Word-formation, cognition and the organization of the mental lexicon

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What is this research about?

We investigate word-formation, i.e. the way people form words in different languages as well as the cognitive principles behind word-formation. We try to answer questions such as, e.g.: **Why is it *lead-er-ship* and not **lead-ship-er*?** In other words, we research the way affixes, or suffixes (pieces of words such as *-er* and *-ship*), order when words are formed. Intriguingly, there are restrictions on affix ordering in all languages in the world (Manova 2015). As typical of Cognitive Linguistics, our research is usage-based and large body of data such as electronic corpora and dictionaries as well as psycholinguistic experiments inform our theoretical claims.

Research on affix ordering

Affix ordering is a major issue in linguistics, there is much research on the topic and many theories (approaches) have been suggested to explain the way affixes combine in different languages, overviews in Manova & Aronoff 2010 and Rice 2011. According to the type of information used in affix ordering, Manova & Aronoff 2010 differentiate eight approaches: 1) phonological, 2) morphological, 3) syntactic, 4) semantic, 5) statistical, 6) psycholinguistic, 7) cognitive, and 8) templatic.

Our cognitive approach

All existing approaches try to answer the question about how affixes order in a word listing all suffixes (SUFF2) that can follow or precede a suffix (SUFF1) together, see table 1.

Table 1: Traditional analysis of the combinability of the English suffix *-ist*

SUFF1	Lexical category of SUFF1	Followed by SUFF2
-ist	N	*-dom, -ic, -y, -ize*

Data from Aronoff & Fuhrhop (2002), based on Oxford English Dictionary, CD

However, it is hard to define a rule that explains the behavior of all SUFF2 suffixes at once. Therefore, our approach distributes the SUFF2 suffixes according to their lexical category, noun (N), adjective (A), verb (V), as illustrated in Table 2. N, A, and V are cognitive concepts (cf. Langacker's 1987 Cognitive Grammar) and based on ***relationality*** (i.e. +/- relational) and ***way of scanning*** (whether summarily scanned, i.e. conceived statistically and holistically, or sequentially scanned, i.e. mentally scanned through time), we define ***things*** (N), ***processes*** (V) and ***modifiers*** (A).

Table 2: A cognitive analysis of the combinability of the English suffix *-ist*

SUFFIX1	Lexical category of SUFFIX1	Followed by SUFFIX2
-ist	N	N: *-dom* A: *-ic* (631), *-y* (5) V: *-ize*

Combinations such as *-ist-dom* and *-ist-ize* (Table 2), with a single option for SUFF2, are ***fixed***. If there is more than one SUFF2 but one of the suffixes dominates (*-ist-ic* derives 631 words and dominates over *-ist-y* that forms only 5 words), we speak of a ***predictable*** combination. In the languages we have investigated so far, Bulgarian, English, Italian, Polish and Russian, all suffix combinations are either fixed or predictable.

Hypotheses

H1: If SUFF1 tends to combine with only one SUFF2 of a major lexical category (N, A, V), SUFF1-SUFF2 combinations are unique pieces of structure and speakers should know them by heart.

H2: If speakers know suffix combinations by heart, existing combinations should be recognized with higher accuracy than non-existing ones.

A psycholinguistic experiment

TASK: Decide as quickly and as accurately as possible if a suffix combination exists.

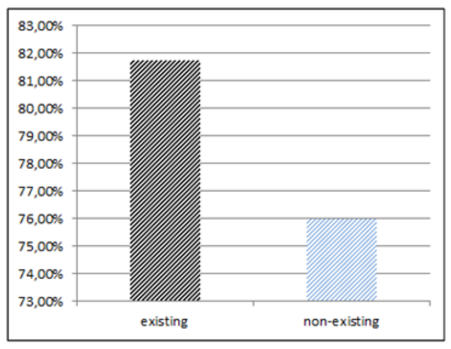
PARTICIPANTS: 64 native speakers of Polish, non-linguists; mean age 23; no history of developmental dyslexia or other reading disabilities.

STIMULI: 60 items, 2 lists each with the combinations of the other in reverse order, i.e. each participant saw all combinations.

- 30 existing suffix combinations from Polish, e.g. *-arnia* as in *kawi-ar-nia* 'café'
- 30 non-existing combinations created by changing the order of legal ones or by manipulating letters, e.g. form the existing *-arnia* → *-niar*.

TIME FOR DECISION: 10 min max. per suffix combination

Results and discussion



Acc. for existing: M=81.72% (SD=0.29)

Acc. for non-existing: M=75.99% (SD=0.22)

$t(63)=2.34$; $p=0.02$

accuracy for existing combinations higher than for non-existing (81.72% vs. 75.99%)

Q: If suffix combinations are represented in the mental lexicon, why is the accuracy of the existing combinations not (close to)100%?

- The accuracy of existing unproductive and infrequent combinations, e.g. *-acz-ostwo* as in *smark-acz-ostwo* 'bratness', is low.

(!) Suffix combinations are most probably stored in the mental lexicon

References

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