

THE DISPOSPLACE: BUILDING A COMBINATORIAL PHENOTYPIC MORPHOSPACE USING THE SPATIAL RELATIONSHIPS OF ELEMENTS OF THE PELVIC GIRDLE OF ARCHOSAURIFORMES.

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The pelvic girdle complex of Archosauriformes may be represented by reducing the constituent elements to rod models. These models stand for the relative connectivity and spatial patterns of the ilium, ischium, and pubis. Thus we can identify the spatial orientation of each element using a variable with three different character states; anterior, centered, and posterior. The combination of all the possible character states of these three variables produces a combinatorial, phenotypic morphospace with 27 discrete morphological types which we call the *dispospace of the Archosauriformes pelvic girdle*.

We carried out an exploration of this dispospace and how it is filled by the various monophyletic groups of archosauriform tetrapods through time. This exploration has allowed us to assess the natural pelvic designs in relation to the theoretical ones used to develop the dispospace. We also were able to assess the differential distribution of the morphological designs within each taxonomic group and note which designs were typical of the early development of a taxon and which appeared to fill in later.

The results show that (a) the dispospace is not totally occupied, suggesting the existence of some restrictions in the design of the archosauriform pelvic girdle. We discuss the nature and implications of these apparent design limitations. (b) The most diversified group is the Dinosauria while the least diversified is the Pterosauria. (c) All morphological types appear at the same time during the Lower Jurassic. (d) One of two different types is always found at the origin of each lineage.