

Textsetting (mis)alignment in the metrics of Italian pop and rap

This paper analyses the relationship between Italian metrical phonology and musical textsetting, following Halle & Lerdahl, 1993. Italian prosody regularly alternates strong and weak syllables. Pop and rap songs also present a similar pattern in the grouping and metrical structure of the musical beat. Whenever possible, strong syllables coincide with downbeats (alignment). When textsetting is misaligned, beats force foot restructuring. Evidence comes from a corpus I compiled of 1000+ musical upbeat phrases compared with word-initial, unstressed syllables in the spoken language. I demonstrate that accent shifting is governed by a Super¹ Repair Strategy, presenting examples of **retraction**: secondary accent resurfacing (Vogel & Scalise, 1982); **protraction**: catalectic footing (Jakobs, 1994) at phrase margin; and **suspension**: ambipodal syllables (Hyde, 2002) between the triplet head (on the left) and the downbeat (on the right).

Retraction. Data in my corpus show 86% of instances of retraction where stress shifts onto a weak foot or proclitic, aligning secondary stress with a downbeat. 1(a) shows misalignment (red dots, red stars) between lexical stress (metrical grid; Liberman, 1975) and metrical beats (syllable placement follows the practice established by Adams, 2008: each column in the chart represents a sixteenth-note subdivision of the beat). Visually, two stars (in blue, foot level stress) should not be aligned with full beats. 1(b) shows the accent shifting, promoting secondary stress to PrW level (red stars have moved left) and demoting lexical stress to foot level. Consequently the textsetting is in phase. In my corpus, retraction also forces stable iambs in the language to surface as trochees in 8% of cases (e.g. *avrà>àvra*, *Gesù>Gésu*). Elsewhere in Italian, no repair strategy occurs (Marotta, 2000) to bring binary iambic structures back to the unmarked bimoraic trochaic foot template (Krämer, 2009); on the contrary, iambic structures are stable in the language and created in the morphology (e.g. hypocoristics: *Salvatòre>Totò*, *Federico>Fefè*; oxytone infinitives in Tuscan variety of Italian: *cantàre>cantà*, *vedére>vedé*; diachronic iambic restructuring of archaic trochees: *cittàde>città*, *virtùde>virtù*). The (musical) Super Repair Strategy succeeds where the (metrical) Repair Strategy fails.

Protraction. When a final stray syllable aligns with the downbeats, primary stress shifts onto it. Whilst secondary stress on the left of the primary is accepted in the literature, its existence on the right is debated (Nespor, 1993, Lepschy & Lepschy, 1977). I provide examples that a degenerate foot (DF) at the end of the word is not only 'stressable' but also 'repairable': the Super Repair Strategy forces the monosyllable foot to branch, resorting it to a default trochee on the right. In 2, I provide an example of catalexis (Jakobs, 1994, Burzio, 1994) from the corpus: $[(.sal.ko.) (.lid.dza.) <.no.>] \rightarrow [(.sal.ko.) (.lid.dza.) (.no.\emptyset.)]$. 2(a) shows the phrase time-span reduction (Jackendoff, Lerdahl, 1980); 2(b) shows the prosodic structure of the lyrics, where lexical stress is on the middle foot [*lid.dza*]; In 2(c), textsetting causes accent to shift forward and the DF to branch to the right. A catalectic, left-headed, binary foot is created. The strong syllable on the downbeat [*.no.*], head of the constituent, governs the last note of the phrase, a prosodically relevant (but segmentally empty) element.

Suspension. Triplets are left-headed rhythmic elements, represented by the metrics theory as a multiple-branching tree. In 3(a), the onset of the triplet governed by the node X^2 projects two dots. The following two notes, part of the triplet, are both in weak position (one dot). 3(b) shows phrase textsetting from the corpus where the syllable [*.pro.*] (in red) is suspended: it belongs rhythmically to the upbeat and prosodically to the following word as a stray syllable. On the left, the syllable [*.pro.*] maintains its metric value as the last element of the triplet and is visible to the algorithm, since the reduction of the time-span admits a ternary branching tree. On the right, the same syllable is paradoxically invisible to the algorithm, as it is directly linked to the Word node and is not governed by any metrical foot. In 3(c), I show the prosodic template of triplets in anacrusis; the ambipodal syllable is governed on the left by the ternary foot and on the right, on the downbeat, by the trochee. By reinterpreting the principles that govern the structure of the language, e.g. Principles of Exhaustivity, Adjacency, Uniformity (Hammond, 1995) in their soft version and thereby overcoming strict binarity, I have expanded the metrical algorithm to include further marked structures, based on my findings in the musical idiom.

From "Potere alla parola",
by Frankie hi-nrg mc (1993)

1(a) textsetting misalignment

Lexical stress

The diagram illustrates the relationship between metrical beats and textsetting out of phase. It consists of two rows of boxes representing a sequence of beats and text setting.

Metrical beats: The top row shows a sequence of beats: 1 (da), 2 (re), 3 (fon), 4 (do_all), 5 (ar), 6 (se), 7 (na), 8 (le), 9 (di), 10 (pa), 11 (ro), 12 (le), 13 (sof), 14 (fo), 15 (ca), 16 (te), 17 (dal), 18 (le), 19 (ra), 20 (gna), 21 (te), 22 (le), 23 (djun), 24 (in), 25 (te), 26 (ra), 27 (ge), 28 (ne), 29 (ra), 30 (- zio), 31 (ne), 32 (di), 33 (si), 34 (len), 35 (zio).

Textsetting: The bottom row shows the corresponding text setting: da, re, fon, do_all, ar, se, na, le, di, pa, ro, le, sof, fo, ca, te, dal, le, ra, gna, te, le, djun, in, te, ra, ge, ne, ra, - zio, ne, di, si, len, zio.

Annotations:

- event beat strong beat downbeat:** A vertical line on the left side of the first beat (da) indicates its metrical position.
- upbeat:** Labels at the bottom of the diagram indicate the start of a new metrical phrase. One 'upbeat' label is at the beginning of beat 1, and another is at the beginning of beat 20 (gna).
- Textsetting out of phase:** Arrows point from the text 'Textsetting out of phase' to the text 'gna' (beat 20), 'djun' (beat 23), and '- zio' (beat 29), showing that the text setting does not align with the metrical beats.

1(b) In phase representation

Lexical stress

L3 (PrW) *

L2 (foot) *

L1 (syllable) ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** *

dare fondo all'arsenale di parole soffocate dalle ragnatele djun'intera generazione di silenzio

	y	z	1	x	y	z	2	x	y	z	3	x	y	z	4	x	y	z	1	x	y	z	2	x	y	z	3	x	y	z	4	x	y	z	1	x	y	z
da	re	fon		do_alf	ar	se	na	le	di	pa	ro	le	sof	fo	ca	te	dai	le	ra	gna	te	le	djun	in	te	ra	ge	ne	ra	-zio	ne	di	si	len	zio			
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•		•			•		•	•			•		•		•		•		•		•		•		•		•	•		•	•		•	•		•		

Metrical beats

event
best
strong beat
downbeat

upbeat

upbeat

2(a) time-span reduction

2(b) prosodic structure

$$\begin{array}{c}
 \omega \\
 \swarrow \quad \downarrow \quad \searrow \\
 F \quad F \quad F \\
 \swarrow \quad \downarrow \quad \downarrow \\
 [\text{sal ko 'lid dza | no}]
 \end{array}$$

2(c) catalexis

3(a) triplet in upbeat

event
beat
strong beat
downbeat

3(b) suspended syllable

3(c) prosodic template

¹ 'Super' as it applies a formal linguistic methodology to an object of study *beyond* language, in this case to music. See Super Linguistics at University of Oslo and LINGUAE, DEC Ecole Normale Supérieure.