *q*[w´]*stió*, *q*[»wa]*tre*, *q*[»wç]*ta*, *g*[»wa]*tlla*, *q*[»wç]*rum*, *q*[w´]*resma*, *g*[w´]*rir*, *g*[w´]*rnir*.

d[i»a]*na*, *m*[i»ç]*l*). Glide formation in unstressed syllables is trigered by the ONSET constraint. Within OT, ONSET expresses the general prosodic restriction that every syllable must have an onset and motivates the strong preference for CV syllables rather than V syllables. The ranking ONSET >> INDENT I-O correctly predicts that the optimal output should be *istòr*[j´] and *var*[j´]*tat* rather than *istòr*[i´] and *var*[i´]*tat*.

(10) istòri+a

Candidates	ONSET	IDENT I-O
☛ a. istòr[j´]		*
b. istòr[i´]	*!	

vari+e'tat

Candidates	ONSET	IDENT_ I-O
☛a. var[j´]tat		*
b. var[i´]tat	*!	

In postaccentual position the effects of ONSET coincide with those of TROCHEE,[22] the predominant foot of the language. For our purposes, ONSET accounts for glide formation in all unstressed positions.

Finally, remember that hiatuses also surface when the vocoid sequence is in a word-initial position which immediately precedes the stressed syllable (cf. *d*[i´]*dema*, *c*[i´]*nur* vs. d[j´]*lectologia*, *var*[j´]*tat*). We will interpret these facts as the prosodic tendency to minimally parse the pretonic word-initial syllables with a bisyllabic foot. We express this empirical observation through a condition named ALIGN-LEFT[σσ]. To some extent, this prosodic restriction might seem somewhat 'ad hoc', probably due to the fact that this tendency has emerged as a result of a phonological generalization initiated as an analogical pattern with other words containing word-initial hiatus (cf. *pi.a.no* or *ti.ó*). It is important to note, though, that the tendency to enforce a bisyllabic foot at the left of the stress (ALIGN-LEFT[σσ]) can provide an easy explanation for the contrast between words such as *d*[i´]*loga* and *v*[iu]*lí* (pronounced with a hiatus) and words such as *d*[j´]*logar* or *v*[ju]*loncel* (pronounced with a diphthong). In other words, the apparent syllable-counting generalization noted before is easily reinterpreted in terms of foot structure.

ALIGN-L[σσ] dominates ONSET in order to preserve words like *d*[i´]*dema* from diphthongisation. The tableaux in (11) show how the ranking ALIGN-L[σσ] >> ONSET >> IDENT I-O correctly predicts the optimal candidates *d*[i´]*dema* in contrast with *var*[j´]*tat*.

(11) dia'dem+a

Candidates	ALIGN-L[σσ]	ONSET	IDENT I-O
☛ a. d[i´]dema		*	
b. d[»j´]dema	*!		*

vari+e'tat

[22] TROCHEE (Align a trochaic foot at the end of the word) expresses the tendency of words to conform to the penultimate rather than the antepenultimate stress pattern.

Candidates	ALIGN-L[σσ]	ONSET	IDENT I-O
☛ a. var[j´]tat			*
b. var[i´]tat		*!	

We summarize in (12) the hierarchy of prosodic conditions that account for the situation found in the innovative varieties of Central Catalan. The segmental constraint *C_{velar}uV —which in fact dominates all of the conditions in the ranking— is only active when this exceptional segmental sequence appears.

(12) ROOT-BIN >> STR-TO-WEIGHT >> ALIGN-L[σσ] >> ONSET >> IDENT I-O

Let us remark that in the constraint hierarchy in (12) STRESS-TO-WEIGHT dominates ALIGN-L[σσ] in the general Central Catalan variety. Otherwise, words such as *moniato* and *juliol* would surface with a hiatus, which is precisely the solution displayed by the conservative varieties (cf. *mon*[i»a]to, *jul*[i»ç]l). The four tableaux in (13) and (14) show the results of the evaluation procedure of this pair of words in both dialects: indeed, the difference between the two falls out directly from the two possible alternative orderings between STRESS-TO-WEIGHT and ALIGN-L[σσ].

(13) Innovative varieties: STRESS-TO-WEIGHT >> ALIGN-L[σσ]

moni'at+o

Candidates	STR-TO-WEIGHT	ALIGN-L[σσ]	IDENT I-O
a. mon[i»a]to	*!		
☛ b. mon[»ja]to		*	*

juli'ol

Candidates	STR-TO-WEIGHT	ALIGN-L[σσ]	IDENT I-O
a. jul[i»ç]l	*!		
☛ b. jul[»jç]l		*	*

(14) Conservative varieties: ALIGN-L[σσ] >> STRESS-TO-WEIGHT

moni'at+o

Candidates	ALIGN-L[σσ]	STR-TO-WEIGHT	IDENT I-O

☛ a. mon[i»a]to		*	
b. mon[»ja]to	*!		*

juli'ol

Candidates	ALIGN-L[σσ]	STR-TO-WEIGHT	IDENT I-O
☛ a. jul[i»ç]l		*	
b. jul[»jç]l	*!		*

A very interesting consequence of the prosodic restrictions proposed so far is that they can account for the dialectal and sociolectal variation found in Central Catalan. The hiatus/diphthong distribution in conservative varieties is easily captured by a minor change in the ranking of constraints: in these dialects, the tendency to diphthongise in stressed syllables (expressed through the STRESS-TO-WEIGHT condition) is ranked one step lower in the hierarchy (namely, below ALIGN-LEFT[σσ]), as follows:

(15) ROOT-BIN >> ALIGN-L[σσ] >> STR-TO-WEIGHT >> ONSET >> IDENT I-O

The hiatus/diphthong contrasts in conservative varieties, which can be conceived of as a fossilized stage —as the work of Fabra (1912) seems to suggest—, stems from our analysis with the same prosodic restrictions as innovative varieties. The difference between the two lies mainly in the ranking of STRESS-TO-WEIGHT, evidencing that the tendency to diphthongise has progressively acquired more force in the phonology of more innovative varieties.

5. Non-morphological analogy and idiolectal variation

Let us now consider the case of morphological and nonmorphological analogy which favors a diphthong solution in words predicted to surface with a hiatus by the above mentioned prosodic restrictions. We know that conservative Central Catalan varieties generally pronounce words such as *cam*[i»o] with a hiatus —a general tendency also proven by pronunciation of nonce words such as *tat*[i»a]. Yet, these pattern presents a great number of counterexamples, the majority of which end in *–sió* (*nac*[»jo], *pass*[»jo], *ficc*[»jo], *fus*[»jo]). The preponderance of nominalized forms such as *elevac*[»jo], *distribuc*[»jo], *afirmac*[»jo], *inhibic*[»jo] suggest that the tendency to pronounce with a diphthong words ending in *–sió* must have initially arisen by a morphologically conditioned analogy with the nominal suffix *–ció* and its allomorphs (one of the most productive suffixes in the language) and then generalized by nonmorphological analogy to other unrelated words ending with similar segmental sequences (cf. *ficc*[»jo], *reg*[»jo], *nac*[»jo]).

We thus argue that this word-final segmental sequence has taken the role of a phonological pattern in the synchronic phonology of Catalan.

Within OT, Kenstowicz (1996) has examined similarity effects and paradigm levelling cases and has proposed to extend the identity family of constraints to cover analogy cases between morphologically related words. In particular, he proposes the existence of the Uniform Exponence constraint which guarantees a minimal phonological difference between different morphologically-related items.[23] In the Catalan data at hand, the strings related by correspondence will be the *–sió* suffixes (and allomorphs) and also similar phonological endings in nonmorphologically-related words (cf. *regió*). We adopt Itô and Mester (1997)'s idea within Correspondence Theory that each speaker is able to establish a series of idiosyncratic output-to-output correspondence relations between different lexical items which become active in the evaluation process. In our analysis, we extend the UNIFORM EXPONENCE(& [»sjo]) to nonmorphologically related cases: this will thus be responsible for maintaining syllabic structure among morphological and nonmorphological correspondents. We argue that a word-final [»sjo] pattern is acting as a general correspondent in conservative varieties of Central Catalan and that the presence of this pattern enforces a diphthong pronunciation of all words ending in sibilant plus [»jo], as we can see in (15).

(15) nació(n)

Candidates	UNIFORM EXPONENCE (& [»sjo])	Align-L[σσ]
a. nac[i»o]		*
☛b. nac[»jo]	*!	

Finally, let us point out that the hiatus/diphthong lexical distribution in Catalan exhibits variation across speakers, typical of a situation of language change. Intuitively, idiolectal variation responds to the difference between analogical relationships each speaker establishes between different lexical items, as Itô and Mester (1997:439) propose.

6. Conclusion

We have shown that the gradual process of diphthongisation of rising sonority sequences in Catalan can be accounted for in a very intuitive way in terms of a correspondence-based OT analysis (McCarthy & Prince 1994, 1995; Benua 1995). The tendency to diphthongise in this language can be regarded as an intrincate process closely guided by prosodic conditions, i.e., by forces which optimise prosodic structure and by forces which tend to keep identity relations in morphologically and even nonmorphologically related words. In general, morphological barriers play no role on the speaker's decision to produce rising

[23] **Uniform Exponence** (Kenstowicz 1996:382): Minimize the differences in the realization of a lexical item (morpheme, stem, affix, word).

diphthongs or hiatus. One of the main advantages of the OT analysis presented here is the fact that a few differences in the ranking of prosodic constraints can explain the dialectal and sociolectal variation found within Central Catalan and can account for the increasing role that Stress-to-Weight is taking in the evolution of this phenomenon.

The significance of the data presented here is made manifest when we observe the behavior of other Romance languages with regards to diphthongisation. It is not surprising that Spanish, a language which represents a more advanced stage of diphthongisation, still shows some of the anti-diphthong restrictions Catalan presents. In this sense, a CT/OT analysis of diphthongisation appears to be very promising, as it may provide us with a unified view of the hiatus/rising diphthong synchronic and diachronic distribution found in Catalan and concomitantly may shed some light on a plausible general view of the evolution of this phenomenon in the Romance region.

References

Badia i Cardús, M. (2000). *Diftongs i africats, dues qüestions polèmiques de fonologia catalana*. Barcelona: Publicacions de l'Abadia de Montserrat.

Ballot, J. P. (1815). *Gramática y apología de la llengua cathalana*. Estampa de Pere Pau Husson, Barcelona. (ed. Mila Segarra). Altafulla, Barcelona, 1987.

Benua, L. (1995). "Identity effects in morphological truncation". *Papers in Optimality Theory. University of Massachusetts Occasional Papers in Linguistics* 18, ed. by J.N. Beckman *et al*. Amherst, MA: Graduate Linguistics Association, pp. 77-136.

Bonet, E.; Lloret, M.R. (1998). *Fonologia catalana*. Barcelona: Ariel.

Borowsky, Toni J. (1986). *Topics in the Lexical Phonology of English*. Ph. D. Dissertation, University of Massachusetts at Amherst.

Cabré, T. (1993). *Estructura gramatical i lexicó. El mot mínim en català*. Ph. D. Thesis. Bellaterra: Universitat Autònoma de Barcelona.

Cabré, T. (1998). "Faithfulness to Prosodic Edges: Dialectal Variation in Truncated Words in Catalan". *Catalan Working Papers in Linguistics*, 6, pp. 7-22.

Colina, S. (1999). "Reexamining Spanish Glides: Analogically Conditioned Variation in Vocoid Sequences in Spanish Dialects". *Advances in Hispanic Linguistics*, vol I, ed. by J. Gutiérrez-Rexach and F. Martínez-Gil. Somerville: Cascadilla Press, pp. 121-134.

Fabra, P. (1912). *Gramàtica de la llengua catalana*. Barcelona: Edicions AQUA, 1982.

Harris, J. W. (2000). "High vocoids in Spanish syllables". Ms. MIT.

Hualde, J.I. (1991). "On Spanish syllabification". In Current Studies in Spanish Linguistics. Héctor Campos and Fernando Martínez Gil (eds.), 475-493. Washington, CD: Georgetown University Press.

Hualde, J.I. (1992). "Acerca de las semivocales en español". Ms. University of Illinois.

Hualde, J.I. (1999). “Patterns in the Lexicon: Hiatus with Unstressed High Vowels in Spanish”. *Advances in Hispanic Linguistics*, vol I, ed. by J. Gutiérrez-Rexach and F. Martínez-Gil. Somerville: Cascadilla Press, pp. 182-198.

Institut d’Estudis Catalans (1990). *Proposta per a un estàndard oral de la llengua catalana I*. Fonètica. Barcelona: IEC.

Itô, J. and A. Mester (1997). “Correspondence and compositionality: The Ga-Gyo variation in Japanese phonology”. *Derivations and Constraints in Phonology*, ed. by. I. Roca. Oxford: Clarendon Press, pp. 419-462.

Jiménez, J. (1999). *L'estructura sil·làbica del català*. Barcelona / València: Publicacions de l'Abadia de Montserrat.

Kager, R. (1999). *Optimality Theory*. United Kingdom: Cambridge University Press.

Kaye, J. & J. Lowenstamm (1984). “De la syllabicité”. *Forme sonore du langage: structure des représentations en phonologie.* Ed by F. Dell, D. Hirst, J.-R. Vergnaud, directeurs de la publication". Paris: Hermann.

Kenstowicz, M. (1996). “Base-identity and Uniform Exponence: Alternatives to Cyclicity”. *Current Trends in Phonology: Models and Methods*, ed. by Durant, J. & B. Lacks. University of Salford: European Studies Research Institute, pp. 363-393.

Kiparsky, P. (1995). “The Phonological Basis of Sound Change”. In *The Handbook of Phonological Theory*, ed. by John Goldsmith. Oxford: Blackwell, pp. 640-70.

Mateus, Maria Helena and Ernesto d’Andrade (2000). *The Phonology of Portuguese*. Oxford: Oxford University Press.

McCarthy, J.; Prince, A.M. (1994). “The emergence of the unmarked”, ms. University of Massachusetts, Amherst and Rutgers University.

McCarthy, J.; Prince, A.M. (1995). “Faithfulness and reduplicative identity”, *Papers in Optimality Theory. University of Massachussetts Occasional Papers in Linguistics* 18, ed. by J.N. Beckman *et al*. Amherst, MA: Graduate Linguistics Association, pp. 249-384.

Navarro Tomás, T. (1948). *Manual de pronunciación española*. New York: Hafner Publishing Company, 4th edition.

Oliva, S. (1977). “Dos aspectes del ritme en el català modern”, *Els Marges* 9, pp. 89-96.

Prince, A.M.; Smolensky, P. (1993). “Optimality Theory: Constraint Interaction in Generative Grammar”, ms. Rutgers University and University of Colorado at Boulder.

Recasens, D. (1991). *Fonètica descriptiva del català*. Barcelona: Institut d’Estudis Catalans.

Recasens, D. (1993). *Fonètica i fonologia*. Barcelona: Enciclopèdia Catalana.

Saltarelli, M. (1970). *A Phonology of Italian in a Generative Grammar*. The Hague: Mouton.

Serra, J. (1996). *La fonologia prosòdica del català*. Doctoral dissertation.

Tranel, B. (1987). *The Sounds of French*. Cambridge: Cambridge University Press.

Wheeler, M. W. (1979). *Phonology of Catalan*. Oxford: Blackwell.

Enquesta divisió sil·làbica

Nom: _____ Edat: _____

Procedència geogràfica: _____

Separeu amb una ratlla les síl·labes de les paraules següents (p. ex., *caseta* ca|se|ta). En cas que les dues vocals altes ([i, u]) formin diftong, assenyaleu el nucli amb un accent:

iaia	piano	diable
iambe	dialectal	viatge
ianqui	viola	lloança
iarda	iogurt	duana
ieisme	aviació	suara
filiació	iuca	truana
ioga	ió	iol (barca)
tió	iot (lletra)	hiat
Ció	iota	IULA
Tià	UAM	IEC
Biel	fuel	UAB
Lió	quan	UOC
brioix	suec	ien
rient	fruit	suau
Pié (cognom)	riu	cruel
biaix	piu	foniatria
suor	viu	client
lluent	buit	cruent
fuet	nació	gruar
pouet	cuit	criat
coet	dual	prior
roent	duel	triar
duet	fiar	triomf
quiet	miol	truà
cuina	copiós	cloent
piula	niar	viaró
cuiro	pioc	croat
truita	diari	suec
fruita	fiança	Boet (cognom)
fiança	siciliana	coet
Viena	Tiana	koala

juerga
ciència
ciàtica
biela
biòleg
buata
pietat
diari
diària
Boavi
(topònim)
dieta
diada
diòcesi
cueta
fiable
jueva
nuesa
ciutat
siureny
violí
vianant
cianur
lloar
pioner
Priorat
biològic
diabòlic
diamant
dietari
cuereta
diagnosi
biologia
diapasó
diagonal
diana
diapositiva
diocesà
dualitat
fiabilíssim
dialectologia
liofilitzar
avió
enciam
camió
corriol
flabiol
aviat
poniol
espiar
vuit
oliós
caviar
riada
riota
estàtua
suèter
triangle
triàcid
cloenda
Joana
dialecte
dualista
duodè
fiador
lionesa
mielina
miocardi
miolar
miopia
muetzí
niador
violar
violent
pietós
miografia
viabilitat
violador
diamantí
piemontès
puericultura
suavitat
violentar
violoncelista
triangular
seriós
missió
orient
guardià
preciós
Premià
pensió
contenciós
estudiar
oficiar
reflexió
poeta
poagra
troana
bienni
diàleg
cruesa
criada
diana
pianista
Piemont
diadema
diafragma
piolet
diaca
científic
clientela
criador
criatura
Tiurana
(topòn.)
priorat
triomfar
poetitzo
dialectòleg
criaturer
prioritat
triomfador
triomfalisme
coeditor
coarrendatari
coalició
poetitzar
poetització

paciència
obsequiar
esquiar
circuit
cordial
comiat
arterial
artificial
associar
glòria
escorpió
avariar
associat
atiar
avaluar
opció
bestial
evacuar
labial
calumniar
capciós
col·legial
sènia
sèquia
vàlua
riera
perpètua
pròpia
nòvia
àvia
vàcua
ingènua
ambigua
maniàtic
radiòleg
aliança
sarsuela
semiòtic
liana
valeriana
vidriera
glorieta
historieta

seriosa
estudiava
IEC
embrionari
apassionar
apreciació
enlluernar
bruel
radiador
avioneta
confidencial
conciliar
miop
deliciós
defectuós
il·lusió
població
filial
saciar
vidriós
variar
llàntia
fàtua
pèrdua
vàcua
història
eufòria
supèrflua
Èlia
paciència
piragua
llengua
idioma
escriure
aliena
amniòtic
asiàtic
bibliòfil
bestiola
bestiesa
patriarca
clariana
conciliari

espiaré
expiació
pensionista
camioneta
iode
idiomàtic
pediatria
ambiental
puntuació
construir
deduir
despectiu
festiu
australià
asturià
repatriar
col·legiat
peruà
genuí
escuat
conspícua
inòpia
Cecília
bèstia
Calàbria
pàtria
vídua
mútua
contínua
comèdia
canviar
pediatra
confiança
corriola
guardiola
Juliana
moniato
patriota
foniatra
variable
idioma
espiava
patriotisme

societat	oriental	reflexionar
semiesfera	preciosíssim	variabilitat
missioner	estudiaré	

ENQUESTA MOTS SENSE SENTIT

tià	tiata	tàtia
pió	piopa	pòpia
tuà	tuata	tàtua
puós	puopa	pòspua
tatià	tiatà	papuota
papiós	piopà	tatuata
tatuà	puatà	tatiata
papuó	tuaspà	papiota