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**Understanding dynamic behavior: Parent-Child relations in dynamic geometry environments.**

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The sequential organization of actions necessary to construct a figure in a dynamic geometry environment (DGE) introduces an explicit order of construction. Such sequential organization produces what is, in effect, a hierarchy of dependences, as elements of the construction depend on something created earlier. This hierarchy of dependences is one of the main factors that determine the dynamic behavior (DB) within a DGE, and the order is often explicitly stated by terms such as parent and child. This article is a part of a larger study that examines various instruments developed by users when they use dragging. It addresses one aspect of dragging: the connection between dynamic behavior and the sequential order of construction. Junior high students and graduate students in mathematics education were asked to predict the DB of points that were part of a geometric construction they had executed using a DGE according to a given procedure, and to explain their predictions. The study reveals that while hierarchy in geometric constructions in a DGE is mirrored by the DB, user actions and perceptions of DB indicate that users often grasp a reverse hierarchy in which dragging a child affects its parent. The study reveals four categories of reverse-order predictions, and suggests that these may be caused by terms and knowledge built into paper-and-pencil geometry, which are part of the resources users bring to dragging. Examining various DGEs<sup>1</sup> in detail reveals that in some cases the DB is in fact compatible with the reverse-order predictions. The paper concludes with a brief discussion of some implications for learning activities and software design.

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*Keywords:* artifact; design consideration; dragging; dynamic behavior; dynamic geometry environment; order of a geometric construction; tools; student observation

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