PROSODY IN ITALIAN PARTICLE VERBS: A PRELIMINARY STUDY

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ABSTRACT

In this study we investigate the prosody of Italian Particle Verbs (henceforth, PrtV's). After comparing two alternative hypotheses about the prosodic constituent PrtV's correspond to, we concentrate on three rules of Italian phonology that differ in their domain of application: the phonological word (ω) vs. the phonological phrase (φ). We then report on a production experiment carried out with 2 speakers of Central-Southern Italian and 3 speakers of Northern Italian. By concentrating on the phonetic correlate of duration, we provide experimental evidence that V and Prt cannot be mapped onto a single ω but can be mapped onto a single φ.

Keywords: Italian particle verbs, prosodic hierarchy, raddoppiamento sintattico, stress retraction, vowel lenghtening

1. INTRODUCTION

Italian Particle Verbs like *andare via* 'to go away, to leave', *portare fuori* 'to bring out', have been the focus of a revived interest over the last ten years (cf. the papers in [4]; [5]; [8]; [9]). However, while most of these contributions concentrate on the syntax of PrtV's, phonology remains one of the least studied aspects of these constructions. Moreover, the literature completely lacks experimental studies. The aim of this paper is to fill this gap. We present a preliminary study designed to establish what prosodic constituent in Nespor & Vogel's [13] prosodic hierarchy the V+Prt sequence corresponds to. We thereby test two hypotheses that have been previously formulated in the literature on Italian PrtV's (cf. [17], [16]).

2. BACKGROUND

2.1. Open issues

The by now rather rich literature on Italian PrtV's lacks monographs or contributions entirely devoted to their phonetics and phonology. Phonological aspects of PrtV's are investigated in [17] and [16], whereas the interaction between phonology and word order is discussed in [7] and [16].
Simone [17] argues that V and Prt build a cohesive unit in prosody. The author points out that Prt's usually bear stress, unlike monosyllabic prepositions (cf. (1a) vs. (1b)):

(1) a. * * *
I commercianti tirano su il prezzo.
the dealers pull-3PL up the price
'The dealers raise the price.'
b. * *
I commercianti tirano sul prezzo.
the dealers pull-3PL on-the price
'The dealers are greedy on the price(s).'

In (1a), the particle *su* 'up' of the PrtV *tirare su* 'to pull up; to raise' bears primary stress, whereas the homophonous preposition *su* 'on' in (1b) (here appearing in the portmentau-form *sul* = *su* + *il*) bears neither primary nor secondary stress, behaving like a phonological clitic. Simone [17] proposes that the prosodic constituent Italian PrtV's are grouped into is ω, basing on evidence from *troncamento* (cf. 2), a rule of Italian phonology deleting of a word-final mid-vowel after a sonorant consonant (cf. [10]):

(2) *Non ha voluto venir(e>Ø) su.*
NEG has wanted come-INF up
'S/He didn't want to come up.'

Nonetheless, the conclusion that V and Prt build a ω in (2) seems not to hold. Even if there is no agreement as to the prosodic constituent where *troncamento* applies (φ according to Meinschäfer [10], the Clitic Group according to Nespor [11]), there is consensus that the domain of this rule is not ω. In light of this objection, Simone's hypothesis that Italian PrtV's are ω's must be supported by further evidence.
Schwarze [16] proposes instead that Italian PrtV's build a φ, capitalizing on data like (1a) – the fact that the particle systematically bears stress proves that it occurs at the right boundary of a φ. This hypothesis, however, is not corroborated by additional evidence like the application of a phonological rule whose domain is φ.

2.2. Research question and preliminary hypotheses

The state-of-the-art presents us with a central research question with respect to the prosody of

Italian PrtV's:

(3) What prosodic constituent do V and Prt build together?

We make reference to Nespor & Vogel's [13] Prosodic Hierarchy, restricting our attention to ω and φ. Given that Italian particles do not exhibit the phonological dependency typical of clitics (cf. [13])[1], we excluded the Clitic Group as a possible target prosodic constituent. In order to identify the constituent corresponding to the linear sequence V+Prt, we tested the application vs. non-application of phonological rules that differ with respect to their domain. Accordingly, we had to select at least a phonological rule targeting ω, and at least one targeting φ. Basing on [13], we focused on the following phenomena:

(4) a. **phonological word**:
(i) Vowel Lengthening (VL)
b. **phonological phrase**:
(i) *Raddoppiamento Sintattico* (RS)
(ii) Stress Retraction (SR)

Whereas VL is found in all varieties of Italian, both RS and SR apply in certain regional varieties only: the former in Central-Southern Italian, the latter in Northern Italian.

2.3. Experimental Design

2.3.1. Conditions

For each phenomenon, a phonotactic context meeting the requirements of the rule ('target') was compared to a context not triggering the rule ('baseline'). In addition, each of these contexts included either a Prt ('particle') or a different type of syntactic complement ('non-particle'), thereby yielding four experimental conditions:

(5) (i) baseline, non-particle
(ii) target, non-particle
(iii) baseline, particle
(iv) target, particle

2.3.2. Predictions

With respect to VL, we compared configurations like (6a) to configurations like (6b):

(6) a. *Paolo andava ad una festa in maschera*
P. go-IMPF-3SG to a party in mask
'Paolo was going to a costume party.'
b. *Marco andava via di corsa*.
Marco go- IMPF-3SG away of run
'Marco was running away.'

(6a) corresponds to the condition [target, non-particle]: here, VL applies to the syllable /da/ in *andava* because the latter is an ω. (6b) corresponds to [target, particle] – if the whole PrtV *andava via* is an ω, it is predicted that the syllable /da/ will be shorter than in (6a). If, on the other hand, the PrtV in (6b) is not a ω, it is predicted that the syllable /da/ in *andava via* will be normally lengthened like in (6a).
RS and SR were tested by using a single battery of sentences since their respective contexts of application may overlap (cf. [13]):

(7) a. *Quella dentista toglierà denti ...*
that dentist pull_out-FUT-3SG teeth
'That dentist will pull out teeth...'
b. *Ogni fochista butterà dentro...*
every fireman throw-FUT-3SG inside
'Every fireman will throw in...'

Sentences like (7a) represent the condition [target, non-particle], where both RS and SR can apply. Although both *toglierà* and *denti* in principle project a φ, a rule of Restructuring applies, to the effect that a unique φ is created. Restructuring is triggered exactly in configurations like *toglierà denti*, where the second φ (i) is (syntactically) non-branching and (ii) is the first complement of a syntactic head corresponding to the first φ (cf. [13]). If PrtV's like *butterà dentro* in (7b) are (restructured) φ's as well, the prediction is made that RS (in Central-Southern Italian) and SR (in Northern Italian) will apply here, too.

3. METHOD

3.1. Participants

Five Italian native speakers participated in the study (4 female, age average=28.8). Three speakers originated from the North (2 from Milan, 1 from Genova) and 2 from central/southern regions of Italy (1 from Prato, and 1 from Palermo).

3.2. Materials

Two batteries of target sentences were designed: one for VL, one for both RS and SR. Each battery contained 2 sentences per experimental condition, i.e. there were 8 sentences per battery and overall 16 target sentences. In addition, 48 filler sentences were

[1] Contrary to clitics, particles (i) can occur alone in an utterance and (ii) can bear contrastive stress.

included. The whole sentence corpus amounted to 64 units. Sentences were pseudo-randomized in order to establish a sufficient relative distance between target sentences.

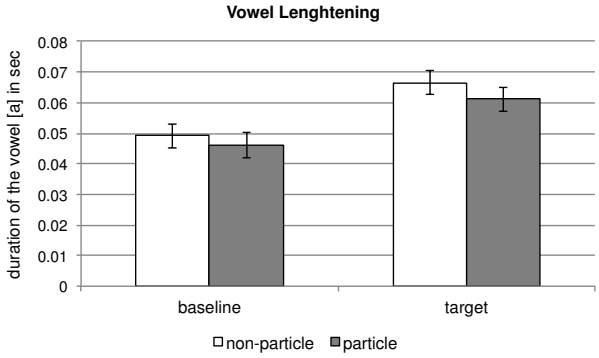
3.3. Procedure

The experiment consisted in a production study. The sentences were presented one by one on an A4 sheet. Participants were asked to read each sentence aloud. We allowed for a preliminary silent reading, and let the speakers read the whole list of 64 sentences twice, with a five-minute pause between the first and the second repetition. Participants were recorded individually in the phonetic laboratory at the University of Konstanz (44.1kHz, 16 Bit). The 64 constructions were manually annotated at the segmental level using broadband spectrograms (cf. [3]) – for VL the duration of the theme vowel of the V (i.e., [a]); for RS, word initial consonants of the post-verbal complement (e.g. Prt); for SR both the initial syllable (e.g. [por] in *porterà*) and the vowel of the final syllable of the V (i.e. [a] in *porterà*). Statistical analyses were performed with the R software (cf. [15]). Linear mixed effect models (cf. [1]) were performed containing DURATION as a dependent variable, VERB FORM (baseline vs. target) and POST-VERBAL COMPLEMENT (non-particle vs. particle) as predictors. SPEAKERS and ITEMS were treated as crossed-random factors. All *p*-values were derived by using the log-likelihood test as implemented in the *anova*()-function in R, by comparing a model with a certain factor to an identical model that did not contain that particular factor (cf. [2]). Fixed factors that did not significantly improve the model were excluded.

4. RESULTS

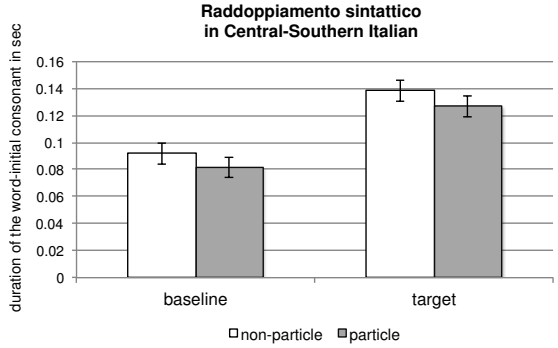
For VL, the theme vowel [a] in both target non-particle and target particle was significantly longer (β=.017, *SE*=.004, *t*=4.35, *p*<.0001) than the same vowel in baseline non-particle and baseline particle (see Figure 1).

Figure 1: Vowel Lengthening – Duration of the theme vowel [a] split by verb form (baseline, target) and post-verbal complement (non-particle vs. particle). Whiskers represent standard errors based on the statistical model.



For RS in Central-Southern Italian, word initial consonants in target non-particle and target particle were found to be significantly longer than the same consonants in baseline non-particle and baseline particle (β=.047, *SE*=.007, *t*=9.29, *p*<.0001; see Figure 2).

Figure 2: *Raddoppiamento Sintattico* in Central-Southern Italian – duration of the word initial consonant split by verb form (baseline, target) and post-verbal complement (non-particle, particle). Whiskers represent standard errors based on the statistical model.



For SR in Northern Italian, it was found no main effect of verb form and of post-verbal complement on the duration of the (verb form) first syllable, and no interaction (all *p*-values > .8). Similarly, the duration of the (verb form) final vowel did not show any statistical difference across verb forms and post-verbal complement (all *p*-values > .5).

5. DISCUSSION

In this preliminary study, we aimed at identifying the prosodic representation of Italian Particle Verbs. Two contrasting hypotheses formulated in the literature were compared, namely that Particle Verbs

build (i) a phonological word vs. (ii) a phonological phrase. The comparison was made by testing the application or non-application of phonological rules that differ in terms of prosodic domain: ω or φ. We carried out a production experiment and measured the acoustic correlate of duration with respect to three rules: Vowel Lengthening, *Raddoppiamento Sintattico* and Stress Retraction.

Concerning Vowel Lengthening, the duration of the lexically stressed theme vowel of the verb in the sequence Verb+Particle is not significantly different from the duration of the same vowel if the verb precedes another complement type (e.g. a Prepositional Phrase). Both durations, on the other hand, are significantly different from the durations of the same theme vowels when unstressed. These results can only be explained by assuming that Verb and Particle project separate phonological words. Under this view, the rule of Vowel Lengthening is correctly predicted to apply both to the Verb and to the Particle, but not to the whole sequence Verb+Particle. Crucially, this result falsifies Simone's [17] hypothesis that Verb and Particle are grouped into a single phonological word.

With respect to *Raddoppiamento Sintattico*, duration measurements show that Central-Southern Italian speakers produce geminated onset consonants both if the verb precedes a non-branching complement (e.g. a bare Noun) and if it precedes a Particle. On the other hand, the same onset consonants are not geminated in the baseline condition, i.e. where the rule does not apply because of the presence of a different phonotactic configuration. Given that the prosodic domain of *Raddoppiamento Sintattico* is the phonological phrase, we can conclude that Verb and Particle can be represented as such in the speakers' phonological component. Most probably, the representation of Particle Verbs as a single phonological phrase is an alternative to a representation where the Particle Verb corresponds to two phonological phrases – the rule of phonological phrase-Restructuring is a systematic option in the model we adopted (cf. [13]). To our view, these findings provide a crucial piece of evidence supporting Schwarze's [16] hypothesis that Italian Particle Verbs are phonological phrases.

As far as Stress Retraction is concerned, the results do not seem to show a clear pattern. We did not find a statistically significant increase in duration of those syllables that, according to Nespor & Vogel ([12], [14]), should bear prominence after Stress Retraction applies for rhythmic clash avoidance. The measurement of duration also gave no hint as to whether alternative correlates of Stress Retraction were produced, like de-accenting of the syllable bearing the first clashing stress (cf. [6]) or lengthening of its vowel (cf. [12]). Nonetheless, we would like to point out that we noticed a tendency to lengthen the vowel of the stressed syllable in the Particle. Crucially, duration measurements showed that this kind of lengthening is only present in cases where the particle occurs without a syntactic complement on its right ([*butterà*$_V$ [*dentro*]$_{Prt}$] [*tutto il carbone rimasto*]$_{NP}$ – on average 0.087 sec (*SD*=0.017)), but not if the Particle takes a complement (*era* [*finito*$_V$ [*dentro* [*a una pozzanghera*]$_{PP}$]$_{PP}$] – on average 0.074 sec (*SD*=0.015)). This effect would get a natural interpretation under the view that Verb and Particle build a single phonological phrase, for the rule of Final Lengthening (cf. [13]) would apply precisely in this prosodic domain. In light of both this tendency and the results with respect to Vowel Lengthening, we claim that Northern-Italian data are at least not incompatible with the hypothesis that Particle Verbs are represented as phonological phrases in these varieties, too.

6. CONCLUSION(S)

This contribution was meant to investigate the prosody of Italian PrtV's. In particular, the question was raised as to what prosodic constituent in Nespor & Vogel's [13] hierarchy this syntactic construction is mapped onto. By relying on the phonetic correlate of duration alone, we were able to falsify the hypothesis that V and Prt build an ω for both Central-Southern and Northern Italian, and to find clear support for the alternative hypothesis, namely that V and Prt build a φ, with respect to the data from Central-Southern Italian. Even if, to our view, the data from the Northern Italian corpus are compatible with the latter hypothesis, too, we intend to extend our investigation on SR by including other acoustic correlates such as intensity. Since we see a tendency to lengthen the vowel of the stressed syllable of Prt's in speakers of Northern Italian, we also plan to design a separate production experiment investigating the phenomenon of Final Lengthening. As we think, the present study, both in its results and in the work it paves the way for, contributes to a better understanding of the representation of Italian PrtV's in the speaker's phonological competence.

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