

Templatic and Subtractive Truncation¹

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0. Introduction

A large variety of processes has been discussed under the name of truncation in the morphological and phonological literature. In this article we discuss truncation as a form of morphological exponence, where a morphological category is realized through truncation. Given that the term truncation refers to form rather than meaning, we begin this chapter with a definition of the formal side of truncatory processes.

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The term truncation is usually employed to refer to two different kinds of processes.

Representative examples are given in (1) and (2).

(1) Spanish hypocoristics

(PiZeros 1998, 2000, Roca & Feliu 2003)

<i>base name</i>	<i>hypocoristic</i>	<i>preserve</i>	<i>deleted</i>
Umb <u>é</u> rto	Beto	´σ	σ
Gile <u>bá</u> ldo	Balo	´σ	σσ
Arist <u>ó</u> bulo	Tobo	´σ	σσσ

(2) Koasati plurals, pattern I²

(Martin 1988, Kimball 1983, 1991, Broadwell 1993, Lombardi & McCarthy 1991, Weeda 1992, data as in Horwood 2001)

<i>singular</i>	<i>plural</i>	<i>preserved</i>	<i>deleted</i>	
pit <u>á</u> f-fi-n	pít-li-n	σ	VC	'to slice up the middle'
atak <u>á</u> :-li-n	aták-li-n	σσ	VV	'to hang something'
akocof <u>ót</u> -li-n	akocóf-fi-n	σσσ	VC	'to jump down'

The data in (1) exemplify one of several patterns that derive hypocoristic forms in Spanish (see PiZeros 1998, 2000 and references therein for an overview). The pattern is characterised by the fact that hypocoristic forms, while differing in segmental material, all exhibit the same, invariant size, which can be described in terms of higher-level phonological structure: They are all disyllabic, with stress on the initial syllable. In metrical terms, they all conform to the structure of a disyllabic trochaic foot. Processes such as those in (1) have traditionally been discussed under the label of **templatic** truncation since the output of truncation conforms to a prosodic template. Note that for some cases of templatic truncation the term 'truncation' is actually a misnomer. Thus, given that we are dealing with size constraints on the structure of the derived form, it is expected that if the size of the input form is not larger than the required template, we may find epenthesis rather than truncation or no truncation at all. This is indeed the case (compare, e.g., German *Hans* > *Hansi*, or the English name *Keith*, for which no

² There is also a pattern II, which is not discussed in this introduction. Cf. section 2 for details.

truncation is attested). Cases such as *Hansi* and *Keith* can be described as the outputs of non-truncatory allomorphs of the morphological process.

The data in (2) exemplify pattern I plural formation in the Muskogean language Koasati, where the predominant line of analysis is that the plural is formed from the singular through subtraction of the stem-final rime, VC or VV. Unlike in hypocoristic formation in Spanish, what matters in the description of the process is, therefore, the size of the material truncated. Processes such as these have traditionally been termed **subtractive** truncation.

In (3) we propose a definition of morphological truncation that covers both templatic and subtractive truncation.

(3) Morphological truncation is a process where a morphological category is typically marked through lack of material in the derived form as compared to the base form. Truncation may be templatic or subtractive. In templatic truncation, the size of the derived form is predictable; in subtractive truncation, predictability holds for the size of the truncated material. Prediction of form in both cases normally involves reference to higher-level phonological categories such as the syllable or metrical units such as the foot.

In this definition we refer to structural predictability as the crucial aspect of morphological truncation. This move deserves comment, with respect to two important aspects. First of all, the structural predictability of truncatory processes is a much-contested issue. We will review the pertinent positions in the literature further below. Secondly, it is important to note that structural predictability does not necessarily involve structural invariance of either the output of the truncatory process or the truncated portion. As the term 'templatic truncation' already suggests, structural invariance has been assumed to be a key characteristic of truncated forms in much of the pertinent literature. Whereas, however, structural invariance is an obvious characteristic of the Spanish hypocoristics in (1), it is not a defining characteristic of all

templatic truncatory processes. Thus, recent studies have brought to light a variety of processes whose outputs are not invariant, but nevertheless predictable (see below for details, see, e.g., Alber 2010, Alber & Arndt-Lappe 2007-2009). As we will see below, such processes are still templatic in the sense that their structure is the result of an interaction of templatic restrictions and other restrictions.

For subtractive truncation, it is also clear that it is not true that the truncated material is invariant in size. In many of the documented cases we find that the size of the truncated portion varies. In much of the pertinent literature it is assumed that this variation is determined by phonological constraints on the structure of the output or by morphological constraints requiring anti-faithfulness between the base and the derived form (see Kosa 2008 for an overview of the pertinent literature, see section 2 of this article for discussion). An example is Hebrew imperative truncation, discussed in Bat-El (2002), where the truncated portion may either be a single segment (as the vowel *e* in *tlamed* < *telamed*, 'to teach') or a syllable (as the syllable *ta* in *kum* < *takum*, 'to get up').

From a theoretical perspective, we find that the amount and focus of attention devoted to truncation is very different in phonological and morphological theory, respectively. In phonological theory, processes of truncation have served as key evidence in the development of the research discipline of Prosodic Morphology (McCarthy 1979, McCarthy & Prince 1986 [1996] et seq.), where it was shown that prosodic categories like the syllable and the metrical foot have an important say in determining the shape of the output of particular morphological processes. The process of subtractive truncation has lead, inside the framework of Optimality Theory (OT), to the proposal of a set of anti-faithfulness constraints to the grammar (see section 2 below).

In morphological theory, truncatory processes have traditionally not been in the focus of attention, and work specifically devoted to truncation is scarce. Interestingly, early work in structuralist and generative traditions which incorporates truncation considers truncation to be

a subtractive process only – templatic truncation is typically not considered to be a possibility. This is true for both morphemic and word-based models of word-formation. An example of the former is Bloomfield's work. Bloomfield considers subtraction of a 'minus feature' (Bloomfield 1933: 217f., see e.g. Anderson 1992: 48ff. for discussion) to be a genuine possibility of realizing a morphological category. An example of the latter is Aronoff's model, which involves truncation rules (Aronoff 1976: 87ff.). Crucially, truncation rules in this framework are adjustment rules, not word-formation rules (WFRs), which means that they are considered to be subsidiary to the application of a WFR. The phenomena that Aronoff captures with the help of adjustment rules are, hence, different from the type of phenomena treated by Bloomfield, and also different from those treated in this article: In all cases truncation is a kind of stem truncation and is always accompanied by affixation. In subsequent work, processes of subtractive truncation have figured prominently in the debate between morphemic and word-based approaches to morphological grammar. In response to the argument that subtractive truncation poses a challenge to morphemic approaches (see esp. Anderson 1992: chpt. 3), we find that within the small number of documented cases of subtractive truncation, a substantial number has been reanalysed in terms of non-subtractive morphology.

The situation for templatic truncation is different from that for subtractive truncation in that, to our knowledge, there is no morphological theory that explicitly includes templatic truncation in a principled fashion. Instead, the standard assumption made in many pertinent theories is that processes of templatic truncation are somehow outside morphological grammar proper, with the consequence that not much attention and research is devoted to these processes. One major reason for morphologists' reluctance to incorporate templatic truncation is the question whether derived words are new words in their language. Thus, outputs of templatic truncation often differ from their bases not in terms of referential meanings, but in terms of affective or social meaning components, marking familiarity,

appreciation, or depreciation (see section 3 below). The question of whether or not a given truncatory process produces new words of the language, then, crucially hinges on how morphological theory incorporates meaning components other than referential components.

One of the few theories which make explicit reference to the class of truncatory processes we have labelled templatic here is Natural Morphology (Mayerthaler 1981, Dressler 1987, 2000, Dressler & Merlini Barbaresi 1994). In Natural Morphology, processes of templatic truncation have served as key examples in the development of the claim that there is a fundamental distinction between grammatical and extragrammatical morphology (Dressler 2000 et seq.). A similar view can be found in other theoretical work, where some types of truncatory processes have been classified as creative morphology (Lyons 1977: 76ff., 549, Bauer 1983: 63f., van Marle 1985: 43) or expressive morphology (Zwicky & Pullum 1987). We will address the issue of interpreting templatic truncation as extragrammatical below (see sections 1.1 and 3).

The structure of the main part of this article is as follows: In sections 1 and 2 we focus on formal characteristics of truncatory processes. Section 1 is concerned with templatic truncation, incorporating both Natural Morphology and Prosodic Morphology approaches. Section 2 will be devoted to subtractive truncation. In section 3 we discuss truncation as a morphological process, focussing on templatic truncation and on issues of form-meaning mapping.

1. Templatic Truncation: Form and Analysis

The form of templatic truncation morphemes can be described in relationship to the words from which they are derived (their 'bases'). Patterns of truncation can be classified according to (a) how much material of the base form is preserved in the truncation (the size of the truncated word), and (b) according to which part of the base form is preserved. For the

moment, we will use the term **anchoring** as a convenient label to refer to the latter aspect. In section 1.3 we will discuss how 'anchoring' can be defined precisely in truncation. The term has its origins in a morphemic tradition of morphological analysis within the Prosodic Morphology literature (McCarthy & Prince 1993a), where templatic truncation is conceptualised as a TRUNC morpheme. This morpheme is segmentally empty, but carries a size specification for the truncated form. It anchors to a particular position in the base form, causing deletion or non-realization of everything from the base that is not covered by the template (i.e. everything to the left of the anchoring point and everything between the right edge of the template and the right edge of the base word). An alternative description of the anchoring phenomenon that is sometimes found in the literature is a description that makes reference not to which part of the base word is preserved, but to which part is deleted. The traditional terminology distinguishes between two cases: apocope, i.e. the deletion of the final part of the base, and aphaeresis, i.e. the deletion of the initial part of the base.

The question of whether templatic truncation is best classified in terms of size or of anchoring or in terms of both is still a matter of controversy, largely between the phonological literature that has sprung from the Prosodic Morphology program and studies found in functional morphological theory (esp. Natural Morphology) as well as in the older descriptive literature. The answer to the question crucially hinges on scholars' assessment of size as predictable or unpredictable. As is implied already by the very existence of this article in a handbook on morphological exponence, we believe that there exist predictable truncatory patterns in language, and that predictability extends not only to size, but also to other aspects of the process. Before we propose a formal classification of truncation patterns we will therefore discuss the different views of predictability and give evidence in favor of interpreting truncation patterns as predictable structures. We will begin with views that assume unpredictability and classify truncatory patterns in terms of anchoring only, and we will present evidence that the unpredictability claim is untenable for a large number of

attested processes (section 1.1). We will then continue working under the assumption of predictability, introducing a comprehensive formal classification (section 1.2) and analysis set in the research program of Prosodic Morphology (section 1.3).

1.1 The unpredictability assumption

An assumption frequently made in morphological theory outside Prosodic Morphology is that structural characteristics of truncations, one of which is size, are in principle unpredictable. In the pertinent literature, truncated words are classified largely in terms of their anchoring behaviour. The theory in which this assumption is most clearly spelled out is Natural Morphology (Mayertaler 1981, Dressler 1987, 2000, Dressler & Merlini Barbaresi 1994).

Formal unpredictability is one of the major criteria that has lead scholars to classify many processes of templatic truncation as extragrammatical (Dressler 2000, Dressler & Merlini Barbaresi 1994), i.e. outside the realm of morphological grammar (see also Ronneberger-Sibold 2010). The distinction between grammatical and extragrammatical processes is claimed to be a strict one, and extragrammatical processes are characterised as failing to observe fundamental principles which are assumed to define morphological grammar. Apart from formal unpredictability (e.g. 'frequent irregularity', Dressler 2000: 4) the most cited characteristics which allegedly differentiate templatic truncatory processes from other morphological processes are (e.g. Dressler 2000: 4):

- Templatic truncation is a conscious process.
- Templatic truncation does not involve a change of meaning.

The second of these two criteria will be discussed in section 3 of this article. The first criterion will not be addressed in detail here. Not only is the criterion itself a much-contested issue in the theoretical literature (see, e.g., Plag 1999: 14 for arguments against the intentionality criterion). It is also empirically problematic, given that the level of consciousness involved in truncation is notoriously hard to assess, and, as a consequence,

there is no empirical study which does this. Note also that the empirical problem pertains not only to truncation, but also to other, concatenative morphological processes (see, e.g., Bauer 2000 for a discussion of potential evidence and related complications, see Plag 1999: 14 for a discussion of the problem of inter-speaker variation). In this section we will therefore concentrate on the criterion of unpredictability.

The main basis for the unpredictability tenet is the observation that, looking at the large number of existing truncations in a particular language, there is variation. This variation pertains to both the structure of outputs of truncation and to anchoring. The crucial question, however, of whether this observed variability is systematic, has received different answers in the literature. Proponents of the unpredictability assumption claim that variation is unsystematic, and, hence, reflects the fact that the structure of truncations is essentially unpredictable. This view has a long history in the descriptive literature. An example is the set of English truncations given in Bauer's (1983) textbook on English word formation, some of which are given in (4).

(4) English clippings, as classified in Bauer (1983)

a. Beginning of the base lexeme retained

mike (< *microphone*)

jumbo (< *jumbo jet*)

binocs (< *binoculars*)

b. Final part of the base lexeme retained

Cong (< *Viet Cong*)

Fro (< *Afro*)

c. Middle of the base lexeme retained

jams (< *pyjamas*)

shrink (< *head-shrinker*)

Assuming that in principle the form of truncations is unpredictable (as explicitly said on p. 233, although it is acknowledged that there exist strong tendencies), Bauer confines himself to showing the variety of possibilities. To this end, he presents a broad classification in terms of different anchoring patterns and provides examples that are suitable to illustrate the scope of variability.

Apart from the descriptive literature, there is also theoretical work that is based on the unpredictability assumption. One pertinent approach is the one proposed in Ronneberger-Sibold (2010), which is set in a functional framework inspired by Natural Morphology. Following the long-standing tradition in the literature of distinguishing between word-formation and word creation (e.g. Lyons 1977: 76ff., 549, van Marle 1985: 43, see also Zwicky & Pullum 1987, who propose a distinction between *plain morphology* and *expressive morphology*), she proposes a typology of creative word-formation techniques which groups truncation with other processes such as acronym formation, sound symbolism, and various alienation techniques. Her classification of techniques into subclasses consistently proceeds on the basis of formal criteria referring to the question how the base word is represented in the derived word. Thus, e.g., truncatory processes ('shortening', in her terminology) where part of the base is represented in the truncated form, are distinguished from alienation, as, e.g., anagram formation in the creation of brand names such as German *Lycra* (< *Acryl*). No distinction is made, however, on the basis of an assessment of the productivity of the relevant processes. Thus, for example, a truncated word such as the English truncated name *Liz* (< *Elisabeth*) is to the same degree classified as a word creation technique as a brand name such as German *Edú scho* (a coffee brand, deriving from the personal name *Eduard Schopf*). Crucially, all these processes are considered to be formally unpredictable, and in that differ from regular word-formation processes, which are in this view characterised by their predictability. Truncatory word creation is characterised by the word creator's principled freedom to create a sound structure that is functionally efficient (Ronneberger-Sibold 2010: 204), geared to the purpose for which the word was created.

The question of how systematic the variation observed in truncation is has, however, received a very different answer in the phonological literature that has sprung from the Prosodic Morphology program. Focussing especially on the size of templates, studies set in Prosodic Morphology show that in many languages there exist truncatory patterns whose

template structure is highly predictable. Variability of such structures is shown to be the result of systematic options that exist in the grammar. For example, vocatives of personal names in Alaskan Yup'ik conform to an iambic template; there is, however, a systematic choice between a disyllabic option and a monosyllabic option. The base name *Ajukasnaq* has, therefore, two different vocative forms: monosyllabic *Aŋ* and disyllabic *Ajuk* (McCarthy & Prince 1986, Weeda 1992, data from Woodbury 1985), where both options fulfill the requirement of realizing a wellformed iamb. Whereas the focus of many studies in this framework is somewhat restricted to only specific aspects of the variability (esp. the size of possible templates, see, e.g. Weeda 1992), the framework has also inspired a growing body of work that looks at determinants of structural variability in truncation patterns from a more comprehensive empirical perspective (see esp. Piñeros 1998, 2000 on Spanish, Lappe 2002, 2005, 2007 on English, Alber 2010 on Italian). Unlike typologies such as Ronneberger-Sibold's, which come from the perspective of word creation and as a consequence include a larger variety of processes (such as trade name formation), such studies are characterised by the attempt to look for systematic patterns within the large group of shortenings that occur in a specific language. This has led to the discovery of patterns that are, structurally, highly regular and, morphologically, highly productive.

Thus, for example, recent research on English truncatory processes (Lappe 2005, 2007) has used as a basis several large, independent corpora of truncated first names and clippings (i.e. truncated non-names) drawn from a genealogical website (truncated names) and dictionaries (clippings). The typology emerging from Lappe's corpus is very different from Ronneberger-Sibold's (2010) typology in that it distinguishes between name truncation and clippings, excluding brand names, and therefore does not treat all types of truncated forms on a par. Crucially, it was found that, once different patterns are distinguished, each pattern turns out to be highly predictable in terms of the structure of its outputs. Thus, for example, simple

truncated words (i.e. those that do not contain a suffix) are overwhelmingly monosyllabic (i.e. > 90% in the corpus). Some truncations, however, may be regularly disyllabic, namely if the base-word starts out in a sequence of an unstressed syllable followed by a stressed syllable (e.g. *celeb* < *celebrity*). This pattern is only found with truncations based on non-names, lending further support to the necessity of distinguishing between different patterns.

Furthermore, it was found that some patterns – but not others – systematically avoid marked phonological structures: For example, the dental fricative [θ] is avoided in name truncation (e.g. *Ma*[t] < *Ma*[θ]*ew*), but not in clipping (e.g. *ma*[θ]*s* < *ma*[θ]*ematics*). This, again, can be taken as evidence that truncated forms of a certain language can be subdivided into several patterns which themselves are regular and predictable. Moreover, segmental effects of this type were found to be highly systematic, whereas segmental changes that are often cited in the literature to support the claim that truncations are formally unpredictable, were shown to be statistically highly marginal in the data. Whereas, for example, [θ] is systematically replaced by [t] in name truncation, the change from [w] in the base *William* to [b] in the truncation *Bill* is not systematic; it occurs only in the truncated name *Bill*, but not, for example, in *Westley*, the truncation for which is *Wes*, not **Bes*. Crucially, also, for every segmental change which is unsystematic there exists an alternative truncated form which does not exhibit the change (compare *Will*, also a possible truncation of *William*). On the basis of these findings, Lappe (2005, 2007) argues that a distinction should be made between regular patterns of truncation which are synchronically productive and produce predictable outputs, and idiosyncratic exceptions, whose origins may be diachronic, but which are, crucially, not representative of the productive pattern.³ If we follow this line of argument, then we note that

³ Although there is disagreement about how to assess productivity empirically, the necessity to distinguish productive and unproductive processes is common ground in the theoretical literature on word-formation. Cf., e.g., Plag 2005, 2006 for discussion.

the examples from Bauer's textbook listed in (4) above, which are meant to illustrate the scope of variability in existing truncations in the language, are not a suitable basis for any conclusions about the regularity or predictability of the process. Note also that the notion of regularity as used in Lappe's study does not exclude systematic variability of output patterns. This is the second issue that must be addressed in a discussion of formal predictability of truncatory processes, to which we now turn.

Whereas it is a matter of debate whether unsystematic variability exists in truncation, scholars generally agree on the existence of systematic variability. Thus, for example, English monosyllabic name truncations may be based either on the initial syllable of the base name (such as *Pat* for *Patricia*) or on the main-stressed syllable (such as *Trish* for *Patricia*). Similarly, coda clusters may be complex under certain well-defined conditions (such as *Alf* for *Alfred*) or simplex (such as *Al* for *Alfred*). Likewise, in Italian disyllabic patterns of truncation exist alongside monosyllabic patterns: Both *Fra* and *France* are, for example, attested truncations of the base name *Francesca* (Alber 2007, 2010, see section 1.2 for discussion). The origin of the systematic variation in truncation is not always clear and has in general not been studied in great detail. For some patterns we find that they differ in their sociolinguistic distribution or their semantics. For the Italian example, for instance, a closer look reveals that the monosyllabic truncation pattern is a new pattern, used mostly by young Northern Italian speakers, while the disyllabic pattern is widespread throughout Italy and known by speakers of all age groups. For other variable phenomena, such as anchoring or cluster variation in English truncations, it appears that the variation exists within the same morphological process. This poses a challenge to some models of word-formation, which assume that productive morphological rules may result in one single possible output form (e.g. Aronoff 1976: 22, Scalise 1984: 137, 1988: 232, Szymanek 1985: 95). However, this view is challenged not only by truncatory patterns. The literature reports systematic variation in output forms also for concatenative processes, whose status of morphological processes is

uncontested (see, e.g., Anttila 1995 on Finnish genitive allomorphy), and which need to be accommodated by morphological theory.

To summarise, once it is acknowledged that a language can display several distinct patterns of truncation and that inside each pattern idiosyncratic exceptions can be isolated such that the productive pattern emerges, we have to conclude that, contra earlier assumptions in some of the literature, there exist predictable patterns of templatic truncation. We will therefore proceed to the classification of truncatory patterns assuming their general predictability.

1.2 A formal classification

In Alber & Arndt-Lappe 2007-2009 and Alber 2010 we isolated 91 truncation patterns, spread over 27 languages. The data regarding these patterns come from the vast literature on truncation of the last decades which comprehends typological overviews such as Weeda 1992 as well as many studies on the patterns attested in single languages. Data based on English, Italian and German come from our own research. Of the patterns we found, 62.5% are two syllables long (or consist of a quantity-sensitive H or LL foot), 28.4% are monosyllabic and 9% are variable in size. We found only one case of a three-syllable truncation morpheme (trissyllabic name truncations in Spanish of the type *análfá* < *analfabéta* 'illiterate', Féliu 2001;⁴ isolated cases of trissyllabic French and Italian truncations are mentioned in Scullen 1997 and Burzio 1994, Montermini 2002, respectively). We conclude therefore that templatic truncation morphemes typically come in three sizes:

⁴ It remains to be determined whether Spanish trissyllabic truncations have to be analyzed as truly trissyllabic or whether they can be analyzed as disyllabic plus a word-marker *-a -* or *-o -*: most of the truncations end in one of these vowels even if they are not present in the base (s. the data presented in Féliu 2001).

(5) Typical size of Truncation Templates

- (i) monosyllabic
- (ii) disyllabic
- (iii) variable in size

We did not find any truncation patterns that are consistently four syllables long or longer.

Italian name truncation displays all three types of truncation patterns, as we can see in the following examples (for details on Italian truncation see Thornton 1996, 2004, Alber 2007, 2010, Halicki 2008, Krämer 2009).

(6) Italian: monosyllabic hypocoristics

Truncation

Fra
Cri
Lu
Ste

Base

Francésca
Cristína
Luísa
Stefánia

(7) Italian: disyllabic hypocoristics

Truncation

Fránce
Vále
Ále
Ándre
Símo
Mánu

Base

Francésca
Valentína, Valentíno
Alessándra, Alessándro
Andréa
Simóna
Manuéla

(8) Italian: Southern Italian vocatives, variable in size

Truncation

Bá
Pá
Vá⁵
Francé
Carmé
Robé
Salvató
Antoné

Base

Bárbara
Páola
Válintin
Francésca
Carméla
Robérto
Salvatóre
Antonélla

Note that the third type of truncation patterns does not vary randomly in size. On the contrary, the size of Southern Italian vocatives is completely predictable, they consist of a string

⁵ *Válintin* is a German name. Its truncation to *Vá* illustrates the productivity of the pattern.

stretching from the first segment of the base to the stressed vowel of the base. Thus, contrary to what is sometimes assumed in the literature, truncation morphemes cannot assume just any form, but are predictable, even when this form varies in size.

With respect to the property of anchoring, we observe in Alber & Arndt-Lappe (2007-2009) that 50.5% of the truncation patterns which we collected preserve the left edge of the base of derivation, 16.5% preserve the stressed syllable of the base, 7.7% anchor to the first and to the stressed syllable, 2.1% preserve the last syllable, 8.8% have other anchor properties⁶ and in 14.3% of cases anchoring is not specified or not derivable from the source. This means that the most frequent anchoring patterns found for templatic truncation are those in which we have left-anchoring or stress-anchoring:

(9) Most frequent Anchoring patterns in Truncation

- (i) Left-anchoring: the leftmost segment of the base of derivation is preserved
- (ii) Stress-anchoring: the main stressed vowel of the base of derivation is preserved

The monosyllabic and the disyllabic truncation patterns of Italian discussed above illustrate the case of left-anchoring. Stress-anchoring is also attested in Italian, again with a disyllabic template (see Alber, 2007, 2010 for details):

(10) Italian: disyllabic stress-anchored truncations

<i>Truncation</i>	<i>Base</i>
Césca	Francésca
Bérto	Robérto
Méni	Doménico
Níba	Anníbale

Anchoring in templatic truncation thus occurs most frequently to prominent positions

⁶ This group contains a mixed bag of cases, mostly anchoring to the first and the last syllable, sometimes preserving also the stressed vowel (e.g. Italian: *Bíce* < *Beatrice*). Since none of these cases was clearly productive we listed them under 'other'.

(Beckman 1998), i.e. the first or the stressed syllable of the base form.

There is a second group of anchoring patterns which, though much less frequent, is attested at least by some productive patterns:

(11) Less frequent, but attested anchoring patterns

(i) Left- and stress-anchoring:

The leftmost segment and the main stressed vowel of the base are preserved

(ii) Right-anchoring:

The rightmost segment of the base is preserved

A productive pattern of double left- and stress-anchoring is illustrated by Southern Italian vocatives above. If we take into consideration the anchoring properties of this pattern we can easily describe its variation in size as being due to the double anchoring to the first and the stressed syllable. Both the first and the stressed syllable have to be preserved and no segments between them can be left out. This leads to a structure which preserves segments from the left edge to the stressed syllable of the base.

Right-anchoring patterns are extremely rare, but in the literature we find at least one clearly productive case of truncation with preservation of the right edge of the base, the pattern of truncation in terms of address and name truncation in Indonesian, if the base ends in a consonant (Cohn 2005; see also Weeda 1992: 80 for cases of right-anchored truncation morphemes in Madurese and Glowicka 2004 for Polish):

(12) Indonesian: right-anchored truncation in terms of address

<i>Truncation</i>	<i>Base</i>	
nak	anak	'child'
pak	bapak	'father'

Indonesian: right-anchored truncation in personal names

Gus	Agus
Lik	Lilik
Son	Glison
Mochtar	Tar

Cohn (2005) argues convincingly that these truncation patterns are indeed right-anchored and not stress-anchored, since they do not preserve the stressed syllable of the base (default stress in Indonesian is on the penultimate syllable). She furthermore observes that the pattern is productive, since it also applies to recent loans (e.g. *Fit* < *Dafid*, *Dor* < *Fjedor*).

In sum we can say that templatic truncation patterns fall into classes which can be characterized by the size of the truncation morpheme (typically mono- or disyllabic, sometimes varying in size if doubly anchored) and by the material of the base word which is preserved (typically the left edge or the stressed syllable of the base, more rarely both the initial and the stressed syllable, very rarely the last syllable).

1.3 Analysis: Truncation in Prosodic Morphology

The interest of phonologists in phenomena such as templatic truncation or reduplication is tied to the more general interest in the interaction between morphology and phonology and the role that templates play in it (for an overview of the history of truncation analyses see Lappe 2007: 5ff.). In fact, both under templatic truncation and templatic reduplication the derived morpheme (the template) is best described as accommodating to some target form which is determined by phonological principles. For instance, Ilokano plurals are formed by means of a reduplicative prefix (McCarthy & Prince 1986 [1996]), which can be described as

The subsequent elaboration of the Prosodic Morphology program in the framework of Optimality Theory allowed scholars to re-interpret the interaction of morphological and prosodic principles as an interaction between phonological and morphological constraints. Whenever phonological constraints outrank morphological constraints ($P \gg M$ ranking) in a grammar this leads to the shaping of morphemes by general phonological principles (McCarthy & Prince 1993a).

In analyses in the framework of Optimality Theory, the size of templates was first modeled with the help of Alignment Constraints or constraints stating the identity of a templatic morpheme with a prosodic unit. For instance, McCarthy & Prince (1993a: 139, see also Downing 2006) propose that the reduplicative plural morpheme in Ilokano (see above), is triggered by a constraint stating $RED = \sigma_{\mu\mu}$, or, alternatively, $RED = \sigma = Ft$, indicating that the reduplicative morpheme must consist of a single bimoraic syllable, which can also be interpreted as a minimal foot. The integration of constraints of this type into the grammar of reduplication is, however, problematic since under certain rankings the grammar predicts languages that resort to a process of backcopying the size of the template (see McCarthy & Prince 1999, Riggle 2006, Gouskova 2007, among others). In other words, we predict languages which in order to satisfy e.g. a constraint like $RED = \sigma$, *and* the constraints requiring maximal preservation of base material in the reduplicant (MAX_{BR} , see below), will truncate the base of affixation down to a single syllable. We predict therefore languages where polysyllabic stems are truncated down to a monosyllabic shape under reduplication (e.g. hypothetical *pusa*, 'cat', *pus-pus* 'cats'). It is unclear whether reduplication patterns of this type exist (see Downing 2000 for claims of a backcopying pattern in Hausa, but Riggle 2006 who questions the relevance of the data; see Caballero 2006 for a clearer case of backcopying in Guarijio).

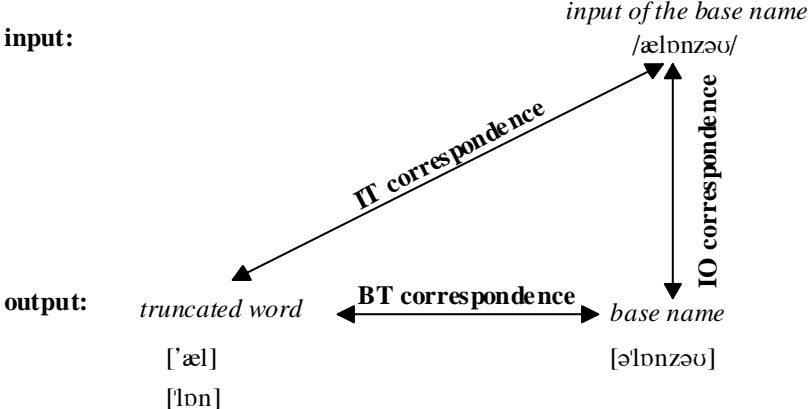
The backcopying problem does not arise in a further theoretical development, 'Generalized Template Theory' (GTT; McCarthy & Prince 1999, with roots in McCarthy &

Prince 1994), which aims to derive templates as arising from universal phonological principles. The analysis of templates in GTT is dependent upon a view of templates as determined by particular correspondence relations between forms (*correspondence theory*, see McCarthy&Prince 1995a), which we will outline briefly, before turning to the GTT analysis of templates proper.

Under the GTT approach it is assumed that there is a correspondence relation between two output forms, i.e. the base of truncation and the truncated form, and that this correspondence relation is regulated by faithfulness constraints such as MAX_{BT}, requiring every element of the base of truncation to be realized in the truncated form (see the diagram in (15) below). In its strongest form, the model sees templates as standing *only* in an output-output correspondence relation between base and truncatum (see Benua 1995, for truncation). This would mean that a truncated form like [ˈpæt] is linked via correspondence to its base form [pəˈtrɪʃə], itself an output form, but not to the putative input form of the base, /pætrɪʃə/. The example *Pat* < *Patricia* shows, however, that the truncatum *Pat* must have access to the input form of *Patricia*, from which it draws its full vowel, which is reduced to schwa in the output form of the base. This means that the truncation form does have access to the input of the base, [ˈpæt] is linked to /pætrɪʃə/. However, truncation cannot be described as deriving the truncation form directly from the input of the base. Evidence for the output-output correspondence relation between truncatum and base are stress-anchored truncations such as *Trish* < *Patricia*. In these cases the truncation morpheme preserves the stressed vowel of the base, a vowel which under general assumptions, is not stressed in the input, but surfaces as stressed only in the output form of the base. This means that truncation morphemes stand in correspondence both with the input and the output of their base form (see Lappe 2007: 53 for detailed discussion). In fact, already the first analyses of templatic truncation or reduplication as a phenomenon of output-output correspondence (McCarthy & Prince 1995b) have shown

that templatic morphemes do entertain a relationship also with the input of their bases and a full model of correspondenc relations has been proposed which for truncation can be represented as follows (Lappe 2007: 53; see Hale, Kissock & Reiss 1998, Silverman 2002 for additional criticism of the output-output correspondence model of template derivation):

(15) Correspondence relations in truncation
 (adapted from McCarthy & Prince 1995: 252)



Most work on truncation adapting output-output correspondence constraints assumes a morpheme based approach of word formation, where the content and shape of an empty TRUNC morpheme is determined by the constraint ranking and the correspondence relations linking TRUNC to its base (Benua 1995). Given, however, that in a GTT approach the structural characteristics of truncated forms emerge from constraint ranking rather than from some structural prespecification of a templatic morpheme, the analysis of truncation is not dependent on the assumption that there is indeed a TRUNC morpheme. It is thus also compatible with word-based approaches to morphology. Word-based approaches to output-output faithfulness have been proposed as well (see Burzio 2002), even though so far they have not been applied explicitly to truncation.

Inside this model of correspondence relations, GTT is able to derive templates from general markedness constraints interacting with correspondence constraints relating input to base and base to truncatum. Building, among other things, on the observation that templatic

morphemes often have an unmarked structure (i.e. they sometimes display a restricted segment inventory or have a more well-formed syllable structure than their bases), GTT approaches analyze the size and shape of the template itself as the result of an 'Emergence of the Unmarked Ranking'. This means that no morpheme-specific constraints such as "the morpheme is two syllables/one syllable long" are employed. It is assumed instead that the size of a template is the result of a set of markedness constraints which are ineffective in the language as a whole but 'emerge' under specific rankings in the truncatum. The basic GTT-ranking generating templatic truncation morphemes can be represented in the following way (McCarthy & Prince 1995a for reduplication; for application of this ranking to truncation s. Benua 1995, 1997, Nelson 1998, Piñeros 2000, Féry 1997, Wiese 2001, Lappe 2003, 2005, 2007, among others):

(16) $MAX_{IO} \gg \text{'size restrictor constraints'} \gg MAX_{BT}$

MAX_{IO} is a faithfulness constraint demanding that as much material as possible is copied from the input (the underlying representation) to the output (IO-correspondence). MAX_{BT} also demands maximal realization of segments, but it is indexed for the correspondence relationship between the Base of truncation and the Truncatum (BT-correspondence). Hence it demands maximal copying of base material to the truncation morpheme. Since the size restrictor constraints are ranked below MAX_{IO} , they cannot trigger truncation in the overall lexicon of the language, but since they are ranked above MAX_{BT} , they will favor truncation down to a templatic form in the truncation morpheme.

Under the GTT-approach to templates, the size restrictor constraints are universal markedness constraints which exist independently from templatic processes. For disyllabic templates, McCarthy & Prince (1994, 1998, 1999) propose a set of metrical constraints which favor the emergence of a single binary foot:

(17) Size restrictor constraints for disyllabic templates: ALL-FT-L, PARSE-S, FT-BIN

We illustrate the generation of the foot template in a GTT approach with an example from Italian disyllabic name truncation (Alber 2010):

(18) Analysis of the disyllabic template

Base: Valentína	MAX _{IO}	ALL-FT-L	PARSE- σ	FT-BIN	MAX _{BT}
☞ a. (Vá.le)					ntina
b. (Vá.len) tí			*!		na
c. (Và.len)(tí)		**!			na
d. (Và.len)(tí.na)		**!			
e. (Vá.len.ti)				*!	na
f. (Vá)				*!	lentina

ALL-FT-L requires all feet to be aligned with the left edge of a word (McCarthy & Prince 1993b). Usually this constraint is employed in analyses of directionality in metrical systems to account for foot-parsing 'from left to right'. ALL-FT-L is used here to explain the restriction of the disyllabic template to a single foot: only a single foot can be perfectly aligned. All candidates which parse more than one foot (c., d.) are excluded. PARSE- σ , a constraint favoring the parsing of all syllables into feet, excludes candidates such as b., which contain a single foot plus some unparsed syllable. The constraint FT-BIN, favoring binary feet, excludes candidates e. and f. which parse a ternary and a monosyllabic foot, respectively. Note that if we assume ternary feet to be excluded for some independent reason, we will not need FT-BIN for the analysis of disyllabic templates any more, since candidate f. is also excluded by MAX_{BT}, which strives to preserve as many segments as possible from the base.

The high ranking of MAX_{IO} makes sure that the size restrictor constraints can show their force only in the truncatum. No truncation of the base is possible, since MAX_{IO} requires realization of all segments of the input in the output, i.e. the base.

Summarising we can say that the GTT approach interprets templates as arising from the interaction between universal markedness constraints and faithfulness constraints which are active between the base and the derived form. The former favor a certain size of morphemes, the latter strive to preserve as much material from the base as possible. When the former dominate the latter, the template emerges as the unmarked form determined by the markedness constraints.

There are several details of the GTT approach worth considering. First of all, the size restrictor constraints ALL-FT-L , $\text{PARSE-}\sigma$, FT-BIN can derive disyllabic templates, but they are not capable of generating monosyllabic templates. As discussed in detail in Lappe (2003, 2005, 2007), a GTT-analysis of monosyllabic English hypocoristics (*Quint* < *Quinton*) can be achieved neither by analysing the truncation morpheme as a minimal word nor with the help of the metrical size restrictor constraints discussed above. The presence of MAX_{BT} will lead to maximal copying, hence preferring disyllabic truncation morphemes over monosyllabic ones. The size restrictor constraints introduced so far cannot choose a (heavy) monosyllable over a disyllable, since both forms can satisfy ALL-FT-L , $\text{PARSE-}\sigma$ and FT-BIN completely. For her analysis of English monosyllabic truncation Lappe (2003, 2005, 2007) uses a constraint of the family COINCIDE-P (P = a prominent position, see Alber 2001, following Beckman 1998, Zoll 1996, 1998) favoring output-driven prominence maximization, specifically, $\text{COINCIDE-}\sigma_{\text{stress}}$:

(19) Size restrictor constraint for monosyllabic templates

$\text{COINCIDE-}\sigma_{\text{stress}}$: Every element of the output is in the main-stressed syllable

COINCIDE- σ_{stress} wants output elements to be concentrated in a prominent position, in this case, the main-stressed syllable, and violation marks are assigned to each segment that lies outside the stressed syllable. The constraint will be completely satisfied only by a monosyllabic structure which consists of the main stressed syllable and nothing else. COINCIDE- σ_{stress} therefore creates, so to speak, structures of pure prominence and nothing else by eliminating weak, non-prominent positions. Monosyllabicity, under this perspective, is interpreted as a means of maximizing prominence, monosyllabic words having the advantage over polysyllabic words that all their segments occupy a prominent position. In what follows we illustrate how monosyllabic hypocoristics like *Pat* < *Patricia* are analyzed in Lappe (2003, 2005, 2007):

(20) Analysis of the monosyllabic template: *Patricia* \rightarrow *Pat*

Base: pə'trɪʃə	MAX _{IO}	COINCIDE- σ_{stress}	MAX _{BT}
☞ a. 'pæt			ɪʃə
b. pə'trɪʃ		p! ə	ə
c. pə'trɪʃə		p!ə ʃə	

Candidate a. is the only candidate where all segments occupy a prominent position, i.e. the only syllable of the derived form, which is necessarily the stressed syllable. All other candidates violate COINCIDE- σ_{stress} to some extent and therefore are evaluated as suboptimal. Note, however, that the constraint MAX_{BT} does exert some influence even though it is lowest ranked: it will favor maximal preservation of segments in the limits determined by the template. Thus monosyllabic templates will preserve as many segments as possible from the base, i.e. as many segments as fit into a single syllable. This explains why *Quinton* is generally truncated to *Quint* rather than *Quin*, in spite of the fact that *Quint* contains an avoidable marked consonant cluster. Note furthermore, that there is an additional candidate which could satisfy completely the size restrictor constraint COINCIDE- σ_{stress} , the candidate

trɪʃ. *Trish* is in fact a possible truncated form of *Patricia*. The difference between *Pat* and *Trish* is that the former is anchored to the first syllable of the base while the second is anchored to the stressed syllable. It will therefore depend on the relative ranking of the constraints responsible for anchoring which of the two forms wins.

Other markedness constraints that have been proposed in the literature for the derivation of the monosyllabic template include ALL-SYLLABLES-LEFT (McCarthy&Prince 1993a, Mester&Padgett 1994, Spaelti 1997), which favors alignment of syllables with the left edge of the word and *STRUC-SYLLABLE (Zoll 1993, 1996; Urbanczyk 1999, 2006, Walker 2000, 2002, Riggle 2006; see also Gouskova 2003 for discussion), which disfavors the realization of syllables in general.

Analyses of templatic truncation as well as of reduplication so far have focussed mostly on modelling the size and shape of the template. They have succeeded in deriving a template which has the form of a syllable or a foot with the help of general markedness constraints and, by establishing a faithfulness relationship between base and templatic form through constraints such as MAX_{BT} they have also been able to explain why templates are often maximally filled with base material.

The third characteristic of templatic truncation, the fact that the derived form anchors to prominent positions of the base, has received much less attention in the literature (with the exception of Nelson 1998, 2003). In the remainder of this section we will discuss possible formal implementations of the concept of 'anchoring'.

In principle, it is possible to think of anchoring as either involving alignment of a designed edge of the base with a designed edge of the truncation morpheme/reduplicant or as being a phenomenon of faithfulness between the base and its derived form. In fact, in the literature on truncation and reduplication, two types of constraints have been employed to model anchoring: ANCHOR constraints (McCarthy & Prince 1995a, 1999) and MAX

constraints targeting prominent positions (in the spirit of Beckman 1998). ANCHOR constraints have been defined by McCarthy & Prince (1995a) as follows:

(21) (RIGHT, LEFT)-ANCHOR (S_1, S_2)

Any element at the designated periphery of S_1 has a correspondent at the designated periphery of S_2 .

Let *Edge* ($X, \{L, R\}$) = the element standing at the *Edge* = L, R of X.

RIGHT-ANCHOR. if $x = \text{Edge}(S_1, R)$ and $y = \text{Edge}(S_2, R)$ then $x \mathfrak{R} y$.

LEFT-ANCHOR. Likewise, *mutatis mutandis*

In truncation, S_1 equals the output form of the base, whereas S_2 is the output form of the truncated word. McCarthy & Prince suggest that ANCHOR constraints are to be interpreted as alignment constraints ('It is clear that ANCHORing should subsume Generalized alignment'. McCarthy & Prince 1995a: 371). However, the way ANCHOR is defined it is effectively a faithfulness constraint calling for the presence of the base-final or base-initial segment in the truncated form (see also Alderete et al. 1999: 344, who explicitly consider ANCHOR_{BR} 'an edge-specific version of MAX_{BR}'; see also Nelson 2003 for a similar conception). However, if anchoring was to be considered a faithfulness phenomenon, it could be modeled by positional faithfulness constraints (Beckman 1998) and would not necessitate a specific constraint format.

If we turn back to consider the truncation data, we see that we have to account primarily for two types of anchoring, anchoring to the left edge of the base (let us call the responsible constraint ANCHOR-LEFT) and anchoring to the stressed syllable of the base (triggered by ANCHOR-STRESS). There are reasons to believe that ANCHOR-LEFT is an alignment constraint while ANCHOR-STRESS is a faithfulness constraint (see Alber & Arndt-Lappe 2007-2009 and Alber, 2010 for detailed discussion). Evidence for interpreting left

anchoring as alignment comes from Czech name truncations. In one pattern of Czech truncations, the first syllable of a vowel-initial base name is skipped for anchoring and the truncation morpheme is anchored to the second syllable, instead. Thus, *Antonin* is shortened to *Tónda*, *Alex* to *Léxa* and *Álois* to *Lójza*. This means that the initial syllable (which, consistently, is also the stressed syllable) is skipped in favor of the second syllable, arguably to avoid an ONSET violation in the truncation morpheme. The second syllable is chosen as the location for anchoring because this is as close as possible (hence as well-aligned as possible) as we can get to anchoring to the left edge of the base. In Russian, a similar pattern is found: there are short names like *Ljóša* for *Aleksěj*, or *Tónja* for *Antonína*, where, similarly to Czech, a vowel initial syllable is skipped for anchoring and the truncation morpheme is anchored to the second syllable. The anchor point stays close to the left edge, i.e. the second syllable of the base, even though this syllable is not stressed. If ANCHOR-LEFT was a faithfulness constraint we would expect that whenever it cannot be satisfied (e.g. due to ONSET), the truncation morpheme will instead anchor to the other prominent position in the base, the stressed syllable. But this is not the case in the Russian pattern described here, hence providing evidence against the interpretation of ANCHOR-LEFT as a faithfulness constraint.

Differently from ANCHOR-LEFT, there are arguments in favor of interpreting ANCHOR-STRESS as a faithfulness constraint. First of all, to our knowledge there are no alignment effects in stress-anchored patterns similar to those observed in Czech and Russian. Second, in all stress-anchored cases of truncation that we have found the stressed vowel is preserved *as a stressed vowel*. Preservation of the stressed vowel of the base as stressed is particularly striking in truncations such as the Southern Italian vocatives presented above, where all truncated forms turn out to bear final stress – a stress pattern which does not conform to the default penultimate stress of Italian. The observation that stress-anchored truncations *preserve* the stress of the base is reminiscent of the phenomenon of stress-preservation under morphological affixation, where a morphologically complex form inherits the location of

stress from a morphologically simpler form (see among others Kenstowicz 1995, Pater 1995, Benua 1997, Alber 1998, Kager 1999, 2000 for OT-analyses of the phenomenon). Thus, there are reasons to believe that ANCHOR-STRESS can be interpreted as a faithfulness constraint, specifically, as faithfulness to the stress of the base form.

With a set of well-defined ANCHOR constraints to be integrated into the general GTT-architecture generating templatic morphemes it would seem that everything is in place to present a successful model of how templatic truncation works. But this is where the real excitement begins. If we assume that we have a set of faithfulness constraints targeting the correspondence relation between base, truncatum and input of the base (MAX_{IO} , MAX_{BT} and MAX_{IT}), a set of size restrictor constraints able to favor monosyllabic and disyllabic templates ($COINCIDE-P$, $ALL-FT-L$, $PARSE-\sigma$, $FT-BIN$) and a set of ANCHOR constraints determining which part of the base is preserved in the truncatum ($ANCHOR-L$, $ANCHOR-STRESS$) we can make very precise predictions as to the typology of templatic truncations that we expect to exist among the world's languages. However, a presentation of the factorial typology of the constraint set responsible for truncation has not been attempted so far in the literature. Here we want to point out just two of many typological predictions of the constraint set outlined above, one welcome and one problematic (see Alber & Arndt-Lappe 2007, 2009 and Alber 2010 for discussion).

The constraint set outlined above makes the prediction that truncation patterns exhibiting double anchoring should exist under a ranking where both anchoring constraints dominate the relevant size restrictor constraints:

(22) Ranking for doubly anchored truncation

$ANCHOR-L, ANCHOR-STRESS \gg$ size restrictor constraints

When both anchor constraints dominate the size restrictor constraints it will be more important to preserve material from the left edge and the stressed syllable of the base than to

create a monosyllabic or a disyllabic template. We will therefore obtain a pattern which is doubly anchored, but still strives to approximate the templatic form favored by the size restrictors. Patterns of this type are exemplified by the Southern Italian vocatives given above, but similar patterns are attested as well for English clippings (*celéb* < *celebrity*, Lappe 2005, 2007) and Dutch hypocoristics (*Patrías* < *Patrícia*, van de Vijver 1997). Doubly anchored patterns of this type are evaluated by anchor constraints and size restrictors as illustrated in the following tableau (from Alber & Arndt-Lappe 2007, 2009, Alber 2010; in this case the size restrictor constraint is assumed to be COINCIDE- σ_1 , a constraint requiring all segments to be in the first – hence, ideally, only – syllable of the truncation morpheme):

(23) Double Anchoring in Southern Italian Vocatives

/Bárbara/	ANCHOR-LEFT	ANCHOR-STRESS	COINCIDE- σ_1
☞ a. Bá			
b. Bár.ba			ba!
/Francésca/			
a. Frá		*!	
☞ b. Fran.cé			sca
c. Fran.cés.ca			cesca!
/Salvatóre/			
a. Sá		*!	
b. Sál.va		*!	va
☞ c. Sal.va.tó			vato
d. Sal.va.tó.re			vatore!

We see that the two anchor constraints exclude all candidates which do not contain the first *and* the stressed syllable of the base. The size restrictor constraint COINCIDE- σ_1 , even though dominated, exerts its force by excluding from preservation any segments that lie beyond the stressed syllable. As a result we obtain a pattern where the truncatum preserves exactly the string from the first segment to the stressed vowel of the base.⁷ This pattern, which varies in

⁷ There are also doubly-anchored cases in which, in contrast to the Italian vocatives, intervening material is not realized in the truncation. An example is a type of Spanish hypocoristics which preserve the word-initial

size according to the stress pattern of the base word, could be considered to be atemplatic in the sense that the output truncatum does not obey a fixed target size. Since it is, however, generated by the same constraints as classical templatic truncation patterns, we consider it to be more appropriate to describe such patterns as a special class of templatic truncation. We see, therefore, that monosyllabic and disyllabic templates, as well as templates varying in size can receive a principled analysis.

A less welcome prediction of the proposed constraint set regards the interaction of the faithfulness constraint MAX_{BT} with the set of ANCHOR constraints. Consider the following ranking, where MAX_{BT} dominates the ANCHOR constraints ANCHOR-LEFT and ANCHOR-STRESS:

(24) Unwelcome predictions of MAX_{BT}

SIZE RESTRICTOR CONSTRAINTS >> MAX_{BT} >> ANCHOR-L, ANCHOR-STRESS

This ranking describes a truncation process, since some size restrictor constraint dominates MAX_{BT} . However, since MAX_{BT} dominates the ANCHOR constraints, preserving as many segments as possible from the base is more important than good anchoring. We will therefore sacrifice good anchoring in order to allow the truncation morpheme to preserve as many segments of the base as possible. The resulting system has some bizarre properties. For concreteness, imagine a hypothetical language with a left-anchored, monosyllabic truncation pattern under such a ranking. The ranking predicts that the truncation morpheme will be

onset and the stress-bearing foot of the base (starting from the main-stressed vowel, *Fínda* < *Florínda*, *Fíco* < *Federíco*, *Féncho* < *Fulgéncio*, *Mína* < *Marína*, Lipski 1995). For patterns as the Southern Italian vocatives a high-ranked CONTIGUITY constraint apparently prohibits word-internal deletion. Note that for the Spanish data, we cannot decide whether the pertinent anchoring constraint is ANCHOR-STRESS or ANCHOR-RIGHT, a constraint requiring anchoring to the right edge of the base (see below). Cf. Piñeros 1998: chpt. 4 for discussion.

formed by cutting out that syllable-sized chunk of the base which contains most segments, as illustrated in the following tableau:

(25) Hypothetical language: anchoring sacrificed to maximize satisfaction of MAX-BT

	COINCIDE-P	MAX-BT	ANCHOR-LEFT	ANCHOR-STRESS
hyp. Base: Car.mé.la				
☞ a. Carm		ela		e
b. Mel		car, a!	car	
hyp. Base: Pe.tro.sil.la				
a. Pet		rosilla!		sil
☞ b. Tros		Pe, illa	pe	sil

In this language, a base like *Carmela* would be shortened to *Carm*, a truncation form preserving four segments of the base vs. the three segments of candidate b., *Mel*. On the other hand, the hypothetical base *Petrosilla* will be shortened to *Tros*, since this form allows to preserve more base material than by cutting out any other syllable-sized chunk of the base name. Thus, the locus of anchoring shifts in this language according to where a maximum of segments can be preserved. We did not find any patterns of this type among the 91 truncation patterns we considered in Alber & Arndt-Lappe (2007-2009) and we doubt whether such a pattern exists among the world's languages.

Problematic predictions like this are only the tip of the iceberg once factorial typologies are explored in depth. Solutions can of course be thought of. For instance, in Alber & Arndt-Lappe (2007, 2009), Alber (2010), we propose to substitute MAX_{BT} with a constraint ANCHOR-RIGHT, the mirror-image of the alignment constraint ANCHOR-LEFT, which does not demand maximal copying of base segments, but maximal stretching of the truncated form to the right, so as to incorporate as much base material as possible. This replacement of MAX_{BT} with ANCHOR-RIGHT changes radically the view of templatic morphology, which is not any more triggered by special correspondence relations instantiated by faithfulness constraints such as MAX-BT but is the result of a special set of alignment constraints aligning a truncated

form with its base, i.e. ANCHOR-LEFT and ANCHOR-RIGHT. It also changes the predictions with respect to the anchoring typology that we expect in templatic truncation and reduplication. Since Nelson (1998, 2003) it has been assumed that anchoring might be restricted exclusively to the left edge and the stressed syllable of bases. The introduction of ANCHOR-RIGHT, on the other hand, predicts the possibility of right-anchoring patterns as well. Though patterns of this type seem to be extremely rare in truncation, we did find one productive right-anchoring pattern, namely Indonesian name truncations, as discussed above (Cohn 2005). Further research will have to show whether a set of constraints modified such as to incorporate ANCHOR-RIGHT will generate the whole typology of truncation patterns as it is attested among the world's languages. It is clear, however, that a set of ANCHORING constraints such as ANCHOR-LEFT, ANCHOR-STRESS and ANCHOR-RIGHT can generate the anchoring patterns found most frequently in our database.

2. Subtractive Truncation: Form and Analysis

In contrast to templatic truncation, subtractive morphology does not involve mapping material of a stem to a prosodic template, but is characterized by deletion of a certain, well-defined portion of the stem. In some sense, templatic truncation and subtractive morphology are mirror images of each other. Under templatic truncation everything that does not fit a certain template is removed and a (more or less) invariant portion of the base, which can be described in prosodic terms, is preserved. Under subtraction, on the contrary, deletion targets a (more or less) invariant portion of the base and the preserved remainder can vary in size. Consider for example two patterns of plural formation in Koasati, a Muskogean language (Martin 1988, Kimball 1983, 1991, Broadwell 1993, Lombardi & McCarthy 1991, Weeda 1992, data as in Horwood 2001). In pattern I, the rime of the final syllable of the stem is deleted in the plural. In pattern II, the coda of the final syllable of the stem is deleted and the preceding vowel undergoes compensatory lengthening. In both patterns the size of the preserved stem material

varies according to the length of the base of derivation while the size of the subtracted material remains constant (segments subjected to subtraction are underlined>):

(26) Pattern I: Koasati plural formation through rime deletion

<i>singular</i>	<i>plural</i>	<i>preserved</i>	<i>deleted</i>	
pitá <u>f</u> -fi-n	pít-li-n	σ	VC	'to slice up the middle'
tiwá <u>p</u> -li-n	tíw-wi-n	σ	VC	'to open s.t.'
simá <u>t</u> -li-n	sím-mi-n	σ	VC	'to cut up tanned skin'
ataká <u>:</u> -li-n	aták-li-n	σσ	VV	'to hang something'
albití <u>:</u> -li-n	albít-li-n	σσ	VV	'to place on top of'
akocofó <u>t</u> -li-n	akocóf-fi-n	σσσ	VC	'to jump down'
iyyakkohó <u>p</u> -ka-n	iyyakkóh-ka-n	σσσ	VC	'to trip'

(27) Pattern II: Koasati plural formation through Coda-deletion

<i>singular</i>	<i>plural</i>	<i>preserved</i>	<i>deleted</i>	
yicó <u>f</u> -ka-n	yicó:-ka-n	σσ	C	'to shrivel'
bikó <u>t</u> -li-n	bikó:-li-n	σσ	C	'to bend s.t. between the hands'
famó <u>t</u> -ka-n	famó:-ka-n	σσ	C	'to wave'
asikó <u>p</u> -li-n	asikó:-li-n	σσσ	C	'to breathe'
akapó <u>s</u> -ka-n	akapó:-ka-n	σσσ	C	'to be pinched'

Morphological phenomena for which a subtractive process has been proposed include Koasati plurals, Alabama, Choctaw, Chicksaw, Mikasuki plurals, the perfective in Tohono O'odham, Danish imperatives, the incomplete phase in Rotuman, Icelandic deverbial action nouns, Lardil nominatives, Tiberian Hebrew imperatives/jussives, Modern Hebrew Imperatives, Hessian plurals, plurals in various Germanic dialects, French masculine adjectives (see Kurisu 2001: 82 and Kosa 2008: 8 for exhaustive overviews of the literature on subtractive patterns).

Subtractive morphology is not wide-spread among the world's languages (Dressler 2000). This and the fact that subtraction poses problems for various theories of morphology (s. below) has lead many linguists to attempting a reanalysis of subtractive phenomena as not involving subtraction in the true sense (see Stonham 1994 for a reanalysis of various subtractive phenomena, Steins 2000 for a reanalysis of the subtractive pattern in Tohono O'odham, Kosa 2008 for an overview of the 'reanalysis' literature). As an example of a

reanalysis of a subtractive phenomenon as not truly subtractive consider the case of Hessian plurals, as analyzed by Golston & Wiese 1995 (see also Holsinger & Houseman 1999, Knaus 2003; see Girnth 2000, 2006, Nübling 2006 for subtractive plurals in various Germanic varieties):

(28)	Hessian plurals		
	<i>singular</i>	<i>plural</i>	
	ha:nɔ̃	hɛn	'hand'
	va:nɔ̃	vɛn	'wall'
	ʃʊk	ʃu:	'shoe'
	forhaŋk	forhɛŋ	'curtain'
	vɛk	vɛ	'way'
	va:ld	vel	'forest'
	berk	ber	'mountain'

Golston & Wiese observe that subtraction is used for the formation of plurals only if a stem ends in /ld, nd, ŋg, Rg/ or a vowel followed by /g/. They conclude that (i) plurals are formed by subtraction only if this does not imply the loss of a distinctive place feature and (ii) that deletion takes place only if the output of subtraction will end in a sonorant. This means that deletion is restricted to homorganic clusters in which the first consonant is a sonorant.⁸ Thus, subtraction is never applied to words such as *brost* (pl.: *brest* 'breast'), since deleting one of the two final coronal segments (**bres*) would not lead to a sonorant-final output. Nor does subtraction ever take place in sonorant final stems, since these stems fulfill the requirement of ending in a sonorant already in the singular and thus form their plural without subtraction (nor

⁸ Golston & Wiese assume that vowels, velar consonants and the liquid /R/ share the place feature DORSAL. They furthermore assume that the *input* of segments constitutes the relevant context of deletion. Thus, *berk* is truncated to *ber*, because, under this assumption, *berk* is derived from underlying /bɛRg/, which contains the relevant deletion context /Rg/. The segments /p, t, k/ are assumed to be specified for the distinctive feature SPREAD GLOTTIS, hence they can never be deleted.

suffixation, e.g. *ran*, sg., *ran*, pl. 'ridge'). Hessian plurals therefore do not involve subtraction in the true sense: it is not important to delete some segment, but it is important to fulfill the requirement to generate a sonorant-final output. The requirement that plurals end in a sonorant is not specific to Hessian, but is true of a large part of the Standard German lexicon (except s-plurals), a fact that backs up Golston & Wiese's analysis.⁹

Subtractive morphology poses serious problems for item-and-arrangement models of morphology and subtractive processes are, among other non-concatenative phenomena, often quoted as evidence for item-and-process models (see the discussion in Anderson 1992). However, also an approach in terms of item-and-process morphology seems to be too unrestricted for the analysis of subtractive morphology since not all types of processes potentially leading to subtraction are attested. Subtraction typically involves the deletion of a final segment or the rime or coda of a syllable (but see Bat-El 2002 for deletion of initial vowels or initial CV-sequences in colloquial Hebrew imperatives). A first attempt to limit the predictive power of approaches to subtractive phenomena are analyses proposing the circumscription and subsequent deletion of (prosodic) constituents, under subtraction. Thus, Martin (1988) proposes to analyze subtraction in Koasati plurals as rime dissociation: the rime of the stem-final syllable is delinked and then deleted under stray erasure. A similar analysis, in terms of prosodic circumscription (McCarthy & Prince 1990), is proposed by Lombardi & McCarthy (1990). Both derivational analyses face the problem that they cannot explain why, crosslinguistically, subtraction never seems to target prosodic constituents larger than a syllable, such as e.g. feet (see also Weeda 1992 for an analysis of several subtractive patterns in terms of circumscription).

⁹ See Knaus (2003) for a refinement of Golston & Wiese's analysis. He proposes a general constraint requiring codas to consist of a sonorant. This constraint dominates a MAX constraint indexed for plurals therefore limiting the process of deletion creating sonorant-final syllables to plurals.

In the framework of Optimality theory, subtractive morphology was first analyzed by means of anti-faithfulness constraints (Alderete 2001a, 2001b, Horwood 2001, Bat-El 2002). The general idea of anti-faithfulness is that in the grammar of natural languages there are anti-faithfulness constraints for every faithfulness constraint that it contains. Thus, e.g. for the faithfulness constraint MAX, which disfavors deletion, there will be a constraint \neg MAX which will *require* deletion. Since anti-faithfulness constraints are accompanied by their corresponding faithfulness constraints, this approach explains elegantly why subtraction seems to be minimal. \neg MAX is satisfied by the deletion of a single segment, deleting more material of the stem will lead to gratuitous violations of MAX which, though dominated, shows its force by keeping subtraction to a minimum.

With respect to the previous derivational approaches, the OT-analyses of subtraction in terms of anti-faithfulness have also the advantage that they can explain why the subtracted material may vary in size. Thus, Bat-El (2002) shows that colloquial Hebrew imperatives are formed by truncating the first vowel of a stem when the first stem syllable is a CV syllable (*tikanēs* > *tkanēs*, 'to enter'). They are formed by truncating an initial CV-sequence, if the first syllable is a CVC syllable (*tiftax* > *ftax*, 'to open'). Deletion of some segment is required by the dominant position of an anti-faithfulness constraint in the grammar, but the type and the size of deleted segments is regulated by syllable-structure constraints such as ONSET (banning deletion of the initial C) and a constraint forbidding triconsonantal C-clusters (forcing CV-deletion when V-deletion alone would result in a CCC-cluster, as in *tiftax* > **tftax*).

Analysing subtractive morphology in terms of anti-faithfulness brings this process into relationship with a larger set of phenomena characterized by morphologically triggered deletion or change of stem material. In fact, under the anti-faithfulness approach, any change of the quality, position or number of stem-segments may be interpreted as an anti-faithfulness effect. Morphologically triggered processes so diverse as Umlaut, metathesis or the deletion of pitch accent in Japanese stems when they are suffixed by certain 'dominant' suffixes

(Alderete 2001a, 2001b) can therefore be treated on a par with subtractive phenomena in the more classical sense.

This inclusion of subtraction in a more general set of stem-changing processes is true also for the theory presented in Kurisu 2001. Kurisu (2001) points out several problems of the anti-faithfulness approach. The most important problem is probably the fact that anti-faithfulness approaches predict that more than one anti-faithfulness effect may take place in a stem when several anti-faithfulness constraints dominate their corresponding faithfulness constraints. Thus, we would expect languages where a morphological category is expressed by simultaneously subtracting segments from the stem, changing the quality of its segments and metathesizing them. No phenomena of this type are known, anti-faithfulness effects are limited in all known cases to a single change in the stem material.

Kurisu (2001) analyzes subtractive phenomena with the help of the constraint REALIZEMORPHEME (RM), requiring underlying morphemes to receive some phonological exponence. When this constraint dominates faithfulness constraints indexed for the relevant morphological category, the result is subtraction. Thus, under the ranking MAX(SG.) >> RM >> MAX(PL.), plural will be expressed through deletion of a segment, violating the lowest-ranked faithfulness constraint MAX(PL.), but satisfying the constraint RM. Under Kurisu's approach, the type of stem-change (deletion, Umlaut, metathesis) is not stated in a constraint, but is decided by the general architecture of the grammar. Whether the anti-faithfulness effect is brought about by deletion, a change in the quality of the stem-vowel or metathesis depends on which of the faithfulness constraints is lowest-ranked in the grammar. The anti-faithfulness effect will take place at the cost of this single lowest-ranked constraint. For this reason, Kurisu's approach does not predict, as did anti-faithfulness, that several anti-faithfulness effects can take place on a single stem. On the other hand, Kurisu's approach runs into difficulties in accounting for cases of double exponence (e.g. German plurals expressed by a suffix plus Umlaut, as in *Gast* - *Gäst-e*, 'guest, guests'), since RM would be satisfied by a

single expression of phonological exponence and the Umlaut therefore appears to be a gratuitous anti-faithfulness effect.

A difficult issue both under the anti-faithfulness and the RM-approach is that of defining the locality of anti-faithfulness-effects: typically, anti-faithfulness effects take place at the right edge of a stem, as e.g. in the subtraction process in Koasati plurals or the case of Japanese deaccenting suffixes (but see Bat-El for a case of initial subtraction). It is not immediately obvious how anti-faithfulness constraints or the RM-constraint can limit anti-faithfulness effects to the right edge and an additional theory of locality restrictions interacting with the anti-faithfulness or the RM-theory is therefore needed (see Alderete 2001a, 2001b, Horwood 2001 for discussion and proposals; see Wolf 2008 for a critical discussion of both the anti-faithfulness and the RM-approach in general).

3. Form and Meaning in Truncation

In contrast to the attention given in the literature to formal aspects of truncation, the relation between form and meaning in truncatory processes remains a largely understudied area. The theoretical discussion has focussed on different issues for subtractive and templatic truncation, respectively.

For subtractive truncation, there is wide agreement in the literature that the documented cases represent an option that is used in the languages of the world to mark morphological (inflectional or derivational) categories. Examples of such categories are plural (Hessian as in Golston & Wiese 1995, Koasati as in Horwood 2002), imperative mood (Hebrew as in Bat-El 2002), and a perfective derivational category (Tohono O'odham, as in Steins 2000). There is, however, disagreement about whether or not the form side of these morphological processes is really adequately described in terms of subtraction. We have summarised the theoretical debate in section 2 of this article.

For templatic truncation, studies set within the Prosodic Morphology program have clearly focussed on formal aspects when defining the object of study for truncation. Studies set in this framework usually cover a broad range of processes, defined by common formal characteristics, but meaning issues are only rarely discussed. In fact, to our knowledge there is no systematic study of the meaning of templatic truncatory processes. The first challenge that such a study would then have to face concerns the question of what type of phenomenon would count as morphological truncation from the meaning side of the process.¹⁰

Morphological studies of word-formation systems in languages, by contrast, have tended to focus on what is commonly considered to be the unmarked case in word-formation: affixation, where addition of form corresponds to addition of meaning. As a consequence, processes of templatic truncation are often grouped with other nonaffixational processes, such as spelling-based initialisms and acronyms, blends, and word manufacture, which are all treated as exceptional, marginal, or decidedly non-morphological cases. An example of such a view is Haspelmath's introductory morphology textbook, where he concedes that

[s]ometimes a number of additional types are given under the heading of morphological operations, such as alphabet-based abbreviations (acronyms such as *NATO*, and alphabetisms such as *CD* [...], clippings (e.g. *fridge* from *refridgerator* [...]) and blends (e.g. *smog* from *smoke* and *fog* [...]). However, while these are clearly operations that can be used to create new words (like morphological operations), they do not fall under morphology, because the resulting new words do not show systematic meaning-sound

¹⁰ In what follows we will use the terms 'meaning' and 'function' interchangeably. For some morphological theories, this distinction is relevant because morphological processes are assumed to manipulate meaning, but not function. Function here is synonymous with communicative function, i.e. a pragmatic category. As we will see, it is not clear for many truncatory processes whether they are best described as realizing a semantic meaning or a pragmatic function. We therefore remain agnostic w.r.t. this distinction.

resemblances of the sort that speakers would recognize. (Haspelmath 2002: 25, see Booij 2005: 21 for a similar view)

As is clear from the quote, the main problem that scholars see in classifying processes of templatic truncation as word-formation processes lies in the mapping of form and meaning. From a theoretical perspective, there are three major issues: (1) the question of whether the meaning of the truncated word is compositional in the sense that meaning is added to the base, (2) the question of what this meaning is, i.e. how it is to be formalised, and (3) the question how this complex meaning is recoverable from the truncated form, given that the truncated form has less phonological content than the base form. Questions (1) and (2) are subject to the additional complication that sometimes truncated words themselves are analysed as bimorphemic. These are truncations which involve fixed segments, usually at their right margin. For example, English has a disyllabic pattern of name truncation where all truncated forms end in *-y* (usually spelled <y> or <ie>). Examples of pertinent forms are *Patty* (< *Patricia*), *Mortie* (< *Mortimer*). *-y* is usually analysed as a suffix, as is, for example, the large number of fixed elements that we find in truncations in other languages (see, e.g., *-a* in Czech *Vlad-a* < *Vladimir* or *-is* in Swedish *alk-is* < *alcoholist*). However, the status of fixed segments occurring in truncation is debated.¹¹

In what follows we will restrict the discussion to questions (1) and (2), and we will draw on examples mainly from English and German, because truncations from these languages have played a large role in the theoretical debate so far. We will first discuss meaning issues independently from the presence or absence of fixed segments. We will then discuss the role of fixed segments in the generation of meaning in truncation.

¹¹ Note that the presence of fixed elements or affixes also raises the question of whether or not the fixed element is part of the template. This is obviously the case for some patterns, whereas for other patterns it is clearly not the case. Other patterns are controversial. For reasons of space, we will not address this issue.

Question (3) will not be addressed, mainly because any answer to this question will very much depend on the general morphological theory that underlies the analysis. Note, however, that the problem addressed in question (3) is by no means specific to templatic truncation – it pertains to subtractive truncation as well as to all kinds of zero morphemes that have been proposed to exist in the literature.

The question that must be addressed even before questions (1) and (2), however, is what kind of processes we will consider here, given that truncatory patterns are put into different classes in the phonological and morphological literature. We will start here from the basic assumption that processes which can be shown to be formally regular in the sense outlined in section 1 of this article are potential candidates for morphological processes. In order to get a broad overview of the functions of such processes we may thus go back to our database of templatic processes which we used in section 1.2 (Alber & Arndt-Lappe 2007-2009). Here we see that the vast majority of cases that are discussed in the literature are patterns of name truncation. Often these patterns are informally described as having a hypocoristic or vocative function. The second type of processes that we find in the database are patterns in which non-names are truncated. Such patterns are often referred to as clippings. Their function is more controversial than that of name truncations (see below for discussion). Apart from clippings and name truncations, there is only one (small) other group of truncations that is represented in our database: These are loanword truncations, which have been documented mainly for Japanese (e.g. Ito 1990, Labrune 2002). In what follows we will focus on name truncation and clipping as the two major processes for which we find discussions of meaning in the literature.

3.1 The meaning added to the base in truncation

Although there is no systematic empirical study of the meaning of patterns of templatic truncation, we do find pertinent proposals for particular truncatory processes spread in publications of various theoretical backgrounds.

Let us start with what we find in the descriptive literature, mainly in grammars, and let us use English as a well-studied example. In the *Cambridge Grammar of the English Language* (Huddleston & Pullum eds. 2002), processes of templatic truncation (which go by the name of *clippings* in the literature) are explicitly included in the realm of English word formation in the section on lexical word-formation (written by Bauer & Huddleston). However, instead of a description of the meaning side of clipping, we find a note on the register of usage:

Clippings often have restricted uses in that they are deployed only in informal style or even constitute slang when they are first coined. Thereafter, however, they may wholly or largely displace the original [...]. (Bauer & Huddleston 2002: 1635)

What is reflected here is the view often found in the literature that the difference between truncated words and their bases lies in usage rather than in meaning (for English this view goes back to Jespersen 1965repr. and Marchand 1960). Thus, it is noted that the usage of truncated words is confined to particular registers of the language. This view is often accompanied by the argument that bases and truncations usually do not differ in terms of referential meaning. Thus, for example, the set of potential referents of the truncated word *mike* is the same as that of the base word *microphone*.

Bauer & Huddleston's (2002) view, however, represents only one perspective that we find in the grammars. Quirk et al. (1985), for example, while acknowledging its affinity to particular registers, assume that the function of clipping goes beyond that:

Especially in informal usage, we tend to show our familiarity with polysyllabic words (especially nouns), by shortening them, often to a single syllable. (Quirk et al. 1985: 1680)

Thus, they interpret clipping as a regular process marking the speaker's familiarity with the referent.

In accordance with the two aspects mentioned in the grammars – register specificity and marking of familiarity – we find the function of truncation discussed in two strands of research: One is the study of particular language registers. Here research is devoted not so much to slang or informal registers, but to other kinds of specialised language. For example, a comprehensive study of truncation patterns in German specialised discourse is found in Steinhauer (2000).¹² In Steinhauer (2000), truncation rates and patterns are shown to vary across different text types in four kinds of specialised discourse: medicine, natural sciences, economics, and sports. The function of truncation is in general interpreted as economising or, in fields outside specialised discourse, as playful (see also Steinhauer 2007: 132f.; see Kreidler 2000's handbook article for a similar view). In general, Steinhauer claims that specialised discourse plays a key role in the formation of truncations, in that many truncations have their origin in specialised discourse and then migrate to other registers. Secondly, she claims that economy is the driving force behind truncation, and explicitly rejects approaches which analyse truncation as some sort of in-group marking device (see Steinhauer 2000: 48ff. for a review and discussion).

¹² Note that Steinhauer's (2000, 2007) work covers more patterns than those that have been called templatic truncation in this article. For example, she also deals with spelling-based abbreviatory processes and blends.

Another strand of research where we find discussion of the function of truncation is theoretical work which is concerned with diminutives. Here we find attempts to formalise what Quirk et al. (1985) have described in their grammar as truncations marking 'familiarity', essentially classifying some types of templatic truncation as diminutives. Pertinent theories of diminutive formation face the general challenge that, for many morphological theories, morphological grammar is decidedly non-pragmatic. In other words, morphological rules or processes manipulate semantic or syntactic features, but not pragmatic features. However, there are recent theories where this view has come under attack.

Two pertinent studies are Dressler & Merlini Barbaresi (1994) and Schneider (2003). Dressler & Merlini Barbaresi (1994) is a general proposal about the status of pragmatic factors in morphological grammar, where diminutive and intensifying morphological processes are used to argue that morphological grammar must be able to refer to pragmatic factors. Their data are exclusively affixing processes, mainly from Italian and German. But they also explicitly cite English *y*-suffixed name truncations as a pertinent example (p. 40).¹³ Unlike *y*-suffixed forms, bare truncations are, however, classified as extragrammatical.

A different view is adopted in Schneider (2003). Schneider's work deals with diminutive formation in English from a pragmatic perspective. He argues that in English both truncation (of personal names and non-names) and affixation (of *-y*, *-kins*, and others) are regular morphological mechanisms used to realize diminutive meaning (see also Poynton 1989 for a typology of diminutives based on personal names in Australian English, which explicitly includes truncated names).

Both Dressler & Merlini Barbaresi (1994) and Schneider (2003) share the view that diminutive meaning cannot be analysed without incorporating pragmatic factors. In what follows we will briefly sketch Schneider's analysis and illustrate it with examples from English name truncation.

¹³ Which they consider to be affixing, see section 3.2 for discussion.

Schneider's (2003: 11ff.) definition of diminutive meaning involves two interacting components, one semantic and one pragmatic:

- a. smallness, which is the prototypical size of the referent, and
- b. 'the fact that the speaker chooses to represent the referent as small for a particular communicative purpose' (Schneider 2003: 12).

What is new about this definition is the second component, which ties the decoding of the meaning of a given diminutive to a specific communicative situation and, more specifically, to the speaker's communicative intention in that situation. Schneider captures these intentions in terms of different speech acts and politeness maxims, and then shows in a corpus-based study how 'different meanings' of diminutives may arise as an effect of the same form being used in different classes of speech act. In addition to the speech act, he shows that also contextual properties of the communicative situation (such as age and gender of the interlocutors) are relevant for the meaning of diminutives.

Truncated names are found to frequently occur in vocative speech acts (i.e. when they are used as terms of address). According to Schneider, diminutives used in vocative speech acts have the function 'to define or negotiate the relationship between a speaker and hearer' (p. 160). The type of relationship often depends on the type of diminutive used, as well as on the identity of speaker and hearer. Here we find a functional difference between different truncatory patterns. Thus, monosyllabic truncated personal names are used in vocative speech acts among speakers of equal social status to 'signal social nearness and an informal communication situation' (p. 145). 'Signal social nearness ...' is the communicative intention here which, in this analysis, provides the motivation for representing the referent as small (see above). *y*-final disyllabic truncated names (or, in Schneider's terminology, {IE} diminutives), by contrast, are prototypically used as terms of address for children or to signal a particularly close relationship.

An example where the different functions of different truncatory processes come out very clearly is the following dialogue, which has been taken from a comical sketch by the British comedians *Monty Python*. The dialogue is set in a TV talkshow, the two interlocutors are the talkshow host and his guest, a famous film director. Diminutive forms are underlined.

(31) *It's the Arts*

- Host: I hope you don't mind if I call you Ted, er, I mean as opposed to Edward?
- Guest: No, no, everyone calls me Ted.
- Host: Well of course it's shorter, isn't it.
- Guest: Yes it is.
- Host: And much less formal!
- Guest: Yes, Ted, Edward or anything!
- Host: Thank you. Um, incidentally, do call me Tom. I don't want you bothering with this 'Thomas' nonsense! Ha ha ha ha! Now where were we? Ah yes. Eddie Baby, when you first started in the...
- Guest: I'm sorry, I'm sorry, but I don't like being called "Eddie Baby".

(Monty Python's Flying Circus, episode 1 (1969): 'It's the Arts')

The extract in (31) is from the initial part of the sketch. The whole piece plays on differences between English terms of address in terms of their communicative effects. At the beginning the guest is introduced as *Sir Edward Ross*. In the subsequent dialogue, we see the talkshow host using the whole kaleidoscope of strategies available in English to signal closeness with the addressee. He does this in a stepwise fashion, first using the full form of the first name (*Edward*), then the simple truncated form *Ted*, then the *y*-suffixed form *Eddy* (already accompanied by the epithet *Baby*), and then nicknames like *sweetie*, *sugar plum*, *Pussycat*, etc. The guest's reaction reflects the decreasing appropriateness of the terms used. The turning

point from an acceptable to an unacceptable term of address is exactly when the host suggests the *y*-suffixed form instead of the simple truncated form in the extract in (31).¹⁴ The host's reaction thus exactly mirrors Schneider's predictions: Simple truncated forms, *Ted* and *Tom*, signal social nearness among equals and are acceptable in the situational context of a TV interview, where interlocutors may want to appear close and informal. Note, however, that the extract also clearly shows that this acceptability must be negotiated. Specifically, the bare truncated name serves a different function from the full first name (*Edward, Thomas*). This is reflected by the fact that the host explicitly offers and negotiates the truncated form as a term of address, which is obviously deemed expected and appropriate by the guest.

According to Schneider's analysis, the function of diminutives in non-vocative speech acts may be different from that in vocative speech acts. Specifically, when referring to bystanders of the conversation or people which are not present, then diminutives may adopt a depreciative function. The speaker's motivation to represent the referent as small thus serves the communicative function 'to belittle the respective referent' (p. 229). This effect can be seen in the following example, which has been taken from the novel *Harry Potter and the Goblet of Fire* by J.K. Rowling (2000). The excerpt reports a dialogue between two adolescent characters, Ron and Hermione. They are old friends, and in the given extract they talk about a new acquaintance, Viktor, who Ron assumes has become Hermione's boyfriend.

(32) *Vicky*

'It's hot, isn't it?', said Hermione [...]. 'Viktor's just gone to get some drinks.' Ron gave her a withering look. 'Viktor?' he said. 'Hasn't he asked you to call him Vicky yet?'

Hermione looked at him in surprise. 'What's up with you?' she said. [...]

¹⁴ Note that in (31) it is in fact unclear whether the inappropriateness of *Eddie Baby* comes from the *i*-suffixed truncation or the epithet *Baby*. Following Schneider's analysis, however, we confidently assume that the use of the *i*-suffixed form alone would have been similarly inappropriate, even if less drastically so.

'You – you're – ' Ron was obviously casting around for words strong enough to describe Hermione's crime, '*fraternising with the enemy*, that's what you are doing.'

(Rowling, J.K. (2000), *Harry Potter and the Goblet of Fire*, p. 366f.; emphasis in the original)

As is clear from the context, Ron does not approve of the alleged relationship between Hermione and Viktor. What is interesting here is the use of the *y*-suffixed truncated name *Vicky*. Ron suggests that, given that Viktor has presumably become Hermione's boyfriend, it would be appropriate for Hermione to use *Vicky* as a term of address. In terms of Schneider's analysis sketched above, this would then signal a particularly close relation. Crucially, however, that is not the effect of *Vicky* in the given dialogue, where Ron uses the *y*-suffixed form in a non-vocative speech act, to refer to someone who is not present. The effect now is depreciative, as predicted by Schneider.

Taken together, the findings from Schneider's study as well as our two examples discussed above suggest two things: First of all, name truncation in English serves a predictable communicative function which is more than a mere marking of register. This is true for both 'bare' truncation and truncation involving fixed segments. Secondly, there seems to be a clear division of labour between different patterns of name truncation. Bare truncations and *y*-suffixed truncations are not mutually interchangeable.

However, the analysis also raises questions that have not received a satisfactory answer in previous research. Thus, whereas Schneider's analysis works well for English name truncation, it is not quite clear how well it captures truncation of non-names. Schneider assumes that his analysis also extends to truncated non-names, and we find two groups of pertinent examples discussed in his study. One group comprises truncations that are used mainly as terms of address, in vocative speech acts, and whose behaviour in non-vocative speech acts is similar to that of truncated names. Most of these are *y*-suffixed, but we also find

bare truncations here (compare, e.g., *hubby* < *husband*, *bro* < *brother*). The second group comprises a small group of bare truncated words referring to time spans, such as *mo* (< *moment*) and *sec* (< *second*). Schneider finds that these truncations are mainly used in directive speech acts which request for patience. In requests such as *Hang on a mo!* and *Just a sec!* their diminutive meaning is again obvious in that they realize a politeness strategy, minimising the time span by representing it as small, smaller even than is in the semantics of the base forms (Schneider 2003: 174).

By contrast, in his study of *i*-final truncated words in German, Köpcke (2002) argues that only a subgroup of *i*-suffixed truncated forms have hypocoristic or diminutive meaning. German *i*-final truncations formally closely resemble the English *y*-final forms discussed above. Köpcke claims that diminutive meaning is frequent only for name truncations and some non-names (especially those denoting animate and, preferably, human objects), but, crucially, not for all non-names. Whereas, for example, *-i* in *Compi* (< *Computer*) may still signal some sort of affective closeness, it may designate a person associated with property *x* in forms like *Prof*i** (< *professionell*, 'professional', but see Wiese 2001 for a different analysis) or even a person who is only metaphorically associated with a thing *x* in derivatives like *Gruf*i** (< *Gruft*, '(burial) vault', designating an old person or a member of the gothic scene; see Köpcke 2002 for an analysis which interprets *-i* as a person marker, see Wiese 2001 for counterexamples). A more radical view is found, for example, in Dressler (2000), who argues, for English bare truncations, that '[a]ll abbreviations, e.g., acronyms (*Grand Old Party* > *GOP*) or clippings (e.g., *microphone* > *mike*) do not change meaning [...]' (p. 4). Besides denying truncations a diminutive core meaning, Köpcke's and Dressler's proposals also differ fundamentally from Schneider's in that they do not investigate communicative context as relevant for the meaning of truncations.

In sum, we see that the meaning of templatic truncation, especially that of truncated non-names, is an area that clearly calls for more research. The literature is characterised by

conflicting, even outright contradictory proposals. Empirical studies are scarce. We do, however, find promising approaches (esp. in Schneider 2003) which may provide a framework for the analysis of the meaning of such forms, and it is a matter of future research to see whether such approaches can be extended to cover other truncatory patterns as well. For patterns of English name truncation, at least, we have seen that the claim that they do not have a meaning cannot be maintained. Not only do truncatory patterns have a well-defined function; different patterns also have different functions, underlining that there is systematic form-meaning correspondence of the type that is often claimed not to exist among truncatory processes in the morphological literature (see, e.g. the quote from Haspelmath 2002 cited at the beginning of this section).

3.2 The role of fixed segments

One group of templatic truncations that is sometimes attributed a special status in morphological theory comprises truncations that involve fixed segments. In what follows we will mainly discuss two prominent representatives of such fixed segments: English *-y* in disyllabic truncations (usually spelled <y> or <ie>), and German *-i* in disyllabic truncations (usually spelled <i>). Interestingly, although the German and English processes are formally very similar, they are analysed very differently in the relevant literature. We will show that from a comparison, we can learn that both formally and functionally templatic truncation involving fixed segments is not much different from bare truncation. Examples of English *y*-final and German *i*-final truncations are provided in (29). They are all instances of name truncation.¹⁵

¹⁵ Fixed *-y/-i* is of course not restricted to name truncation. Cf. further below for examples of truncated non-names.

- (29) a. English
 Patty < Patricia
 Andy < Andrew
 Vinny < Vincent
 b. German (from Wiese 2001)
 Rudi < Rudolf
 Andi < Andreas
 Gorbi < Gorbatschow

From a morphological perspective, truncations involving fixed segments are different from other truncations in that they may be interpreted as compositional. They can thus be analysed into an affix (i.e. English *-y* or German *-i*, respectively) and a truncated stem.¹⁶ This has important consequences in that it leads some scholars to attribute a different theoretical status to bare truncations and to those involving fixed segments. An extreme case is Dressler & Merlini Barbaresi (1994), who see the dividing line between English grammatical and extragrammatical morphology exactly between bare and suffixed truncation:

Thus hypocoristics such as *Lisa*, *Liz*, *Bet* from *Elisabeth* are excluded from grammar, because they are not formed by a rule in any predictable way. *Lizz-y*, *Bett-y* are included, because they are formed by a rule from *Liz* and *Bet*.
 (Dressler & Merlini Barbaresi 1994: 40)

¹⁶ Note that we use the terms 'affix' and 'stem' as descriptive labels at this point, without theoretical commitment to a morpheme-based theory of morphology. Instead, we merely assume what is common ground in morphological theory: that a morphological process has two aspects, a form and a meaning aspect. As the discussion to follow will show, however, templatic truncation involving fixed segments may lend itself to a process-based account rather than to a strictly morpheme-based account. The reason is that, given that both the truncated stem allomorph and the fixed segment occur only in combination in the language, a morpheme-based account may find it difficult to tease apart the meaning aspect contributed by each morpheme.

In what follows, we will discuss compositionality of form and compositionality of meaning in turn, starting with form.

From a crosslinguistic perspective, the proposal advanced in Dressler & Merlini Barbaresi (1994: 40) for English is highly problematic. Although this is not spelled out explicitly, their analysis apparently requires that the base of suffixation must be an existing monosyllable.¹⁷ For English this claim has received some support from formal analyses of *y*-final disyllables, where scholars have argued that this assumption can explain why some consonant clusters survive intervocalically, whereas others categorically do not. Specifically, it is claimed that consonant clusters may be retained if they are possible word-final clusters in the language (Weeda 1992, McCarthy & Prince 1998: 304; but see Lappe 2007 for a more differentiated view). Hence, for example, *Alfred* may be truncated to *Alfy*, retaining the [lf] sequence, but not to **Alfry*. [lf], then, is independently attested in the monosyllabic truncation *Alf*, supporting Dressler & Merlini Barbaresi's account of *y*-suffixation as attaching to free monosyllabic bases.

For German *i*-final truncations, however, an analogous analysis is not that straightforward. Unlike in English, in German the base of *i*-suffixation does not exist as a free form. Still, patterns of intervocalic consonant retention in German *i*-final disyllables closely resemble those in English. Hence, for example, the truncation of the name *Wilfried* is *Wilfi*, not **Wilfri*, even though **Wilf* is, arguably, not a possible monosyllabic truncation. Pertinent structural analyses have proposed that the base of *i*-suffixation in German is a potential, not a real existing monosyllable (Ito & Mester 1997, Alber 2007).

¹⁷ Alternatively, it could theoretically also mean that the rule of *-y* suffixation referred to in the quote involves stem truncation in the sense used in classical morphological theory (Aronoff 1976). It is, however, difficult to see how such an approach would be compatible with their general view that templatic truncation of this type is extragrammatical.

However, there are also truncatory processes in which fixed segments are fully integrated phonotactically in the truncated form, such that the base cannot be a free form in the language, neither real nor potential. Pertinent cases are, for example, Italian *i*-final name truncations or English *o*-final disyllables. *o*-final disyllables are productively used in many varieties of English to convey what is usually described as a depreciative function (see Wierzbicka 1987 for a semantic analysis). Examples are provided in (30).

- (30) a. Italian (from Alber 2007)
 Andri < Andrea
 Gabri < Gabriele
 b. English (from Lappe 2007: 156)
 aggro < aggravation
 Presbo < Presbyterian

As the examples show, Italian *i*-final and English *o*-final disyllables are clearly not suffixed monosyllables. If they can be shown to have a predictable meaning, then they provide clear evidence that affixes in truncation do not always attach to free forms as their bases.

Turning to the issue of compositionality of meaning, we see that this issue is closely tied to compositionality of form. Dressler & Merlini Barbaresi (1994) assume, like Schneider (2003, see section 3.1 above for discussion), that English *-y* is a diminutive suffix, and that English *y*-suffixed truncations compositionally derive from their monosyllabic counterparts. For English this is plausible, given that the base of suffixation exists as a free form, and we see a meaning difference between the base and the derived form (i.e. the difference between bare and suffixed truncations that is described in Schneider 2003).

By contrast, in the German *i*-final truncations as well as in the the *i*-final and *o*-final disyllables from Italian and English cited in (30) neither the truncated stem nor the fixed segment occurs outside the truncatory process in the language. Thus, it is clear that the occurrence of the fixed segment as well as the templatic output structure of the derivative function together in marking the morphological category. This has led scholars to treating

truncation processes involving fixed segments as no different from other truncatory processes (see, e.g., Ronneberger-Sibold 1992: 9 for German *i*-final truncations). However, there have also been attempts to describe the meaning of German *-i* as a morphological marker. Here the arguments closely resemble those discussed for English bare and *y*-final truncations discussed in section 3.1 above, with an additional twist. In name truncation, some scholars analyse *-i* as having hypocoristic meaning (Köpcke 2002). In non-names, however, *-i* seems to exhibit a variety of meanings, at least on the surface, and it is a matter of future research to see whether a more pragmatically oriented conceptualisation of diminutive meaning is able to account for this variety (see section 3.1 above). There is, however, also another argument that is often adduced to support the view that *-i* is functionally not a suffix: *-i*, unlike other derivational suffixes in German, does usually not determine gender – the truncated word often inherits gender from its base (e.g. *Computer* > *Compi* 'computer, masculine'; see Köpcke 2002 for a discussion of gender in German *-i* formations). Similarly to other derivational suffixes it does, however, determine the allomorph of the PLURAL suffix (see Wiese 2001 for discussion).

In sum, we have seen in this section that templatic truncations involving fixed segments do in principle not deserve a special status among truncatory processes. Both bare truncations and truncations involving fixed segments can be analysed as diminutives. Crucially, however, in none of the patterns discussed here can diminutive function be assigned to the alleged affix alone. Both templatic size restrictions on the structure of the derivative and the presence of the fixed segment seem to be important to convey the diminutive meaning. Moreover, we need to assume that there are languages where the alleged affix not only subcategorises for but crucially triggers the creation of a templatic output structure, as e.g. in German *i*-truncations where the base of affixation is not a possible bare truncation. Note, however, that this does not mean that the fixed segment cannot be analysed as an affix.

4. Conclusion

In this article we have discussed morphological truncation. Morphological truncation falls into two classes, templatic and subtractive, respectively. We have proposed a definition of truncation which crucially assumes (a) that outputs of both templatic and subtractive truncation are structurally predictable, and (b) that a morphological category is realized through truncation. The focus of the paper was on (a). Structural predictability was discussed for templatic and subtractive truncation in two separate sections. For templatic truncation it was argued that the unpredictability view is untenable. On the basis of an extensive survey of patterns documented in the literature, we proposed a formal classification and optimality-theoretic analysis. For subtractive truncation, it was shown that many patterns claimed to be subtractive have been reanalysed as not involving systematic subtraction of a fixed portion of the base. The remaining cases of 'real' subtraction have been analysed in the OT-literature either as anti-faithfulness-effects with respect to the base of subtraction or as a particular way of satisfying a *REALIZE MORPHEME* constraint through deletion.

Finally, in section 3 we discussed the assumption that truncation must realize a morphological category. Because this assumption is uncontroversial for subtractive processes, the discussion in this article focussed on templatic truncation. Here we saw that an assessment of the morphological status of truncation is made difficult by two things, one empirical and one theoretical: Empirically, not much is known about the function of truncated forms in discourse. In the pertinent literature we find conflicting proposals. However, we also saw that recent research in the meaning of diminutives provides a framework which may enable us to formalise the function of the major truncatory patterns that exist in language. This is especially true for name truncation, which is not only highly frequent in the languages of the world, but also seems to regularly derive diminutives which are employed for predictable

communicative purposes. Theoretically, then, the question of whether or not such patterns of truncation are morphological processes is reduced to the question of whether or not a given morphological theory allows morphology to make reference to pragmatic function. This same question, however, has to be answered not only with respect to truncatory morphology, but also to account for other, affixational patterns of diminutive formation.

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