Morphology Paradigms

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- In linguistic Morphology ,a paradigms is the set of forms (inflections) that can occur from a single element . For example ,the word “question” can be both noun and a verb.
- Morphological paradigm(example: Walk-walks-walking-walked) are of central interest to both linguistics and natural language processing researcher for connectedness jumps, jumping sharing the text lexeme JUMP.

Morphology Paradigms

- Realizational morphology or "word-and-paradigm" (WP) was a theory first created by linguist, Charles F. Hockett.
- WP morphology focuses on the whole of a word rather than morphemes or internal structure. This theory also denies that morphemes are signs (form-content pairs).
- The theory takes paradigms as a central notion. Instead of stating rules to combine morphemes into word-forms, or to generate word-forms from stems, word-based morphology states generalizations that hold between the forms of inflectional paradigms.

Morphology Paradigms

- Morpheme-based theories analyze such cases by associating a single morpheme with two categories. Item-and-Process theories, on the other hand, often break down in cases like these, because they all too often assume that there will be two separate rules here, one for third person, and the other for plural, but the distinction between them turns out to be artificial.
- Word-and-Paradigm approaches treat these as whole words that are related to each other by analogical rules.

Morphology Paradigms

- Words can be categorized based on the pattern they fit into. This applies both to existing words and to new ones. Application of a pattern different from the one that has been used historically can give rise to a new word, such as *older* replacing *elder* (where *older* follows the normal pattern of adjectival comparatives)
  and *cows* replacing *kine* (where *cows* fits the regular pattern of plural formation

Morphology Paradigms

Under this two category are follows-

- **Stem identification**
- **Paradigmatic similarity**

Stem identification

- The structure within a morphological paradigm, focusing on stem identification.
- The goal is to device general independent strategies for stem extraction applicable for different types of morphology across languages, and goes beyond the common substring-based approaches.
- Stem identification which are sufficiently work with both concatenative and Non Concatenative morphology.

1. **Linearity and Contiguity**
2. **Substrings, multiset and subsequence**

Linearity and Contiguity

- a substring with respect to linearity and contiguity, consider the string “abcde”. “a”,“bc”, and “cde” are its substrings. “ac” is not a possible substring, because “a” and “c” are not contiguous. “ba” is not a substring either, because “a” does not linearly come after “b” in the string “abcde”.

Substrings, multiset and subsequence

	Substrings	Multiset	Subsequence
Linearity	True	False	True
Contiguity	True	False	False

Pragmatic Similarities

- Pragmatic Similarities asks what structure there is across morphological paradigms. Word forms across paradigms do not alternate in the same pattern.
- At the same time, however, morphological patterns are also systematically similar.
- Linguists discuss this in terms of inflection classes, which introduce differences across morphological paradigms

Pragmatic Similarities

- This focuses on the modeling of paradigm similarity and develops a string-based hierarchical clustering algorithm that computationally characterizes the similarity and differences across morphological paradigms.

Inflection classes

- Morphological paradigms often do not inflect in the same way, which leads to inflection classes.
- For example, Spanish verbs are classified into three conjugation groups (commonly referred to as -AR, -ER, and -IR verbs), illustrated in Table 3 for the inflectional suffixes(all person and number combinations) in present indicative.

Inflection classes

Clustering for paradigm similarities

- Paradigm similarity in a way that is amenable to a linguistic analysis and a formal model of paradigm similarity useful for computational tasks related to paradigms.

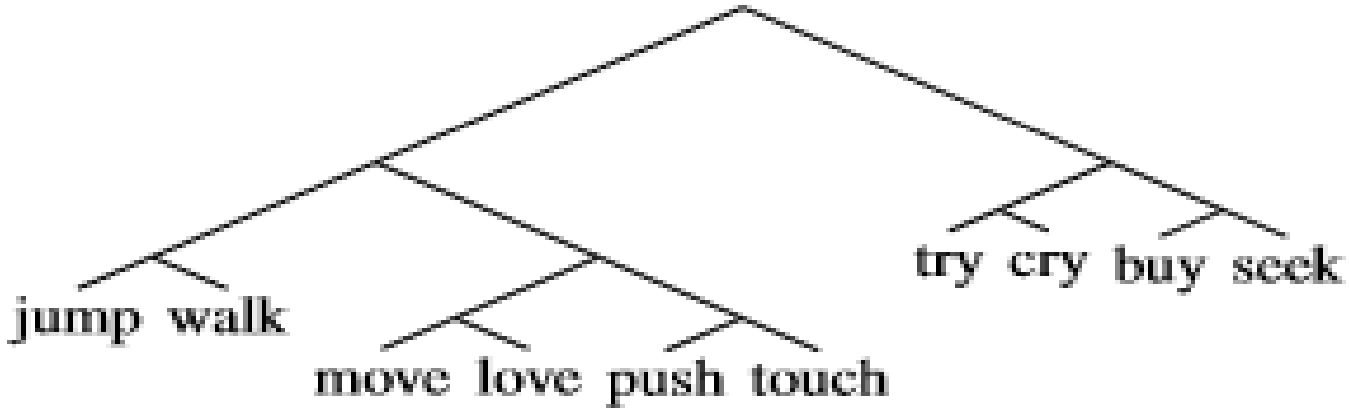

Figure 1: Simplified clustering results for a few English verbal paradigms, each represented by the infinitive form

Thank you