



Morphological nomenclature, between patterns and processes: segments and segmentation as a paradigmatic case*

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Abstract

The words we use for describing biological systems and their transformations through development and evolution can recurrently perform as ‘conceptual traps’, i.e. as representations that limit the possibilities of improving our understanding of the very processes they are called to describe. The main focus of this contribution is on the paradigmatic case of segmentation. Limits and drawbacks of the concept of ‘segment’ are critically discussed. Its value as a descriptive unit does not entitle it as a sensible unit for other uses, as for instance investigating the evolution of the developmental process of segmentation.

Key words: Arthropods, Development, Evo-devo, Evolution, Parasegments, Re-segmentation, Segmental mismatch

Introduction

Developmental biology and evolutionary biology are sciences of change through time. Formulating and testing hypotheses within these two disciplines, or at their interface (the so called evolutionary developmental biology, or evo-devo), needs sound names. Names are essential to describe organism features, both (anatomical) patterns and (physiological) processes, but also to describe the changes of these features along ontogeny and across generations, the two processes that produce developmental and evolutionary patterns, respectively. Thus, although the question of names is not a distinctive aspect of this area of biology, it is nonetheless deeply entangled with scientific investigation and communication.