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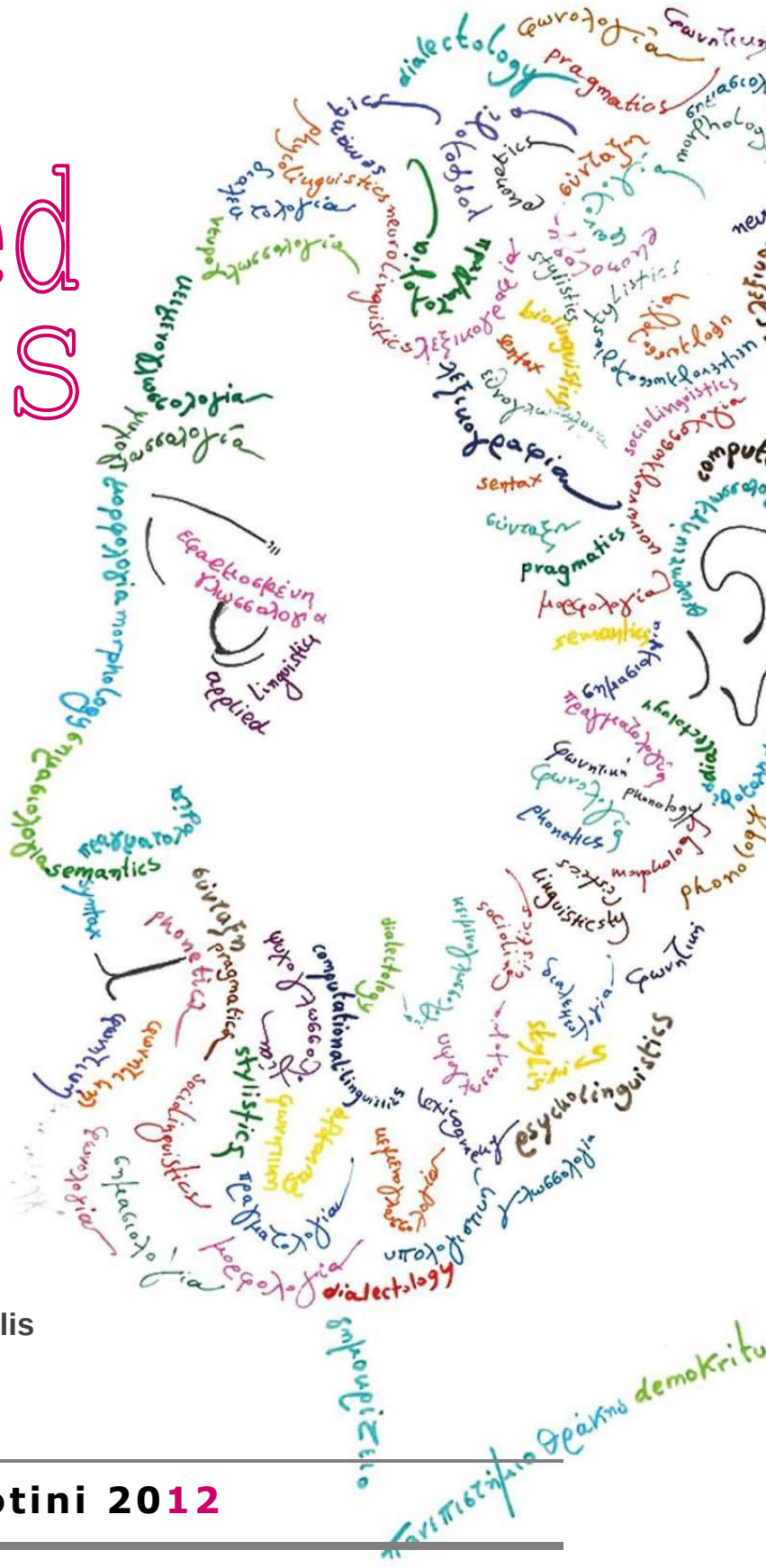
selected papers of the 10th International Conference of Greek Linguistics



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Komotini 2012

ISBN 978-960-99486-7-8

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WORD DERIVATION IN CHILD SPEECH: EVIDENCE FROM PRESCHOOLERS

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ABSTRACT

The goal of this paper is to assess word derivation, more specifically diminutive and augmentative formation, in the speech of preschool native s ross-linguistic studies as well as studies on Greek diminutivization have exempted the role of morphology in word formation. Here, using a picture naming task we show that, on the one hand, certain phonological aspects of Greek, such as stress, word position and syllable structure, and, on the other hand, external factors such as frequency rates are involved in word formation processes. Our findings underline the fact that apart from morphological variables, additional language-internal and language-external variables need to be considered in word formation learning and teaching.

1. Introduction

Word formation is a very productive process which is active during language development. Most importantly, it reveals the capacity of the acquirers of a language to master their mother language's vocabulary and, eventually, the morphophonological characteristics of the latter (cf. Werker et al. 2002). In general, in Greek and cross-linguistically, derivation is defined as a word formation process which usually takes the form of affixation (cf. Ράλλη 2005). Diminutivization applies mostly in the form of suffixation. It primarily expresses affection and is broadly used in child-directed speech (hereafter CDS). Before we turn to the Greek facts and in order to compare cross-linguistic and Greek child data, it is important to present how diminutives are formed in child speech in various languages.

In Russian, diminutivization is a non-regular but frequently attested process. It takes the form of suffixation; the use of suffixes depends on word gender and word phonological shape. Some representative examples are provided in (1) below.

(1a) sestra 'sister',
(1b) sestr**ICHK**a or sestr**JONK**a 'sister-DIM.'

According to Voeykova (1998), the preference for certain suffixes depends on high input frequency; it is only after the age of 1;08 years that 'conscious' use of diminutive forms starts in child speech. However, such claims do not lead to safe conclusions since they come from one child only (Voeykova 1998).

In Lithuanian, diminutivization is the most frequent word formation process. Like in Russian, it takes the form of suffixation and –again – the preference of certain suffixes depends on high input frequency. Savickiene (1998) claims that diminutive vocabulary enrichment is reported – like in Russian –after the age of 1;08 years. The most frequent suffixes seem to be *-elis* and *–ele*, for the masculine and the feminine gender, respectively. This is shown in (2a) and (2b) below.

(2a) sen-**elis** 'grandfather',
(2b) sen-**ele** 'grandmother'

In Finnish, which is an agglutinative language, simple diminutivization is realized by suffixation and stem changing processes. Suffixed diminutivization is illustrated in the data in (3a-b) and stem changing diminutivization is exemplified in (3c-e) (Laalo 1998).

(3a) **-nen** → kala 'fish' - kala**nen** 'little fish'
(3b) tyttö 'girl' - tyttö**nen** 'little girl'

In Z. Gavriilidou, A. Efthymiou, E. Thomadaki & P. Kambakis-Vougiouklis (eds), 2012,
Selected papers of the 10th ICGL, pp. 571-577. Komotini/Greece: Democritus University of Thrace.

(3c) nen**u** ‘little nose’ - derived from nen**ä** ‘nose’
(3d) si**mmu** ‘little eye’ - derived from si**lmä** ‘eye’
(3e) kä**nny** ‘little hand’ - derived from kä**si** ‘hand’

However, diminutivization is not a frequent word formation process in adult speech, although it is a frequent process in child and child-directed speech. The data from one child acquiring Finnish as a mother language report the extensive use of the second type of diminutivization, namely stem changing diminutivization, already by the age of 0;10 years (examples in (3c-e). This preference is explained by the fact that the products of diminutivization are forms which are characterized by their ‘easy’ and simple phonological shape (Laalo 1998), i.e. their simple syllabic and prosodic structure. In Greek, for example, diminutive suffixes are usually composed by simple syllabic structures lacking complex onsets and codas and are characterized by the unmarked prosodic patterns, i.e. they are disyllabic. This is the case with the diminutive suffixes *–aci* or *–ula*.

Hebrew diminutivization is realized through two fundamental processes; suffixation and reduplication which are both productive and frequently attested. Representative examples are provided in (4a) and (4b), respectively.

(4a) kos ‘glass’, kos**it** ‘wineglass’
(4b) kaxol ‘blue’, **kxalxal** ‘light blue’

Data come from eight children (age range: 1;02-5;06) and from this point of view we can make some general assumptions based on them. More specifically, diminutive forms emerge rather late in child Hebrew, i.e. after the age of two. Hebrew children do not make use of adult forms and prefer to produce diminutives of the ***-i*** pattern (cf. Ravid 1998).

In Italian, data from one child varying in age between 1;04-3;09 display that diminutivization takes place through suffixation and infixation. Recursivity is quite frequently and early attested in child speech, as shown in (5a) (De Marco 1998). According to De Marco (1998) semantic acquisition in Italian occurs only after augmentatives also emerge.

(5) albergh-**ett**-**uccio** ‘hotel-dim-dim’

The remainder of the paper is organized as follows: in section 2 we discuss the literature on diminutive formation in Greek, while section 3 presents the methodology followed for the design and realization of our experimental task. Section 4 presents and discusses the results while section 5 concludes the paper.

2. Diminutive formation in Greek

The central aim of this paper is to investigate word derivation in the speech of Greek preschool children with typical language development. Therefore, the focus is placed, on the one hand, on the mechanisms which drive the activation of word formation processes in acquisition and, on the other hand, on whether these mechanisms are only morphological in nature or whether word formation is driven by extra-morphological, i.e. phonological principles, such as stress placement, word position, and syllabic structure complexity.

Given the existing literature on Greek, diminutives appear around the age of 2;0 in the speech of native speakers of Greek (Stephany 1995). Diminutivization seems to be determined by transparency of meaning, transparency of morphology, and productivity (Dalalakis 1996). In other words, diminutive forms have specific meaning, and, as a result, specific anaphora, and they are easy to decompose since they are morphologically simple and transparent. This is in accordance with the ideas developed in Dalalakis et al. (1999) who have reported that complex words take longer to process than simpler ones independent of length. Moreover, morphologically transparent complex words are processed faster than lexicalized complex words. For example the word κουκλ-**άκ**-ι is more transparent than the originally diminutive form σακάκ-ι which is not considered to be a diminutive form anymore; it is rather a lexicalized word. In addition, morphologically licit decomposition is easier than morphologically unmotivated decomposition. This is attested in the cases of κουκλ-**άκ**-ι **vs.** αυγ-**ουλ**-**άκ**-ι.

In addition, Dalalakis (1996) tested nine subjects diagnosed with Developmental Language Impairment (DLI) who varied in age between 5;0 and 16;0 years of age. Dalalakis tested 80 real (62,6%) and 20 novel words (42,4%) on the basis of two tasks, one testing comprehension and one testing production. The results showed that subjects performed better in the comprehension task

(82,2%) as opposed to the production task (75,6%) in real **–aki** diminutives. Both DLI and typically developing controls showed that performance improves with age.

Thomadaki (2007) reported that the **–aki** suffix is the most frequently attested followed by –**ula** and –**itsa**. She further claimed that type frequency rather than token frequency contributes to suffix productivity.[1] In addition, the emergence of new diminutives is related to child vocabulary growth in general.

3. Methodology

The aim of this paper is to investigate the productivity of word formation processes at the level of both diminutive and augmentative forms. The tested diminutive and augmentative suffixes are provided in (6) and (7), respectively, and are drawn from the suffixes corpus of Ράλλη (2005). The reasons we have opted for these specific suffixes are that, first, following Thomadaki (2007) these diminutive suffixes are the most frequently attested in the data and, second, both the tested diminutive and augmentative suffixes have equivalent phonological structures. More specifically, diminutive and augmentative suffixes are mostly disyllabic (with simple syllabic structures). In this template, the first syllable of diminutive suffixes is stressed.

άκι, -ούδι, -ίτσα,
- ούλης/ -ούλα/ ούλι

(7) - αρος/ -αρα
- ακλας/ -ακλα
- ος/ -α

Our participants have been 20 monolingual Greek-speaking preschoolers with typical language development, 11 girls and nine boys, whose age ranges between 4-6 years. Our tool has been a picture naming task consisting of 20 pictures. Subjects were asked to derive 20 nominal words with literal meaning from already existing nominal forms. The data were collected through free interaction with the children in true class settings. The task directed our subjects to produce diminutive, augmentative and compound forms; however, the former was designed in such a way so as to avoid any bias regarding the use of specific diminutive and/ or augmentative suffixes. The data were recorded and orthographically transcribed.

Our working hypotheses are summed up in the following; first, derived forms are more frequently attested compared to compound forms given the simpler morphophonological structure of the former. Second, diminutives are preferred to augmentative forms due to input frequency effects in CDS, and, third, certain suffixes are more frequent than others due to phonological principles.

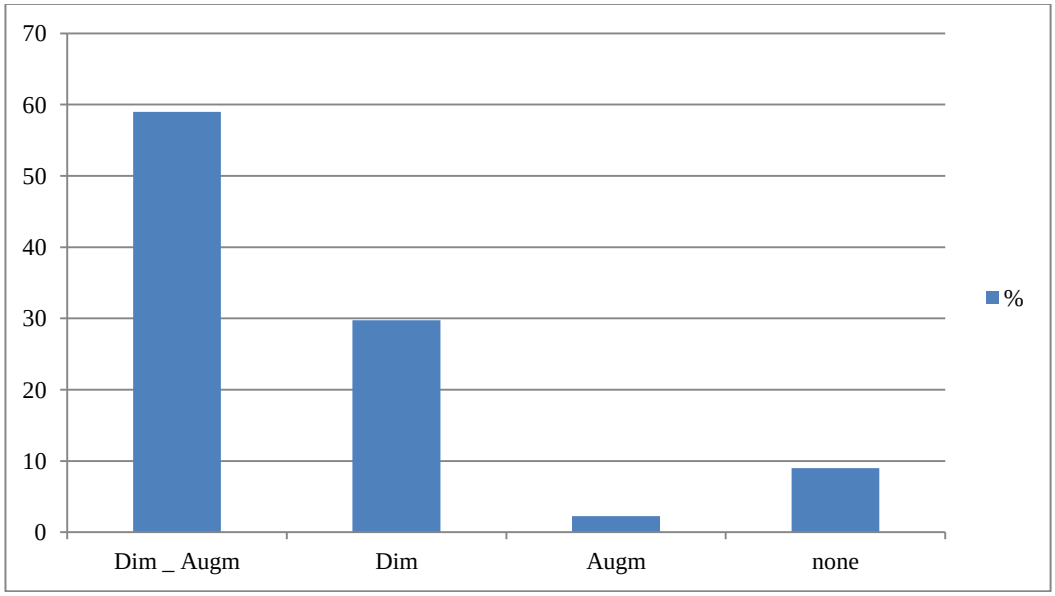
4. Results and discussion

The data massively show that derivation, in general, and diminutivization, in particular, are very productive word formation processes. This observation is in line with the existing literature on Greek child speech. More specifically, d preferred to compounding with a 95% production rate as opposed to a 5% rate. We argue that this behavior is expected given that compounding presupposes semantic knowledge of the constituents of the compound form as well (cf. Tzakosta 2009, 2010, 2011a, b, Tzakosta & Manola in press, Kalligiannaki & Tzakosta under review, Tzakosta & Mamadaki this volume). Previous research has demonstrated that compound forms are more complex in the sense that they are polysyllabic words and undergo stress readjustment (cf. Ralli 2007, Tzakosta 2009, 2010, 2011a, b).

In addition, diminutives are preferred to augmentatives in ~65% of the tested cases. Diminutive preference is further inferred by the fact that ~40% of the augmentative forms are not successfully answered as opposed to 15% of diminutives. Graph 1 presents the rates of emergence of diminutive and

[1] However, Thomadaki (2007) does not make clear why type frequency rather than token frequency contributes to suffix productivity.

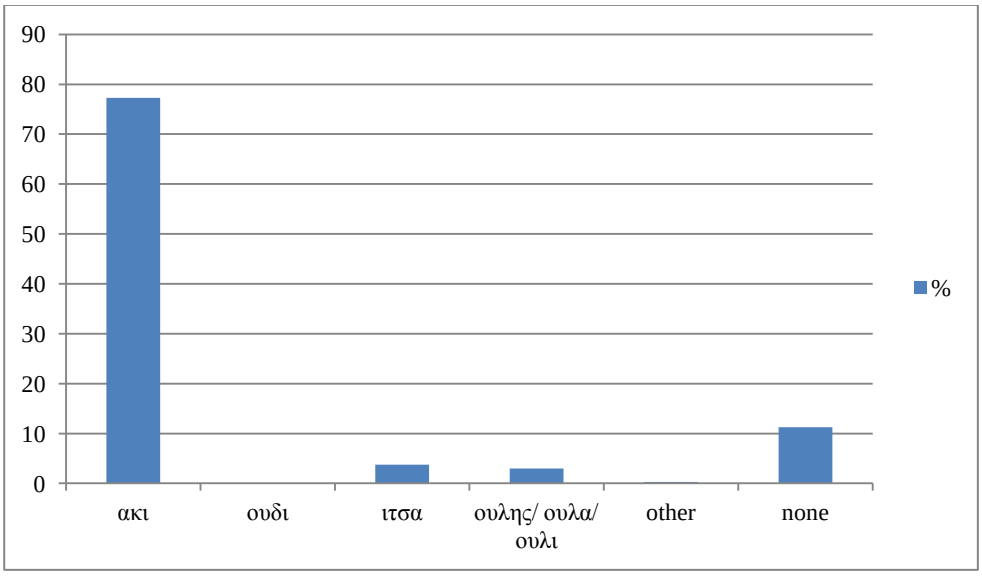
augmentative forms. More specifically, ~60% of the tested forms are used both in their diminutive and augmentative shape. In addition, 30% of the tested forms are used only in their diminutive shape in as opposed to a less than 5% preference for only augmentative forms (see examples in (1)). Almost 10% of the tested forms, a rate which is quite high, do not appear in their diminutive or augmentative form (see representative data in (1b)).



Graph 1 Use of dim & augm suffixes

(1a) varel-**ák**-i 'small barrel-NEUT.NOM.SG.'
(1b) varéli 'barrel- NEUT.NOM.SG.' (S4)
(1c) vivli-**ák**-i 'small book-NEUT.NOM.SG.'
(1d) vivli**ár**-a 'big book-FEM.NOM.SG.' (S5)
(1e) melis-**úl**-a 'small bee-FEM.NOM.SG.'
(1f) mélisa 'bee-FEM.NOM.SG.' (S8)
(1g) krevat-**ák**-i 'small bed-NEUT.NOM.SG.'
(1h) krevát-**a** 'big bed-FEM.NOM.SG.' (S10)

Graph 2 presents the statistical rates of the diminutive suffixes most frequently attested in the data. Our results are in line with Thomadaki (2007). More specifically, -aki is massively produced by preschool native speakers of Greek, followed by all other suffixes which exhibit much lower rates. It is worth mentioning that non-diminutive forms display a 10% rate of emergence.

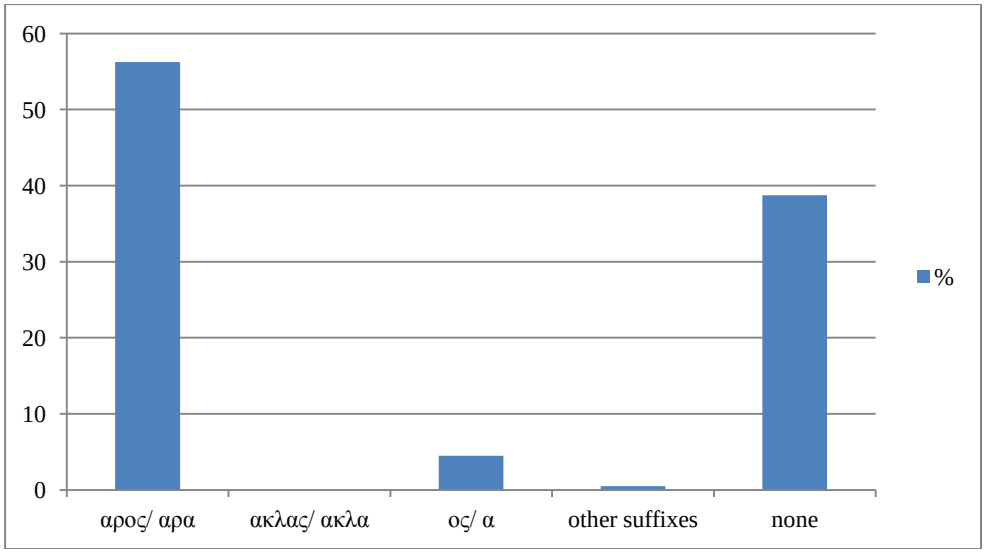


Graph 2 Frequency rates of diminutive suffixes

In addition, there are sparse cases of diminutive recursivity as shown in (2). Though not frequently, attested, such data verify the dynamics of recursivity in word formation.

(2) mil-**ar**-**ak**-**ák**-i ‘small apple-NEUT.NOM.SG.’(S1)

Graph 3, on the other hand, presents the statistical rates of the augmentative suffixes most frequently attested in the data. –αρος/ -αρα is the most frequently attested augmentative suffix. Like in graph 2, the non-augmentative forms exhibit a very high percentage (~40%), much higher than most augmentative suffixes.

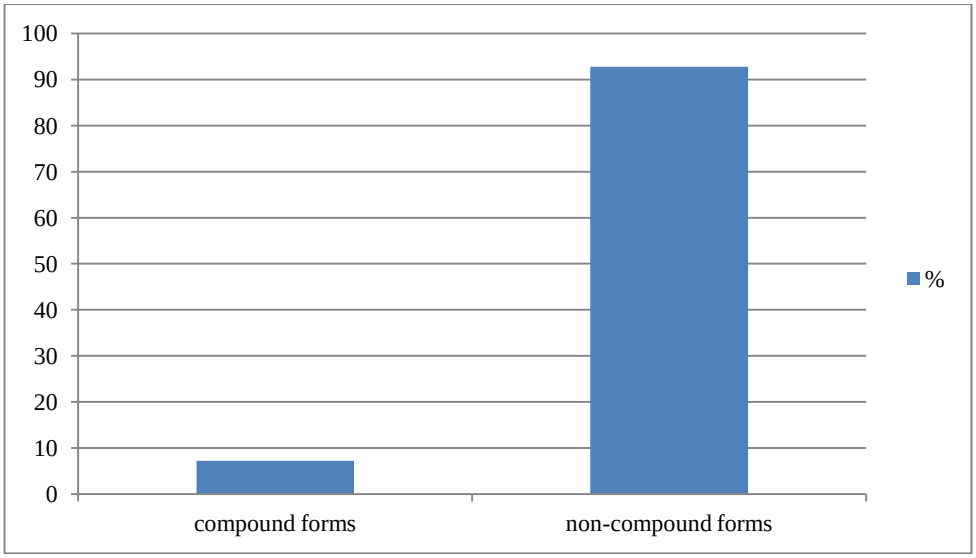


Graph 3 Frequency rates of augmentative suffixes

If we observe the facts depicted in graphs 2 and 3 in combination, we may conclude that the high rates of non-diminutive and non-augmentative forms are due to the fact that, first, word formation is not completed in the speech of preschool children. In addition, augmentative forms are more ‘difficult’ especially because of their low frequency in CDS. For example, we argue that the pnce for the –άκι suffix is attributed to the fact that diminutive production is favored by frequency effects; -άκι displays much more familiarity effects in CDS compared to other diminutive suffixes. Moreover, the target language’s phonology affects production; diminutive suffixes carry word lexical stress as opposed to augmentative suffixes. This is illustrated in (3). Therefore, suffixes which carry lexical stress are firstly acquired and produced. Conversely, suffixes with variable stress patterns are more susceptible to being perceptually ignored.

(3a) péd-aros ‘beautiful boy-MASC.NOM.SG.’
(3b) cefal-áros ‘big headed-MASC.NOM.SG.’

Finally, graph 4 displays the production rates of compound and non-compound forms. It is more than obvious that non-compound forms exhibit much higher rates compared to compound forms. We claim that non-compound forms are preferred because, first, compounding is a 'difficult' word formation process which presupposes acquisition/ knowledge of inflection and derivation. It also presupposes a quite large vocabulary size since a compound lies on the semantic knowledge of compound constituents. Second, the development of word formation knowledge is not a sole morphological phenomenon; it depends on a combination of factors which drive language development, such as frequency rates in CDS as well the acquisition of phonological principles which are activated at each stage of language development. Such phonological principles are word position, stress and syllabic structure complexity.



Graph 4 Production rates of compound and non-compound forms

5. Conclusions and relevant implications

The aim of the present study was, first, to investigate word derivation in the speech of Greek preschool children with typical language development. More specifically, the focus was, on the one hand, on the mechanisms which drive the activation of word formation processes in acquisition and, on the other hand, on the examination of whether these mechanisms are morphological in nature or whether word formation is driven by extra morphological strategies.

Our results revealed that the development of word formation is not a morphological phenomenon only but it depends on a combination of factors which influence language development. Such factors are frequency rates in CDS, vocabulary knowledge and the acquisition of phonological aspects of the language being acquired.

Our working hypotheses have all been verified; more specifically, derived forms are more frequently attested compared to compound forms given the simpler morphophonological structure of the former. In other words, derived forms are massively preferred to compound forms since derived words presuppose the activation of simpler word formation mechanisms. Second, diminutives are preferred to augmentative forms due to input frequency effects in CDS, and, third, certain suffixes are more frequently attested than others due to phonological principles.

Such findings underline the fact that all the above factors need to be seriously taken into consideration in class and whenever language teaching material is designed. We firmly believe that if the order of acquisition of word formation mechanisms is taken into account in language planning, then L1 and L2 teaching will be facilitated and more effective.

In this paper we have tested fundamental but not all of the phonological principles which may be related to word formation. More specifically, we examined frequency effects, stress patterns and syllabic complexity but we have not taken word position into consideration. That would be a priori difficult given that diminutive and augmentative formation takes the form of suffixation which means that right word edges are favored. However, it would be useful to test whether the right edge of the word (suffixation) is more effective than the left edge of the word (prefixation). This is an issue left for future research.

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