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VOWEL LENGTH, *RADDOPPIAMENTO SINTATTICO* AND THE SELECTION OF THE DEFINITE ARTICLE IN MODERN ITALIAN[1]

In this paper I propose a unified account of three phenomena in Italian phonology: tonic lengthening (TL), raddoppiamento sintattico (RS), the distribution of the variant forms *il* and *lo* of the definite article in the masculine singular. I argue against the treatment of TL, RS and the selection of the definite article as three separate phenomena. The purpose of this paper is thus to determine the common underlying principles behind these superficially very different phenomena. Central to this analysis, which is situated in the general framework of Government Phonology (GP) (Cf. Kaye, Lowenstamm and Vergnaud, 1990), is the hypothesis that the syllabic structure of Italian is purely CVCV; that is, complex metrical structures such as "branching onsets" *CC*V, "branching rimes" C*VC*, and "branching nuclei" C*VV* are excluded in the underlying representations.

1 . Preliminary Remarks.

The basic idea of the CVCV approach in Government Phonology is that branching syllabic constituents can be dispensed with (Cf. Lowenstamm, 1995). Underlying syllabic structure is assumed to be maximally simple, i.e. consisting exclusively of a string of [C V] units. As a consequence of this assumption, the

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CVCV approach does not need to separate timing units and syllabic constituents, which are conflated into the CVCV-tier, see (1) and (5) below.

(1) Basic constituents, C-positions and V-positions.

```
O               N              (Where O = onset,
|    =   C      |    =   V      N = nucleus, and
X               X               X = timing unit)
```

Surface structures deviating from the strict CVCV pattern are explained as containing either empty C- or empty V-positions. This leads us to another fundamental principle of Government Phonology: the phonological ECP, see (2) and (3) below.

(2) The Empty Category Principle :

A nucleus may be uninterpreted phonetically if it is properly governed or finally licensed.

(3) Governing properties of V-positions.
(a) A segmentally filled V-position can properly govern a preceding V-position.
(b) An empty V-position cannot properly govern a preceding V-position.

2 . Tonic Lengthening.

Italian has a general prosodic constraint, often referred to as Tonic Lengthening (TL), which forces stressed syllables to be heavy. The distinction between long and short consonant is lexical. Vowel length, however, is derivable from syllable structure and stress. Stressed vowels in "open syllables" lengthen to satisfy TL, see the examples in (4a,b)[2]; in "closed syllables" stressed vowels never lengthen, see the examples in (4c,d,e) below.

(4) The distribution of long vowels: [long vowel / short vowel][3]
a.   *fato*   "destiny"   [fáato   /   *fáto]
b.   *pigro*   "lazy"   [píigro   /   *pígro]
c.   *parco*   "park"   [*páarko   /   párko]
d.   *pasta*   "pasta"   [*páasta   /   pásta]
e.   *fatto*   "fact"   [*fáatto   /   fátto]

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[2] The fact that word final stressed vowels, e.g. *virtù* "virtue" [virtú / *virtúu], never lengthen, can be explained as a consequence of the lack of final licensing (FL) in Italian. A Tonic Lengthening language like Swedish, which has FL, has both long stressed vowels in word final position and words ending in consonants. Because of the lack of FL Italian has neither.

```
                          +FL                                      -FL
(i) Swedish: bi 'bee' [bíi]:    |    |      (ii) Italian: sci 'ski' [ší / *šíi]:    |    |
                          C V C V                                   C V C V
                          |  \  /                                   |  |
                          b   i                                     š  i
```

[3] The accent mark is used to indicated that the vowel is stressed.

Notice the difference between, on the one hand, obstruent+sonorant clusters like /gr/ in (4b) which behave like single consonants (see (4a)) in that they can be preceded by long vowels and, on the other hand, sonorant+C_x clusters, /sC/ clusters and geminates in (4c,d,e) which can never be preceded by long vowels. In the standard GP framework this difference would be analyzed as resulting from a difference in syllable structure; that is, as a difference between "branching onsets", see (5a) and "post-nuclear rimal complement+onset" (see (5b)). The Branching Rhyme Constraint (BRC) is fulfilled lexically in (5b) but not in (5a) where TL forces N_1 to branch to satisfy the BRC.

(5) Standard GP: (a)   (b) R
                                                      I\
```
                  O N₁ O N   O N \ O N
                  | | /\ | | | \ | |
                  X X X X X   X X X X X
                  | | | | | | | | |
                  p i g r o   p a r k o
```

CVCV approach:    (c)                          (d)
```
                  C V C V C V   C V C V C V
                  | | | | | | | | | |
                  p i g   r o   p a r   k o
```

The CVCV representations in (5c,d) are structurally identical consisting of three [C V] units. In the CVCV approach, syllable structure therefore cannot be invoked to explain the distribution of the long vowels. Instead, it must be the properties of the consonantal segments and their interrelations which are responsible for the TL effects. For the moment I will simply assume that sonorant+$C_x$ clusters, /sC/ clusters and geminates block proper government (PG) whereas, obstruent+sonorant clusters do not. This assumption will later (in section VI) be independently motivated.

As a consequence of the CVCV approach, long vowels are assumed to consist of two [C V] units with a single vocalic segment associated to the two V-position and with an empty C-position caught in between them[4], see (6) below.

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[4] Positive evidence for the existence of this empty C-position in long vowels is provided by the phenomenon of consonant epenthesis in the middle of long vowels in certain dialects of Danish, see Larsen (1994) for more details.

(6) Long vowels must be properly governed to be licensed.[5]

```
(a)   +PG   (b)   -PG
                  ↓   ⌐   ↓   ⌐
OK   C   V   C   V   *   C   V   C   V
              \   /   \   /
                V_x   V_x
```
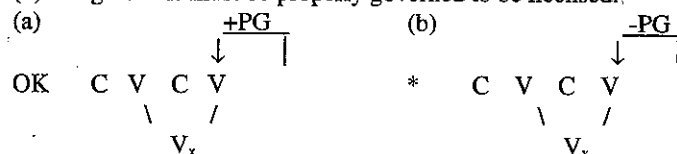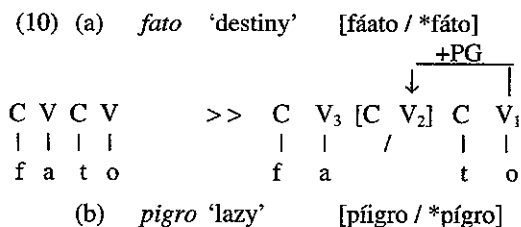
It is furthermore assumed that:

(7) In TL languages stress always creates an extra [C V] unit.

(8) In order to be maintained in the skeleton a [C V] unit must be:
- (i)   filled by a phonological element         OR
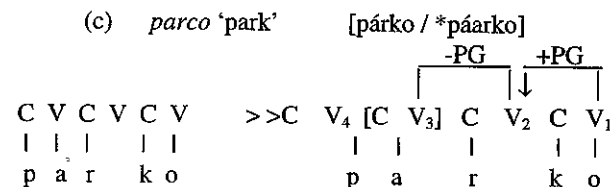- (ii)  properly governed

(9) If the V-position of an empty [C V] is properly governed then this [C V] must be interpreted segmentally.

(8) and (9) are general principles of the CVCV-approach in Government Phonology and (6) and (7) are parameters. Now consider the representations in (10a,b) below in which stress is responsible for the creation of a metrical [C V] unit onto which the stressed vowel then spreads[6].

(10) (a)   *fato*   'destiny'    [fáato / *fáto]

```
                              +PG
                               ↓      ⌐
C   V   C   V    >>    C   V_3 [C  V_2]  C   V_1
|   |   |   |          |   |    /        |   |
f   a   t   o          f   a           t   o
```

(b)   *pigro*   'lazy'   [píigro / *pígro]

```
                                  +PG
                                   ↓      ⌐
C   V   C   V   C   V    >>    C   V_4 [C  V_3]  C   V_2  C   V_1
|   |   |       |   |          |   |    /        |   |    |   |
p   i   g       r   o          p   i           g        r   o
```

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[5] Cf. Yoshida (1993) where a some what different licensing constraint on long vowels is proposed, likewise within the CVCV approach.

[6] We are now in a position to "decompose" the government requirement in (6). Since the empty [C V] in (10a,b) is properly governed it is maintained in the skeleton, see (8ii). But since a well-formed representation cannot contain an empty [C V], the stressed vowel spreads to the V-position of the [C V] to license the [C V] segmentally. That is, proper government applies blindly and maintains the [C V] in the word and spreading occurs to make the representation viable as a surface representation by spreading to the [C V].

(c)   *parco* 'park'   [párko / *páarko]

```
                              -PG     +PG
                               ⌐        ⌐ ⌐
                                     ↓
C V C V C V    >>C   V_4 [C  V_3]  C   V_2  C   V_1
| | | | | |         |    |         |        |   |
p a r k o           p    a         r        k   o
```

In (10) we see that the [C V] unit which is always created under stress (according to (7) above) is retained in the skeleton only if the V-position is properly governed (PG'ed) by the following nucleus. In (10a) and (10b) V_2 and V_3 are properly governed, and the stressed vowels /a/ and /i/ therefore spread onto the empty V-positions (V_2 and V_3 respectively) of the empty [C V] units which are created by TL. In (10c) the position V_1 cannot properly govern V_3 because it is already governing the empty V_2. Being properly governed, V_2 cannot properly govern the V-position to its left. Therefore, the [C V] unit created by stress cannot be maintained in the word and the vowel /a/ in *parco* (and other words of this type, i.e. containing a stress vowel in a 'closed syllable') must remain short. The analysis of (4d,e) is like (10c).

In this section it has been shown that TL is controlled by PG. Long vowels are found in front of single consonants, see (4a) and (10a), or clusters that do not block PG (i.e. obstruent+sonorant clusters, see (4b) and (10b). Other types of clusters (i.e. sonorant+C_x clusters, /sC/ clusters and geminates), are opaque to PG and as a consequence long vowels are never found in positions preceding clusters of these types, see (4c-e) and (10c).

3 . Raddoppiamento Sintattico.

The core of the phenomenon known as Raddoppiamento Sintattico (RS) can be described as follows: in a sequence of words, the initial consonant of the second word is lengthened when the first word ends in a stressed vowel, see the examples in (11a,b and d). There is, however, a restriction on RS; it does not occur in words in initial /sC/ clusters, see (11c).
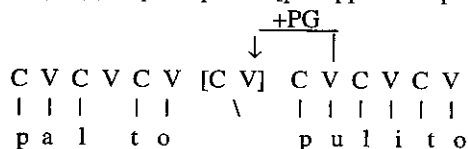
(11) Raddoppiamento Sintattico:

			+RS / -RS
a.	*paltò pulito*	"clean coat"	[paltóppulito / *paltópulito]
b.	*città triste*	"sad city"	[tšittáttriste / *tšittátriste]
c.	*paltò sporco*	"dirty coat"	[*paltóssporco / paltósporco]
d.	*città solare*	"solar city"	[tšittássolare / *tšittásolare]

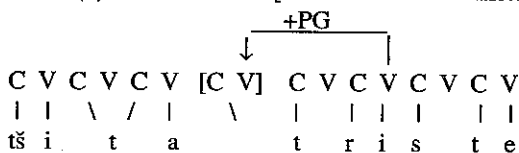The present CVCV analysis of RS is based on the following assumption:

(12) The empty V-position in geminates must be properly governed to be licensed[7].
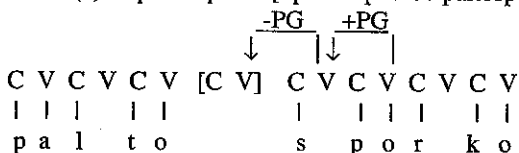
Now consider the representations in (13):

(13) (a)   *paltò pulito* [paltóppulito / *paltópulito]

```
            +PG
         ↓      |
C V C V C V  [C V]  C V C V C V
| | |   | |    \    | | | | | |
p a l   t o         p u l i t o
```

(b)   *città triste* [tšittáttriste / *tšittátriste]

```
            +PG
         ↓        |
C V C V C V  [C V]  C V C V C V C V
| |  \ /  |    \    |   | | |   | |
tš i    t  a        t   r i s   t e
```

(c)   *paltò sporco* [*paltóssporco / paltósporco]

```
          -PG    +PG
         ↓      | ↓   |
C V C V C V  [C V]  C V C V C V C V
| | |   | |         |   | | |   | |
p a l   t o         s   p o r   k o
```

In (13a,b) the initial consonant of the second word is able to spread to the C of the [C V] unit (created by stress, see (7) above) which is maintained in the skeleton because its V-position is properly governed by the following segmentally filled nucleus, see (8) and (9) above. The /sC/ cluster in (13c) behaves like the sonorant + C_x cluster, /rk/ in (10c); it blocks proper government. Therefore no segments (neither vowels nor consonants) are able to spread to the [C V] unit created by stress and, as a consequence, the /s/ in *sporco* in (13c) is unable to geminate. Geminates created by RS, then, just like long vowels created by TL, depend on proper government to be licensed.

Notice that the CVCV approach makes it possible to unify the accounts of TL and RS; in both cases stress triggers the creation of an empty [C V] unit which is maintained in the skeleton by being properly governed. In the TL case, the V-position of this [C V] is filled by spreading of the preceding vowel and in the RS case it is the C-position of the [C V] which is filled by spreading from the

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[7] That the V-position in the middle of the geminate has to be PG'ed follows from the phonological ECP, see (29) below.

following consonant. At this point the reader might wonder why it is the initial consonant of the second word and not the final (and stressed) vowel of the first word that is lengthened in (13a,b,) above; after all the situation is very much the same as the one encountered by the lengthening vowel in the word *pigro* [píigro] in (10b) above. In other words, why is it the case that vowels lengthen morpheme internally and only morpheme internally, whereas consonants geminate on morpheme boundaries and only there. I propose to capture these facts by suggesting an analysis in terms of strict cyclicity (cf. Larsen, 1996).

In this section it has been shown that the creation of a geminate by RS is dependent on PG. It takes place in words beginning in single consonants, see (11a,d) and (13a), or clusters that do not block PG (i.e. obstruent+sonorant clusters, see (11b) and (13b)). Other types of clusters (i.e. /sC/ clusters) which block PG never give rise to RS, see (11c) and (13c).

4. The Selection of the Definite Article.

The distribution of the forms *il* and *lo* of the definite article in the masculine singular has been a very debated topic in Italian phonology and the question of the underlying form does not seem to have been answered in any fully satisfactory way. Almost all options have been tried, some have proposed /il/ others /lo/ or /l/ and finally it has been proposed that both forms exist lexically and that a morphological process of selection chooses the right one in the right context. In what follows, I propose an analysis which is based on /ilo/ as the underlying form for both *il* and *lo*.

The distribution of the forms *il* and *lo* of the definite article in the masculine singular is roughly[8] as shown in (14) - (17)[9]:

(14) *Il* before single consonants:

a.	*il parko*	"the park"	[ilparko	/ *loparko	]
b.	*il sole*	"the sun"	[ilsole	/ *losole	]
c.	*il libro*	"the book"	[illibro	/ *lolibro	]

(15) *Il* before obstruent+sonorant clusters:

a.	*il treno*	"the train"	[iltreno	/ *lotreno	]
b.	*il freddo*	"the cold"	[ilfreddo	/ *lofreddo	]
c.	*il plico*	"the fold"	[ilpliko	/ *lopliko	]

---

[8] See Marotta (1993) for a more detailed description of the definite article.
[9] The form *l'* (which is derived from /ilo/ by elision) is not treated in the present article as the problem of elision is completely orthogonal to the matter discussed here.

(16) *Lo* before /sC/ clusters:

a. *lo studio* "the study" [*ilstudio / lostudio]
b. *lo sbaglio* "the error" [*ilzbaλλio / lozbaλλio]
c. *lo sporco* "the dirty (one)" [*ilsporko / losporko]

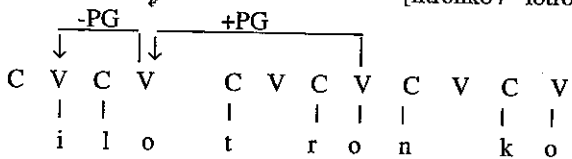(17) *Lo* before underlying geminates[10]:

a. *lo zio* "the uncle" [*iltsio / lottsio]
b. *lo zero* "the zero" [*ildzero / loddzero]
c. *lo gnomo* "the gnome" [*ilñomo / loññomo]
d. *lo sci* "the ski" [*ilši / lošši]
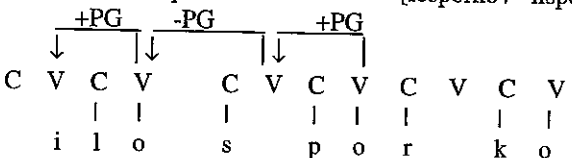
Now consider the representations in (18) below.

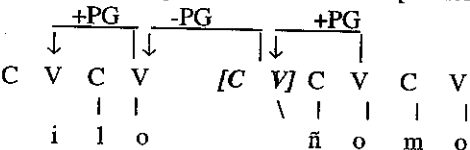(18) (a) *il parco* [ilparko / *loparko]
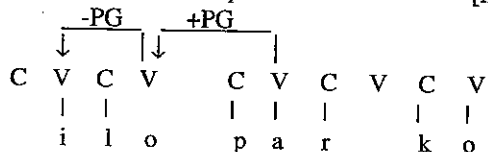
(b) *il tronco* [iltronko / *lotronko]

(c) *lo sporco* [losporko / *ilsporko]

(d) *lo gnomo* [loññomo / *ilñomo][11]

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[10] The glide [j] behaves like an underlying geminate, e.g. *lo iodio*, *lo yogurt*, etc.. The segment [w], however, triggers elision and must be analyzed as the first part of a diphthong, e.g. *l'uomo*.

[11] The existence of a relic *[C V]* which is present in all underlying geminates, i.e. {ts,dz,ñ,š}, is corroborated by historical facts.

The representations in (18) show that the selection of either *il* or *lo* is determined by proper government in the same way as vowel length and RS. Furthermore this analysis suggests that the surface forms *il*, see (19b), and *lo*, see (19c), share the same lexical representation, i.e. /ilo/, see (19a).

(19) (a) Common underlying form: C V C V
i l o

(b) The form *il*: (c) The form *lo*:

Both the /i/ and the /o/ of the definite article are properly governable, i.e. they are inaudible when properly governed, see (19b) and (19c) respectively. In (18a,b) and (19b) the vowel /o/ is properly governed and therefore not realized phonetically. The segments {ts, dz, ñ, š} are assumed to be underlying geminates which therefore must block proper government and thus select the form *lo* of the definite article, see (19d). In (18c,d) and (19c) (as well as in all other words with initial s-impura or underlying geminate) the /o/ is not properly governed and for this reason it is realized overtly and is able to govern /i/ which therefore does not get realized. The historical data in (20) and (21) below provide support for the underlying representation /ilo/, proposed in (19a) above.

(20) The evolution of the form *il* of the definite article[12].

1. Latin	:	vido illu(m)	cane(m)
2. Vulg.	:	vedo'llu	cane (aphaeresis)
3.	:	vedo lu	cane (degemination)
4.	:	vedo lo	cane (u > o)
5. Mid. Age:		vedo-l'	cane (truncation of enclitic *lo*)
6.	:	vedo	l-cane (procliticisation of def. art.)
7.	:	il	cane (insertion of prosthetic /i/)
8. Mod. It. :		vedo il	cane (lexicalisation of /i/)

(21) Loss and lexicalisation of the prosthetic /i/.

a. istupido -> stupido (loss of prosthetic /i/)
b. il cane -> il cane (lexicalisation of prosthetic /i/)
c. per iscritto -> per iscritto (lexicalisation of prosthetic /i/)

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[12] This view of the evolution of the definite article is adopted from Ambrosini (1978) and Vanelli (1992).

In (20) we see that Lat. *illum* turned into *lo* which at an early stage of the language was the only form of the definite article masculine singular, see stage 4. in (20) above. *Lo* is therefore historically the original form from which the form *il* eventually originated (in some modern dialects *lu* is still the only form). I take the prosthesis of /i/ in the definite article, see stage 7. in (20) above, to have been induced by the same processes which also forced words with initial /sC/ clusters to take a prosthetic vowel, see (21a,c). At a later stage, see stage 8. in (20), Italian (unlike Spanish) lost the need for prosthetic vowels before /sC/ clusters but still did not allow words to start in a sonorant+obstruent cluster, i.e. **lcane*, 'the dog'. The prosthetic /i/ in the definite article was therefore lexicalized whereas it was maintained before /sC/ clusters only in a handful of archaic expressions, see (21c).

In this section, it has been shown that the distribution of *il* and *lo* is controlled by PG. *Il* is found in front of words beginning in single consonants, see (14) and (18a), or clusters that do not block PG (i.e. obstruent+sonorant clusters, see (15) and (18b). Other types of clusters (i.e. /sC/ clusters and underlying geminates) block proper government an as a consequence are preceded by the form *lo*, see (16), (17) and (18c,d).

5 . Consonant Clusters and Proper Government.

Consider the non-deviant[13] two-member[14] clusters of Modern Italian.

(22) Two-member consonant clusters:

I. obstruent + liquid	:	pr, tr, kr, br, dr, gr, fr, vr, pl, kl, bl, gl, fl
II. sonorant + C	:	rp, rt, rk, rb, rd, rg, rf, rv, rs, rl, rm, rn, lp, lt, lk, lb, ld, lg, lf, lv, ls, lm, ln, mp, nt, nk, mb, nd, ng, nf, nv, ns, etc...
III. /sC(C)/ clusters	:	sp, st, sk, sb, sd, sg, sf, sv, sr, sl, sm, sn
IV. geminates	:	pp, tt, kk, bb, dd, gg, ff, vv, ss, rr, ll, mm, nn, λλ, ññ, šš, etc..

As shown in (22) the consonant clusters of Modern Italian naturally fall into four main types. As we have already observed, these different kinds of consonant clusters do not display the same behavior with respect to TL, RS and the distribution of definite article, see the table in (24) below.

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[13] The distinction between deviant and non-deviant clusters is made by most linguists working on Italian, cf. Klajn (1967) I nessi consonantici nell'iltaliano. *Lingua Nostra* XXVIII, pp 74-81.

[14] Four member clusters are all deviant and three member clusters can be analyzed as combinations of type I clusters preceded by /s/ (e.g. *aspro*), one of the sonorants /r,l,n/ (e.g. *sorpreso, altro, ingrato*) or by a consonant identical to the obstruent of the cluster of type I (e.g. /p+pr/ *approdo*, /g+gl/ *agglutinare*, etc..).

(24)	(a) TL of a pre-ceding stres-sed vowel	(b) Occurs Word initially	(c) Allows RS	(d) Selects *il* or *lo*	(e) Blocks PG
Single cons.:	YES	YES	YES	*il*	NO
I, obstr. + son.:	YES	YES	YES	*il*	NO
II, son.+ C$_x$:	NO	NO	DNA	DNA	YES
III, s + C$_x$:	NO	YES	NO	*lo*	YES
IV, geminates:	NO	NO	DNA	DNA	YES
{š,ñ,t͡s,d͡z}:	NO	YES	(DNA)	*lo*	YES

The advantages of the Government Phonology approach is that all the relevant properties of the different types of clusters, that is columns (a), (c) and (d) can be derived from column (e) which contains the information concerning Proper Government. The big question is now: Why do some clusters (i.e. geminates (Type IV), sonorant+obstruent clusters (Type II), and /sC/ clusters (Type III)) block Proper Government whereas others (i.e. obstruent+sonorant clusters (Type I)) do not? Answer: There exists (independently of this analysis) a theory of direct interaction between consonantal segments which derives the blocking properties of the different kinds of consonant clusters from the internal structure of the consonants involved (Cf. Scheer, 1996).

6 . Direct Interaction Between Consonants.

This section draws very heavily on Scheer (1996:304-358). Based on an analysis of properly governable vowels in prefixes in Czech, Scheer (1996) reaches the conclusion that certain consonant clusters block proper government, whereas others let proper government pass unaffectedly. Scheer argues, very convincingly, that this difference in the behavior of consonant clusters should be explained in terms of the internal structure of the segments involved and the direct relations that the consonantal segments entertain with each other. The internal structure of Italian consonants are given in (25) and (26) below.

(25) The internal structure of the non-palatal obstruents of Modern Italian[15]:

	p	t	k	f
bucc°	□	□	U	□
	I	I	I	I
Rad°	□	□	□	A

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[15] Only elements which determine the place of articulation are included in the representations in this paper as the elements which determine Voice and Manner of articulation properties are assumed not to play any role for the establishment of interconsonantal government relations, cf. Scheer (1993:320).

(26) The internal structure of /s/, the liquids and the nasals.

	s	l	r	m	n
bucc°	I	I	I	□	I
	|	|	|	|	|
Rad°	A	A	A	A	A

The direct relations between consonants are established between elements on the bucc° and Rad° tiers. The general principle is that an X° element (i.e. one of the place of articulation elements, I, A, U etc..) can govern an empty space (here indicated by the symbol □) in the internal structure of its neighboring consonant to its left, these direct interconsonantal relations are therefore also called relations of X° government.

In the clusters in (27), there is at least one relation of X°-government between the two consonants (X°-government relations are indicated by the symbol ⇐) and, as a consequence, these clusters are predicted not to block proper government.

(27)   Obstruent + sonorant clusters

	p		r	t		r	k	r	f		r
bucc°	□	⇐	I	□	⇐	I	U	I	□	⇐	I
	|		|	|		|	|	|	|		|
Rad°	□	⇐	A	□	⇐	A	□	⇐ A	A		A
# of relations	2			2			1		1		

In the consonant clusters of the following types (28a,b,c), no interconsonantal relations can be established since the element to the right has no empty spaces which could be governed by elements in the internal structure of the leftside member of the consonant luster, and as a consequence these clusters are predicted to block proper government.

(28)

(a) son+ Cₓ

	r	p	l	k	m	f	n	t
bucc°	I	□	I	U	□	□	I	□
	|	|	|	|	|	|	|	|
Rad°	A	□	A	□	A	A	A	□
# of relations	0		0		0		0	

(b) /sC/

	s	p	s	k	s	f	s	r
bucc°	I	□	I	U	I	□	I	I
	|	|	|	|	|	|	|	|
Rad°	A	□	A	□	A	A	A	A
# of relations	0		0		0		0	

(c) geminates[16]

	s	s	k	k	f	f	t	t
bucc°	I	I	U	U	□	□	□	□
	|	|	|	|	|	|	|	|
Rad°	A	A	□	□	A	A	□	□
# of relations	0		0		0		0	

In light of the theory of direct interconsonantal interaction we will have to revise the the phonological ECP. The 'old' version of the ECP (see (2) above)) mentioned only two phonological operations which could license an empty nucleus. Now X°-government must be added to that list and we will have to reformulate the ECP as follows:

(29) The Empty Category Principle (revised version)
A nucleus may be uninterpreted phonetically if it is:
(a) properly governed
(b) licensed by final licensing
(c) situated between two consonants which enter into an interconsonantal relation of X°-government.

Since final licensing is not possible in Italian there can only be two possible licensers of an empty nucleus in this language, either there is proper government or X°-government. Lets us go back and reconsider the analysis of the definite article given in (18b,c) here repeated as (30a,b).

(30) (a)   *il tronco*   [iltronko / *lotronko]

```
      -PG          +PG
     ↓    | ↓             |
C   V₄  C  V₃    C   V₂  C  V₁  C  V  C  V
    |   |  |     |       |   |  |     |  |
    i   I        t  ⇐  r  o   n        k  o
```

(b)   *lo sporco*   [losporko / *ilsporko]

```
      +PG    -PG      +PG
     ↓    | ↓    | ↓          |
C   V₄  C  V₃    C   V₂  C  V₁  C  V  C  V
    |   |  |     |       |   |  |     |  |
        l  o     s       p   o  r     k  o
```

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[16] The representation of geminates in the theory of direct interconsonantal relations is an area which needs to be worked out in more detail. In (28c) geminates are depicted as consisting of two contiguous segments. To capture RS, however, it would be necessary to assume representations in terms of spreading, see (12) above. The geminates created by spreading would also be predicted to block PG because of the empty V-position in the middle which must be PG'ed.

The main difference between (30a) and (30b) lies in the way the empty nucleus V_2 is being licensed. In the preceding sections, the fact that consonant clusters divide into PG transparent clusters on the one hand and PG opaque clusters on the other, remained a simple observation. Equipped with the theory of direct consonantal relations it is now possible to explain this observation by deriving it from the internal structure of consonants (which is PG independent).

The consonants /t/ and /r/ surrounding the empty nucleus V_2 in (30a) have internal structures such that they may entertain an relation of X°-government, see (27) above. Since this relation of X°-government has the power to license an empty nucleus (see (29c)), V_2 does not need to be licensed by proper government from V_1. The governing potential of V_1 therefore skips V_2 and is applied on V_3 instead. Lexically V_3 contains the vowel /o/, but since it is being PG'ed by V_1 this vowel is not phonetically realized and as a result it is the form *il* which appears on the surface.

The consonants /s/ and /p/ surrounding V_2 in (30b) have internal structures such that no relation of X°-government may be established, see (28b) above. There is therefore no other potential licenser for V_2 than proper government from V_1. V_1 therefore properly governs V_2 and thereby excludes itself from governing V_3 (one governor can govern one and only one governee). The vowel /o/ in V_3 therefore must therefore be overtly realized and thus has the potential to govern the /i/ in V_4, which therefore is not realized phonetically. Thus the correct surface form *lo* is derived.

The analysis of the definite article presented above presupposes that lexically present vowels may undergo proper government and become inaudible. However, only a very restricted subset of the vowels of Modern Italian displays this behavior, i.e. the /i/ of the form *il* of the def. art. and the /o/ found in the form *lo*. In the CVCV approach it is therefore necessary to assume that:

(31)[17]a. The vowels which alternate with zero are lexically present. They are lexically marked as being possible targets for proper government.

      b. The true empty nuclei (e.g. the nuclei V_2 in (30) above) are never realized phonetically.

To assume that the /i/ of *il* is lexically marked as a possible target of PG is corroborated by the facts of its historical origin as a prosthetic vowel, see (20) and (21) above. As is well know, in Government Phonology, epenthesis is driven exclusively by proper government. It is therefore not implausible that a vocalic segment whose insertion was controlled by proper government, should have maintained its susceptibility to PG even after having been lexicalised in the form *il*. Thus we have a historical explanation of why /i/ is lexically marked

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[17] Cf. Scheer (1993:130,(15)).

as being properly governable. In section IV above, the truncation of the /o/ in *lo* was analyzed as resulting from proper government. Notice that truncation of /o/ occurs in a number of nominal determiners (e.g. *quello, bello, buono, uno* etc...) which more or less follow the same pattern. The presence of truncation in the standard language must be considered to be a parametric property as there are numerous dialects without truncation. It is interesting to observe that the dialects which lack truncation also lack the form *il* of the definite article[18] (in these dialects there is only one form of the definite article which is always of the type "lo"). Notice furthermore that in the present analysis, the absence of a form *il* corresponding to the definite article in the feminine singular (of which the form is *la*) can be explained by the fact the vowel /a/ never has undergone truncation at any stage in the evolution of Modern Italian.

7. Conclusion.

The fact that the present analysis provides a unified and maximally simple account (based only on proper government) of three superficially very different phenomena of modern Italian phonology (i.e. morpheme internal Tonic Lengthening, see section II above, Raddoppiamento Sintattico, see section III above, and the distribution of the forms *il* and *lo* of the definite article in the masculine singular, see section IV above), is a strong argument in favor of the CVCV-hypothesis for Italian.

An additional result of this analysis is the unification of the two forms *il* and *lo* of the definite article in the common underlying form /ilo/, see (19a) above. This common lexical representation of *il* and *lo* is independently supported by diachronical data., see (20) and (21) above.

Finally it should be mentioned that the present analysis of Standard Italian has been applied successfully to the 'romanesco' dialect (Cf. Bonvino, 1995) and that the analysis of the definite article based on truncation (i.e. proper government of the /o/ in *lo*, see (18c) above) also extends to the other cases of truncation in Modern Italian (i.e. *bello* vs. *bel* etc..).

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[18] Cf. Vanelli (1992).

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SYLLABLE STRUCTURE CONSTRAINTS
AND THEIR IMPLICATIONS FOR [-NASAL]

The distinctive feature [nasal] has long been assumed to be binary in that phonological operations such as spreading, insertion, etc. may refer to [-nasal] as well as [+nasal] in their structural descriptions. As a feature value, [+nasal] has proven indispensable in accounting for nasal processes such as nasal harmony. Its counterpart - [-nasal] - is another story. Review of studies on this topic yields few (if any) convincing cases for [-nasal]. In analyses where [-nasal] seems to play a role, its function seems to be limited to expressing segment contrasts in languages which contrast nasal and prenasalized or postnasalized segments or to blocking phonological processes such as nasal harmony (For instance, see Anderson 1976, Piggott 1992, etc.). To the best of my knowledge, there is hardly any compelling evidence in support of [-nasal] as the feature value that spreads, inserts or deletes. The scarcity of empirical evidence raises the question of whether [nasal] is truly binary and whether [-nasal] is dispensable.

I consider this question in this article by examining three cases of syllable structure constraints: Kwawu, Chaoyang and Taiwanese. These three cases have in common the restriction on the co-occurrence of consonant onsets and vocalic nuclei within a syllable. The restriction manifests itself in the condition that voiced consonant onsets must agree with vocalic nuclei in nasality or orality. Though this and several related syllable structure constraints have been subjected to analyses in terms of [+nasal], I argue that a case can be made in support of [-nasal] in analysing these cases.

My argumentation stems from a systematic comparison of [-nasal] and [+nasal] analyses. In the case of Kwawu presented in section 1, I show that an analysis in