Zero morphemes in paradigms

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This paper sheds a new light on the notion of zero morphemes in inflectional paradigms: on their formal definition (§ 1), on the way of counting them (§ 2–3) and on the way of conceptualizing them at a deeper, mathematical level (§ 4). We define (zero) morphemes in the language of cartesian set products and propose a method of counting them that applies the lexical relations of homophony, polysemy, allomorphy and synonymy to inflectional paradigms (§ 2). In this line, two homophonic or synonymous morphemes are different morphemes, while two polysemous and allomorphic morphemes count as one morpheme (§ 3). In analogy to the number zero in mathematics, zero morphemes can be thought of either as minimal elements in a totally ordered set or as neutral element in a set of opposites (§ 4). Implications for language acquisition are discussed in the conclusion (§ 5).

Keywords: zero morpheme, minimal pair, markedness, paradigm

1. Zero morphemes and paradigms

The number zero in mathematics,[1] the concept of ineffability in philosophy,[2] the state of sunyata in Buddhism,[3] the morpheme zero in linguistics[4] and other null concepts have fascinated scholars since ancient times due to the perceived con-

1. The ancient cultures conceived the number zero independently. The Egyptians introduced a hieroglyph representing the number zero after 1750 BC (Joseph 2011: 86), while the Babylonians indicated the number zero by a space between sexagesimal numerals after 1500 BC (Kaplan 2000: 12). In China, counting rods, which are positional notation systems, were used during the 4th century BC to perform decimal calculations. An empty space represented the number zero (Hodgkin 2005: 85).

2. In philosophy, *ineffability* is an attribute of truths or states of affairs that cannot be expressed by linguistic means (Kukla 2005: 1). The issue of ineffability arises in religious philosophy where it is viewed as a characteristic of mysticism (James 1958), and in the philosophy of mathematics

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