

Chapter 4

WORDS, RULES AND STEMS IN THE ITALIAN MENTAL LEXICON

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Abstract Psycholinguistic evidence from different sources (child language acquisition data and experimental data from adult native speakers) indicates that stem formation and inflectional processes in Italian show a distinction between rule-based and memory-based processes. The findings are interpreted as providing cross-linguistic support for the dual-mechanism model.

Keywords: Stem formation, rule-based processes, memory-based processes, dual-mechanism model, lexicon, verb inflection.

1. Introduction

Recent psycholinguistic studies on the processing and acquisition of morphologically complex words have provided evidence for the view that the mental grammar has a dual structure with two distinct representational mechanisms, a set of lexical entries that are (associatively) listed in memory, and a set of symbolic operations to form larger linguistic expressions from items in the lexicon. Most of the psycholinguistic evidence for such a *dual-mechanism model* comes from inflectional phenomena in two closely related languages, English and German; see Pinker, 1999 and Clahsen, 1999 for reviews.

Consider, for example, errors children produce in acquiring the English past tense. Marcus et al., 1992 found that only one type of inflectional error is productive in English, overapplications of the regular past tense affix *-ed* to irregular stems (**go-ed*, etc.). Overapplications of irregular patterns (**brang*, **wope*) are much less frequent and systematic (see also Xu and Pinker, 1995). Marcus et al. also found that irregular verbs are sensitive to frequency and similarity: children make inflectional er-

rors more often with low-frequency irregular verbs, and they make fewer overregularization errors with irregular verbs that fall into families with more numerous and higher-frequency members. The same pattern of errors was found in two inflectional systems of German, past participles and noun plurals (Clahsen et al., 1992; Clahsen and Rothweiler, 1993). Overextensions of the irregular participle ending (-*n*), for example, were extremely rare in German. In contrast, regular inflection (past participle -*t*, noun plural -*s*) were overgeneralized more extensively and were not sensitive to phonological similarity (see also Weyerts and Clahsen, 1994; Bartke et al., 1996 for supporting experimental evidence).

Studies on morphological processing in adult native speakers using different experimental paradigms (e.g. lexical decision, priming, elicited production, sentence matching, event-related potentials) have also provided evidence for the dual-mechanism model (Pinker, 1999; Clahsen, 1999). Consider, for example, results from priming experiments. In such studies, stimulus pairs are presented to subjects, and the researcher manipulates the relation between them. The task is usually to make a lexical decision to the second presentation. If the second presentation (the target) is identical to the first presentation (the prime), e.g. *walk* followed by *walk*, access to its lexical representation is facilitated, reflected in a faster response time. Stanners et al., 1979 found an equivalent amount of facilitation when the prime was a regularly inflected past tense form (*walked*) and the target its stem (*walk*). That is, a regular past tense form fully primes its corresponding stem form. Irregular past tense forms, on the other hand, primed their stems less effectively than did the stem itself, e.g. *sing* was primed to a much lesser extent by *sang* than by *sing*. All subsequent experiments have confirmed Stanners et al.'s finding of full priming for regularly inflected words (Kempley and Morton, 1982; Napps, 1989; Fowler et al., 1985; Marslen-Wilson et al., 1993). It has been noted, however, that in English regular past tense forms are often orthographically and phonologically more similar to their base forms than are irregular past tense forms (*walked* → *walk* versus *taught* → *teach*) and that these different form properties may account for full priming of regular and reduced priming of irregular past tense forms (see Rueckl et al., 1997, among others). On the other hand, priming is absent from phonologically related pairs (e.g. *market* does not prime *mark* (Münte et al., 1998; see also Marslen-Wilson et al., 1994), indicating that the priming effects obtained for regular past tense forms do not merely reflect phonological similarities. For German, Sonnenstuhl et al., 1999 have recently found regular/irregular differences in priming experiments with past participles despite the fact that the phonological and orthographical distance between the participle forms and their cor-

responding stem forms they tested was identical for both regular and irregular verbs.

For example, an irregular participle such as *geschlafen* 'slept' is as similar to its base form (*schlaf-*) as a regular participle (e.g. *geöffnet* 'opened') is to its base stem (*öffn-*), yet despite these formal similarities the regular form produced full priming, and the irregular one did not. Whereas these results cannot be accounted for in terms of formal (prime-target) overlap, they receive a straightforward explanation from a dual-mechanism model: regularly inflected forms are decomposed and directly access their stems, hence the full priming effects in the experiments; irregularly inflected forms have their own lexical representations distinct from, albeit related to, their stems, hence the lack of full priming.

Despite the considerable body of evidence from, in particular, English and German, there are many reasons to extend research to a wider range of languages. Principally, both English and German belong to the same language family — Germanic; any generalizations emerging from these languages may well be due to the specific characteristics of this family and not to truly universal properties of language. Study of Italian represents an extension of the research on the dual-mechanism model to the Romance languages. Apart from having a much richer verbal morphology than either English or German, Italian presents a further interesting dimension, the presence of morphological classes or conjugations. The question this poses for the dual-mechanism model is how to deal with a system where on the one hand a regular, productive class (conjugation 1) contrasts with non-productive or semi-productive classes (conjugations 2 and 3) within which regular and irregular inflections are distinguished. As will be seen, by isolating those aspects of word formation which pertain to class membership, i.e. thematic vowel affixation or stem formation, from those aspects which are the domain of inflection proper, the dual-mechanism model is able to account for the subtleties of Italian verb formation.

In the next section, we discuss different linguistic treatments of the Italian verbal system, focussing on past participles and past definite (preterite) forms. In the empirical parts of our study, we investigate data from Italian child language and present different kinds of experimental data from adult Italian speakers.

2. Verb inflection in Italian

2.1. A descriptive overview

According to traditional descriptive grammars (for example, Serianni, 1988; Sensini, 1988) Italian has three morphological classes, or conjuga-

tions, identified by the thematic vowel (TV) which appears between the verb root and the inflectional endings. First conjugation verbs have the TV *-a-*, e.g. *parl-a-re* 'to speak', second conjugation verbs have the TV *-e-*, e.g. *tem-e-re* 'to fear', and third conjugation *-i-*, e.g. *dorm-i-re* 'to sleep'. The first conjugation is by far the largest class of verbs (1,709, 73%¹), almost all of which are regular. Only three 1st conjugation verbs have irregularly inflected verb forms, *andare* 'to go', *dare* 'to give', *stare* 'to stay'. Although *fare* 'to make, to do' is traditionally included in this class, its paradigm indicates that it more properly belongs to the second conjugation (e.g. imperfect (1sg.) *facevo*, past definite (2sg.) *facesti*, imperfect subjunctive (sg.) *facessi*), the infinitive being irregular. The first conjugation is also the only class which is truly productive; neologisms and foreign loan words all fall into this class. The second conjugation has far fewer members (403, 17%), which are for the most part irregular (around 95%). The third conjugation is the smallest class (238, 10%) and is mostly regular (around 10% of its verbs are irregular). Its members include verbs derived from adjectives and nouns, usually with the addition of a prefix, for example: *inverdire* 'to become green' (from *verde* 'green'), *arricchire* 'to become rich' (from *ricco* 'rich'), although it is doubtful whether new words are still generated in this way (see Dressler and Thornton, 1991, p.5; Orsolini et al., 1998, p.429, fn 1)).

Regularly inflected verb forms consist of a root, which carries semantic information, plus (in most cases) a thematic vowel, plus an inflectional ending encoding some or all of the categories of person, number, tense, aspect and mood (and gender in the case of past participles in certain contexts). The root together with the thematic vowel is traditionally referred to as the stem. Most inflected forms are stem-based (e.g. *parl-a-vo* 'I was speaking') but some are root-based (e.g. *parl-o* 'I speak'). A subset of 3rd conjugation verbs have stems augmented with *-sc-* in forms where stress would otherwise fall on the root (e.g. *finisco* 'I finish' from *finire* vs. *sento* 'I feel' from *sentire*), but are otherwise perfectly regular. Regular past participles are formed by adding the participial suffix *-t-* to the verb stem, with the further addition of an agreement marker (*-o* is the default masculine singular form); Table 4.1 provides examples from each conjugation. Irregular past participles are characterized by phonologically modified stems, absence of the TV, and exhibit one or other of the endings *-(s)s-* or *-(t)t-* (gender/number agreement markers are as in regular past participles). Examples are given in Table 4.2.

¹ Calculations are made on the basis of just those verbs listed in the two largest frequency dictionaries of Italian, Bortolini et al., 1971 and De Mauro et al., 1993, each based on a corpus of 500,000 words.

Table 4.1. Regular Italian past participles.

<i>conjugation</i>	<i>root</i>	<i>tv</i>	<i>part.</i>	<i>gen/num</i>	<i>gloss</i>
1 st	parl-	a	-t	-o	spoken
2 nd	tem-	u*	-t	-o	feared
3 rd	dorm-	i	-t	-o	slept

* -u- is considered an allomorph of the second conj TV -e-.

Table 4.2. Irregular Italian past participles.

	<i>Past Participle</i>	<i>Infinitive</i>	<i>gloss</i>
<i>Forms in -s-:</i>	preso apparso	prendere apparire	'to take' 'to appear'
<i>Forms in -ss-:</i>	discusso messo	discutere mettere	'to discuss' 'to put'
<i>Forms in -t-:</i>	vinto aperto	vincere aprire	'to win' 'to open'
<i>Forms in -tt-:</i>	scritto detto	scrivere dire	'to write' 'to say'

The regular past definite (= preterite) paradigm for the 1st conjugation verb *parlare* is shown in Table 4.3. Regular 2nd and 3rd conjugation paradigms differ only in the TV (e.g. 1sg *tem-e-i*, *dorm-i-i*) and in the 3sg suffixes, e.g. 2nd conjugation *temè*, 3rd conjugation *dormì*. The 1sg, 3sg and 3pl forms of some 2nd conjugation regular verbs may take an augmented stem, e.g. *temei/temetti* 'I feared'. Both forms are considered regular, although that with the augment is generally preferred unless the root ends in -t (e.g. *potei/*potetti* 'I was able'). Irregular past definite forms, which occur only in the 1sg, 3sg and 3pl, are characterized by alternations in the verb stem and in the case of the 3pl, an irregular ending, as illustrated by the verb *prendere* 'to take' in Table 4.4.

For a given verb the irregular past participle and past definite stems may or may not be the same; cf. for example, *presi* 'I took', *preso* 'taken' (from *prendere*) and *ruppi* 'I broke', *rotto* 'broken' (from *rompere*). Irregular past definite forms and past participles are also characterized by

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