

The Structure of Scientific Fields

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Introduction

- ▶ "Form of scientific organization [...] mode of organization" (Collins, 1994, 158-160)
- ▶ "What is distinctive about the social organization of the disciplines that we now take as natural science, and do the social disciplines have (or can they acquire) the conditions that make possible that kind of organization?" (Collins, 1994, 156)
- ▶ What sets apart "**high-consensus rapid-discovery**" from "**low-consensus non-rapid-discovery**" science? (Collins, 1994, 158)

Theory

Attention Space (Collins, 1994)

- ▶ “Dynamics of the Law of Small Numbers, dividing the attention space among factions [...] a struggle for attention” (Collins, 1994, 158-160)
- ▶ “In any period of creative life, there are typically between three and six [...] lineages or schools” (Collins, 1994, 157)
- ▶ “**Law of Small Numbers**, dividing the **attention space** among factions” (Collins, 1994, 158)

H_3 : When the **density of subfields** within a field surpasses six, the field is more likely to experience a tendency towards **consolidation**.

Theory

Moving Frontier (Collins, 1994)

- ▶ "High-consensus rapid-discovery science" (Collins, 1994, 157)
- ▶ "**Fast moving research front**" (Collins, 1994, 158)
- ▶ "**Ready made** science" v. "**Science in the making**" (Latour, 1988)

H_1 : "**Hard**" sciences have a **faster moving "research front"** than "soft" sciences.

Theory

Research Technology (Collins, 1994)

- ▶ What sets apart "**high-consensus rapid-discovery**" from "**low-consensus non-rapid-discovery**" science? (Collins, 1994, 158)
- ▶ Not "empiricism", "measurement precision", "formalization", or the "experimental method" (Collins, 1994, 158)
- ▶ "**Genealogy of research technology**" producing reliable observation (Collins, 1994, 158)

H_{2a} : A change in "research technologies" should change the structure of the "**hard**" sciences, while these changes should be absent altogether in "soft" sciences.

Theory

Social conditions (Collins, 1994)

“Political and economic conditions change [the] **material bases** supporting intellectual life, [they] provoke [the] **realignment of factions**” (Collins, 2000, 165)

H_{2b} : A **change in social or political conditions** should change the structure of the **”soft” sciences**, while these changes should be absent altogether in **”hard” sciences**.

Theory

Scientific Revolutions (Kuhn, 2012)

- ▶ “Political revolutions aim to change political institutions in ways that those institutions themselves prohibit [...] necessitates the partial relinquishment of one set of institutions in favor of another [...] Initially it is crisis [...] that attenuates the role of political institutions [...] and the role of paradigms” (Kuhn, 2012, 93)
- ▶ “Recurrent debates about whether one or another of the contemporary social sciences is really a science [...] will cease to be a source of concern not when a definition is found, but when the groups that now doubt their own status achieve consensus about their past and present accomplishments” (Kuhn, 2012, 161)

H₄: Disciplines generally exhibit **stability**, with occasional episodes of significant **changes**.

Theory

Self-Similarity (Abbott, 2001)

- ▶ “Fractal pattern of division and convergence” (Abbott, 2001)
- ▶ “The quantitative – qualitative distinction repeats itself at each more detailed level even as the difference between positions narrows” (Harty and Shove, 2004)

H_6 : Within the field, subfields arise, exhibiting a replication of the core structure and retaining distinct features of the broader discipline.

References I

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