HOW UNNATURAL AND EXCEPTIONAL CAN LANGUAGES BECOME?

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Goal: We examine two apparently very similar processes of Catalan, n-deletion and r-deletion, which do not have a natural synchronic explanation and which have a considerable number of lexical exceptions. We examine several ways to account for this type of phenomena. We further examine how different the two processes are and whether they are attested in other languages.

I. N/R DELETION IN CATALAN

(1) *n* deletes in word-final position after a stresssed vowel

a.	talibà 'taliban'	b.	talibans (pl.)	c. talibanet 'taliban (dim.)'
	ple 'full'		plena (fem.)	plenitud 'fullness'
	comú 'common'		comunes (fem. pl.)	comunal 'communal'
			(cf. dens 'dense', densitat 'density')	

(2) *n* does not delete in word-final position after a stressless vowel

plàtan 'banana'	misogin 'misogynist'
examen 'exam'	àton 'unstressed'

(3) *r* deletes in word-final position after a stresssed vowel, followed or not by the plural morph

a.	clar	[klá]	'clear'	b.	[klás] 'clear (pl.)'
	paper	[pəpé]	'paper'		[pəpés] 'papers'
	monestir	[munəstí]	'monastery'		[munəstís] 'monasteries'
					(cf. vers [bérs] 'verse')

c.	clara 'clear (fem.)'
	paperàs 'big paper'
	monestiret 'small monastery'

(4) *r* does not delete in word-final position after a stressless vowel

bàrbar 'barbarian'	semàfor 'traffic-light'
caràcter 'character'	màrtir 'martyr'

(5) a. Other word-final nasals never delete

gram	[gɾám]	'gram'
engany	[əŋgáɲ]	'deceit'

   b. Other word-final consonants (glides, laterals and obstruents) never delete

pou	[pów]	'well'	cabàs	[kəβás]	'shopping bag'
remei	[rəmɛ́j]	'remedy'	guix	[gíʃ]	'chalk'
sal	[sál]	'salt'	tap	[táp]	'cork'
fonoll	[funóʎ]	'fennel'	paquet	[pəkɛ́t]	'parcel'

(6) Summary

	Final stressed σ		Final unstressed σ	Others
	singular	*plural*		
n	comú\<n\>	comu**n**s	exame**n**(s)	comu**n**a, de**n**s
r	cla\<r\>	cla\<r\>s	semàfo**r**(s)	cla**r**a, ve**r**s

II. HISTORICAL EVOLUTION

(7)   Vn > Ṽn > Ṽ > V

seren > serẽn > serẽ > serè

serens > serẽns > serens

(8)   Vrs > Vss > Vs

clars > class > clas (pl.) → (sg.) cla < clar

(cf. also BURSA > bossa 'bag'; URSU > ós 'bear')

III. QUESTIONS

(9)   a. Why do *n* and *r* delete, and not other consonants with a different manner? (i.e., why not stops, fricatives, laterals or glides?)

b. Why does *n* delete, and not other nasals with a different place (*m* or *ɲ*)?

c. Why does *n/r*-deletion occur only in word-final position?

d. Why does *r*-deletion occur also in plurals?

e. Why does *n/r*-deletion affect only oxytones?

(10)

```
        p  t    k
        b  d    g
        f  s    ʃ
           z    ʒ
        m ⌐n⌐  ɲ
          |ɾ|
        l   ʎ
          j  w
```

IV. A FIRST OT APPROACH

(11)   Why does *n/r*-deletion occur only in word-final position? (=(9c))

Possible answer: ONSET, I-CONTIGUITY » *n, *r

(12)   a. /dɛ́ns/: [dɛ́ns] 'dense'

/dɛ́ns/	ONSET	I-CONT	*n
☞ a. dɛ́ns			*
b. dɛ́s		*!	

b. /nusjón/: [nusjó] 'notion'

/nusjón/	ONSET	I-CONT	*n
a. nusjón			**!
☞ b. nusjó			*
c. usjó	*!		

(13) Why does *n* delete, and not *m* or *ɲ*? (=(9b))

    a. Place markedness hierarchy (Prince and Smolensky 1993: §9.1.2):

*Labial, *Dorsal » *Coronal

    b. Phonetic grounding: Coronals have weaker cues than other places of articulation (Jun 1995, Flemming 1995):

        • PRESERVE[F]: Preserve perceptual cues for input features (cf. MAX[F] in McCarthy and Prince 1999).

        • Ranking: PRESERVE/Dorsal, PRESERVE/Labial » PRESERVE/Coronal

(14) a. /gɾám/: [gɾám] 'gram'

/gɾám/	PRES/Lab	*m	*n	PRES/Cor
☞ a. gɾám		*		
b. gɾán	*!		*	
c. gɾá	*!			

b. /gɾán/: [gɾá] 'pimple'

/gɾán/	PRES/Lab	*m	*n	PRES/Cor
a. gɾán			*!	
☞ b. gɾá				*

💣※ (15) Why do *n* and *r* delete, and not other consonants with a different manner?
(i.e., why not stops, fricatives, laterals or glides?) (=(9a))

    a. Coda hierarchy ≠ Onset hierarchy (along the lines of Clements 1990):

      *Coda/obstruent » *Coda/nasal » *Coda/liquid » *Coda/glide
      *Onset/glide » *Onset/liquid » *Onset/nasal » *Onset/obstruent

    b. Preserve/sibilant » Preserve/sonorant » Preserve/stop

    c. Liquids other than *r* and glides could be excluded by assuming that they are articulatorily complex (with a secondary dorsal node) (cf. Kikuchi 2005).

💣※ (16) Why does *n/r*-deletion affect only oxytones? (=(9e))
Prominent positions are usually more faithful to the input than non-prominent positions. (Cf. Bonet et al. 2004, contra Kikuchi 2002, 2005.)

V. ALTERNATIVE ANALYSES

V.1. Allomorphy

(17)   a. /plέ/ in final position: [plέ] 'full (masc. sg.)'
  /plέn/ elsewhere: [plέnə] (fem. sg.), [plέns] (masc. sg.), [plənitút] 'fullness', etc.

   b. /klá/ in final position and before plural *s*: [klá], [klás] 'clear (masc. sg., pl.)'
  /kláɾ/ elsewhere: [kláɾə] (fem. sg.), [kləɾísim] 'very clear', etc.   (Wheeler 2005)

V.2. Crazy rules as parochial constraints

(18)

/nusjón/	*V́n##	*V́r(+s)##	MAX-C
a. nusjón	*!		
☞ b. nusjó			*
c. usjó			**!
/kláɾ+s/			
d. klárs		*!	
☞ e. klás			*

V.3. Crazy rules as local constraint conjunctions (Bonet et al 2004)

• The local conjunction of constraints C1 and C2 in domain D is violated if and only if both C1 and C2 are violated by the same instances of D (Smolensky 1995).

(19)   a. NONFINALITY&*r (domain: PrWd)

   b. NONFINALITY&*n (domain: PrWd)

   c. *Ranking:*
  ONSET, I-CONT » NONFIN&*r » J-CONT » NONFIN&*n » MAX-C » *r, *n

(20)   NONFINALITY: The prosodic head of the word does not fall on the word-final syllable ("No Head of PrWd is final in PrWd") (Prince and Smolensky 1993).

(21)   Why does *r*-deletion occur also in plurals? (=(9d)): JUNCTURE-CONTIGUITY
  J(UNCTURE)-CONTIGUITY: If the elements in the input are contiguous across a morpheme boundary, their correspondents in the output must be contiguous. (Kikuchi 2002, 2005) (Like I-CONTIGUITY but across morpheme boundaries; cf. Bonet and Lloret 1996)

(22)   *comú* /kumún/: [kumú] (sg.), [kumúns] (pl.) 'common'

/kumún(+s)/	J-CONT	NONFIN&*n	MAX-C	NONFIN	*n
a. kumún		*!		*	*
☞ b. kumú			*	*	
☞ c. kumúns		*		*	*
d. kumús	*!		*	*	

(23) *examen* /əgzámən/: [əgzámən] (sg.), [əgzáməns] (pl.) 'exam'

/əgzámən(+s)/	J-Cont	NonFin&*n	Max-C	NonFin	*n
☞ a. əgzámən					*
b. əgzámə			*!		
☞ c. əgzáməns					*
d. əgzáməs	*!		*		

(24) *clar* /kláɾ/: [klá] (sg.), [klás] (pl.) 'clear'

/kláɾ(+s)/	NonFin&*r	J-Cont	Max-C	NonFin	*r
a. klár	*!			*	*
☞ b. klá			*	*	
c. klárs	*!			*	*
☞ d. klás		*	*	*	

(25) *semàfor* /səmáfuɾ/: [səmáfur] (sg.), [səmáfurs] (pl.) 'traffic-light'

/səmáfuɾ(+s)/	NonFin&*r	J-Cont	Max-C	NonFin	*r
☞ a. səmáfur					*
b. səmáfu			*!		
☞ c. səmáfurs					*
d. səmáfus		*!	*		

VI. Treatment of lexical exceptions

(26) Lexical exceptions

Ramo**n**	'Raymond'	ca**r**	'expensive'
arra**n**	'close'	moto**r**	'engine'
ne**n**	'child'	futu**r**	'future'
toboga**n**	'slide'	emi**r**	'emir'

(27) Exceptionality encoded in the representation of certain segments (Bonet & Lloret 1996, Inkelas et al. 1996):

/R/ (floating segment):   dolor /dulóR/: [duló] 'pain'

/ɾ/ (anchored segment):   motor /mutóɾ/: [mutór] 'motor'

(28) Cophonologies (Anttila 2002; Orgun 1996, Inkelas 1998)
Unique ranking of all non-conjoined constraints, but:
• n/r deletion: presence of constraint conjunction
• n/r maintenance: absence of constraint conjunction

(29) *clar* /kláɾ/: [klá] 'clear'

/kláɾ/	NonFin&*r	J-Cont	Max-C	NonFin	*r
a. klár	*!			*	*
☞ b. klá			*	*	

(30) *car* /káɾ/: [kár] 'expensive'

/káɾ/	J-Cont	Max-C	NonFin	*r
☞ a. kár			*	*
b. ká		*!	*	

VII. Variation

(31) Free variation
    a. *n*-deletion: no variation
    b. *r*-deletion: some limited variation: *anterior* [əntəɾjó] ~ [əntəɾjór] 'anterior'

(32) Generational variation
    a. *n*-deletion: no variation
    b. *r*-deletion: some limited variation (maintenance > deletion): *actor* 'actor', *sincer* 'sincere'

(33) Geographical variation
    a. *n*-deletion: no variation
    b. *r*-deletion: gradual variation (Valencian Catalan: no deletion; *Central Catalan*: deletion only in oxytones, many lexical exceptions; Northern Central Catalan: deletion in oxytones and paroxytones, fewer lexical exceptions; Balearic Catalan: almost categorical deletion in oxytones and paroxytones)

(34) Type frequency (cf. Bybee 2001)

Central Catalan	n	r
deletion (all kinds of words)	95%	60%
deletion (monosyllables)	67%	65%

(35) a. *n*-codas (complexity 3) are worse than *r*-codas (complexity 2); cf. Clements (1990).
    b. Minimal word effects?

VIII. How general are these phenomena?

(36) *n*-deletion:
    a. Quite generally related to historical vowel nasalization (e.g., Italian dialects, Occitan)
    b. Some cases of free variation (e.g., some Italian dialects: [mã] ~ [ma] 'hand'; Rohlfs 1999)

(37) *r*-deletion:
    a. In Gascon Occitan and in some Italian and English dialects, quite general (e.g., Ligurian *kö* 'heart')
    b. More often, limited to specific suffixes (e.g., Southern Brazilian, Northern Italian: infinitives; Milanese: *-er*, *-or* suffixes).

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