



Timing is everything: Developmental psychopathology from a dynamic systems perspective [☆]

Isabela Granic ^{*}

*Community Health Systems Resource Group, The Hospital for Sick Children, University of Toronto,
555 University Avenue, Toronto, ON, Canada M5G 1X8*

Received 15 August 2005; revised 22 October 2005

Abstract

This article begins by comparing general systems views that have already been appropriated by developmental psychopathologists to the dynamic systems (DS) approach and the advantages of the latter perspective are detailed. It is argued that the DS framework provides a more rigorous set of principles that can be applied to the diverse disciplines and multiple levels of analyses that are so well-represented in developmental psychopathology. The ways in which DS principles can address five overarching goals that have previously been identified for the field of developmental psychopathology are discussed. In addition, the DS approach offers a wide array of methodological tools that can move the field from abstractions to concrete research designs and analytic strategies. Several of the most relevant DS concepts are explained and recent empirical studies that have applied these concepts fruitfully are reviewed.

© 2006 Elsevier Inc. All rights reserved.

Introduction

From the inception of the field, developmental psychopathologists have adopted an organismic, holistic, transactional framework for conceptualizing individual differences in

[☆] I gratefully acknowledge the financial support of Grant 1 R21 MH 67357 from the National Institute of Mental Health and Grant MOP-62930 from the Canadian Institutes of Health Research.

^{*} Fax: +1 416 813 7258.

E-mail address: isabela.granic@sickkids.ca.

normal and atypical development (e.g., Cicchetti, 1993; Cicchetti & Cohen, 1995; Cummings, Davies, & Campbell, 2000; Garnezy & Rutter, 1983; Sameroff, 1983, 1995; Sroufe & Rutter, 1984). These scholars often frame their models in terms of organizational principles and systems language which resonate strongly with dynamic systems (DS) principles in general and principles of self-organization in particular. The systems theories that inform models in developmental psychopathology include: General Systems Theory (Sameroff, 1983, 1995; von Bertalanffy, 1968), Developmental Systems Theory (Ford & Lerner, 1992), the ecological framework (Bronfenbrenner, 1979), contextualism (Dixon & Lerner, 1988), the transactional perspective (Dumas, LaFrenier, & Serketich, 1995), the organizational approach (Cicchetti & Schneider-Rosen, 1986; Garnezy, 1974; Sroufe & Rutter, 1984), the holistic-interactionistic view (Bergman & Magnusson, 1997), and the epigenetic view (Gottlieb, 1991, 1992). As a class of models, these approaches focus on process-level accounts of human behavior and on the context dependence and heterogeneity of developmental phenomena. They are concerned with the equi- and multifinality of development, the hierarchically embedded nature of intrapersonal (e.g., neurochemical activity, cognitive, and emotional processes), interpersonal (e.g., parent–child relationships; peer networks), and higher order social systems (e.g., communities, cultures). They are also fundamentally concerned with the mechanisms that underlie change and novelty (as well as stability) in normal and clinically significant trajectories.

Because of their long-standing familiarity with systems concepts in general, many developmental psychopathologists are already familiar with at least some DS concepts. For the sake of clarity, however, it is important to delineate the DS framework from the systems approaches mentioned previously (Lewis, 2000). Formally, a *dynamical system* is a set of mathematical equations that specify how a system changes over time. The various patterns and processes that emerge from this set of equations rely on a technical language originally developed in the fields of mathematics and physics. The concepts derived from this mathematical framework comprise the principles of DS. Thus, what I refer to as *dynamic systems* principles is a *meta-theoretical* framework that encompasses a set of abstract concepts that have been applied in different disciplines (e.g., physics, chemistry, biology, and psychology) and to various phenomena (e.g., lasers, ant colonies, and brain dynamics) at vastly different scales of analysis (from cells to economic trends and from milliseconds to millenia).

DS principles provide a framework for describing how novel forms emerge and stabilize through a system's own internal feedback activities (Prigogine & Stengers, 1984; von Bertalanffy, 1968). This process is known as *self-organization* and refers to the spontaneously generated (i.e., emergent) order in complex, adaptive systems. I follow other developmentalists (e.g., Fogel & Thelen, 1987; Keating, 1990; Lewis, 1995; Thelen & Smith, 1994; van Geert, 1991) who find that DS concepts—especially notions of self-organization, attractors on a state space, feedback, and phase transitions—carry compelling explanatory power that can help us model the processes that give rise to, and maintain, normative and idiosyncratic developmental pathways.

Distinguishing the DS approach from other systems views

Many DS concepts seem to overlap with systems views that have already been appropriated by developmental psychopathologists. Do we really need the DS approach to be added to this cadre of systems views? I suggest that indeed we do and propose five main distinctions that carry critical implications for theory and methodological development in

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات