Positional and contextual constraints: Evidence from lenition

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I. Overview

(1) The debate: Are there **prosodic positional constraints**?

	Contextual constraints (Steriade 1999, 2001; Coté 2000)	**Positional constraints** (Beckman 1997; Zoll 2004)
Refer to...	**segmental/featural/linear** contexts only	**morphological** or **prosodic** positions
Example	BeVoiced/**V_V**	NoGlottalization-**coda**
Status	*widely accepted*	• Morphological: *exist* • **Prosodic: ???**

(2) Proposal: **Both** contextual and prosodic positional constraints exist

(a) Different formal properties
(b) Different predictions for phonological typology
➢ Evidence: The typology of lenition processes

II. Lenition processes: Two types

(3) Two types of lenition ("weakening") (Cser 2003; Szigetvári to appear; see also Smith to appear)

	Sonority-increasing lenition	**Markedness-decreasing lenition**
Examples	• Intervocalic voicing pa**t**a –> pa**d**a • Intervocalic spirantization pa**t**a –> pa**θ**a	• Simplification of coda ejectives pa**t'** –> pa**t** • Coda devoicing *(controversial; see §VI)* pa**d** –> pa**t**
Result of process	• Enhances ease of articulation • Produces segments that are **more typologically marked** when considered context-free	• Produces segments that are **less marked** with respect to: - typology - inventory - phonological complexity
Claim	Relevant constraints always **contextual**	Relevant constraints can be **positional**

III. Contextual constraints drive sonority-increasing lenition

(4) Example: Intervocalic voicing (pa**t**a –> pa**d**a)

(a) Motivates constraint BeVoiced/V_V
  • Prefers voiced obstruents to voiceless specifically between vowels
(b) BeVoiced/V_V is phonetically motivated (Westbury & Keating 1986)
(c) But there is no context-free BeVoiced, preferring voiced obstruents everywhere
  • not phonetically motivated (Westbury & Keating 1986; Hayes 1999)
  • not typologically justified (Keating, Linker & Huffman 1983)

(5) Constraints for sonority-increasing lenition are **intrinsically contextual**

(a) They have **no context-free counterparts**
  ➢ Cannot be derived from existing context-free constraints
(b) Environment is a **linear context**, not a prosodic position

IV. Positional constraints drive markedness-decreasing lenition

(6) Example: Coda neutralization processes (pa**t'** –> pa**t**)

- Complex phonological structure — glottalization
- Avoided in a weak prosodic position — coda

(7) There are languages where the same structure is avoided altogether

- Many languages lack glottalization (Maddieson 1984)
- ➢ Corresponding **context-free markedness constraint** exists

(8) Formal analysis of markedness-decreasing lenition

(a) **Combination** of:
- Context-free markedness constraint (NoGlottalization)
- Independently motivated prosodic position (coda)

(b) Produces:
- **Formally complex** positional constraint, NoGlottalization-**coda**

V. Empirical justification for claims III, IV

(9) Summary of formal differences

(a) **Positional** constraints
• Phonological **combination** of separately motivated **constraints** and **positions**

(b) **Contextual** constraints
• **Inherent** phonetic relationship between **context** and constraint's **requirement**

(10) **Prediction**

(a) **Markedness-decreasing lenition** | Positional constraints —> **more phonologically abstract**
- Eastern Andalusian Spanish, Nuu-chah-nulth

(b) **Sonority-increasing lenition** | Contextual constraints —> **more phonetically concrete**
- V_V: voicing *and* spirantization; N_: voicing *but no*t spirantization

(11) **Eastern Andalusian Spanish** (Gerfen 2001) • Obstruent lenition (debuccalization, a.k.a. "aspiration")

(a) **Prosodic position** accounts for the domain of lenition

Coda position: Lenition occurs	/e**s**labo/—>[e**ʰl**.la.βo] 'Slavic', /a**t**leta/—>[a**ʰl**.le.ta] 'athlete'
Onset position: No lenition	/a**k**lara/—>[a.**k**la.ɾa] 'clear.up-3SG'

Linear context same (V_[l]) — **no explanation** for the difference (Gerfen 2001: 197)

(b) Meets the criteria for **markedness-decreasing lenition**
➢ Avoids coda obstruent with independent Place features
• Obstruents with Place features are **typologically marked**
• Coda is a **weak prosodic position**

(c) Relevant constraint is **positional** — e.g., NoCPlace-**coda**

(d) **Phonologically abstract** — Concrete phonetic context makes wrong prediction

(12) **Nuu-chah-nulth** (Howe & Pulleyblank 2001)

(a) Timing of glottalization is invariant, predictable
• Obstruents: Post-glottalized [t'] • Sonorants: Pre-glottalized ['n]

(b) **Prosodic position** restricts the distribution of glottalized segments
• Glottalized segments permitted in **onset** only
• All onsets are also pre-V, but H&P argue that **prosodic position** is what matters

(c) Meets the criteria for **markedness-decreasing lenition**
- ➢ Avoids coda consonant with glottalization
  - • Glottalized consonants are **typologically marked**
  - • Coda is a **weak prosodic position**

(d) **Phonologically abstract**
- • String-based account fails to explain pattern — If there is a requirement for glottalized segments to be _V, why are 'C and C' affected the same way?

(13) **Sonority-increasing lenition** is more restricted

Environment	*Voicing?* (Westbury & Keating 1986)	*Spirantization?* (Kirchner 2000)
V_V	yes	yes
N_	yes	—

- • See also lenition typologies (mostly sonority-increasing) in Lavoie (2001) and Gurevich (2004)

(14) **Analysis:**

• The **constraints** that drive sonority-increasing lenition are **intrinsically contextual**

➢ **No opportunity** for phonological **abstractness** to arise

VI. On "coda devoicing"

(15) Coda devoicing is predicted to be a case of **markedness-reducing lenition**

• Voiced obstruents are **typologically marked** —> context-free NoVoiObst
➢ We would clearly expect to see NoVoiObst-**coda**

(16) However, "coda devoicing" is often really pre-obstruent devoicing (Steriade 1999)

• The devoicing environment is not always captured by syllable structure
• An adjacent obstruent makes obstruent voicing more difficult (Westbury & Keating 1986)
➢ The process is often **contextual**

(17) Convergence of positional and contextual factors

• There are both **prosodic** and **contextual** reasons for obstruent devoicing
  ➢ Motivation for **both patterns**
• Wagner (2002) finds prosodically conditioned obstruent devoicing in German

(18) Implications
• Not all contextual neutralization processes are sonority-increasing
• However, sonority-increasing neutralization (lenition) is necessarily contextual

VII. Conclusion

(19) If positional and contextual constraints are formally distinguished:

➢ Multiple differences between the two lenition types are consistently accounted for

Lenition type:	**Sonority-increasing**	**Markedness-decreasing**
• Typological markedness	increases	decreases
• Crucial environment	*always* linear context	*can be* prosodic position
• Phonological abstractness	low	higher
Constraint type:	*always* **contextual**	*can be* **positional**

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