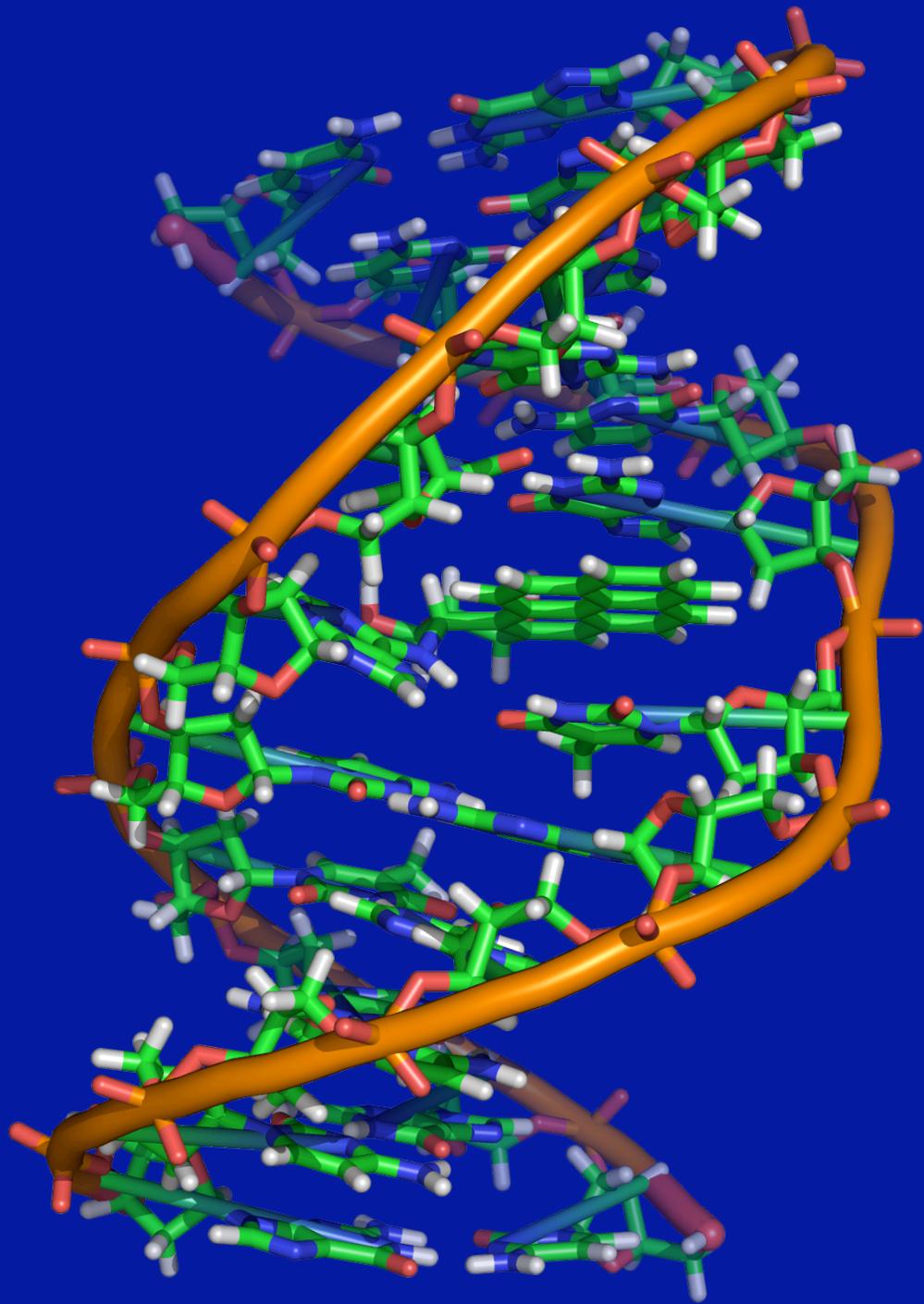


Building the Scholarly Electronic Brain

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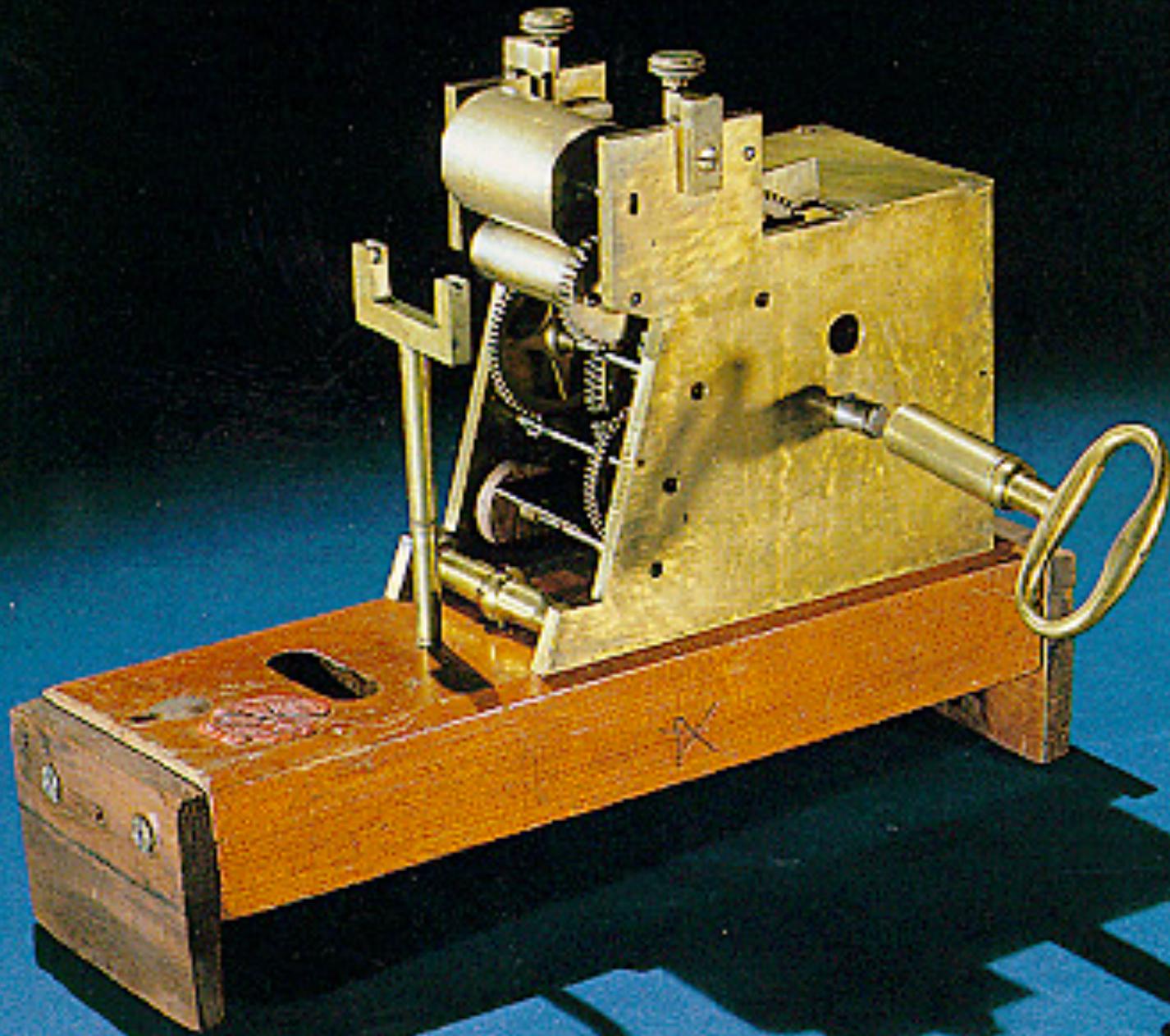




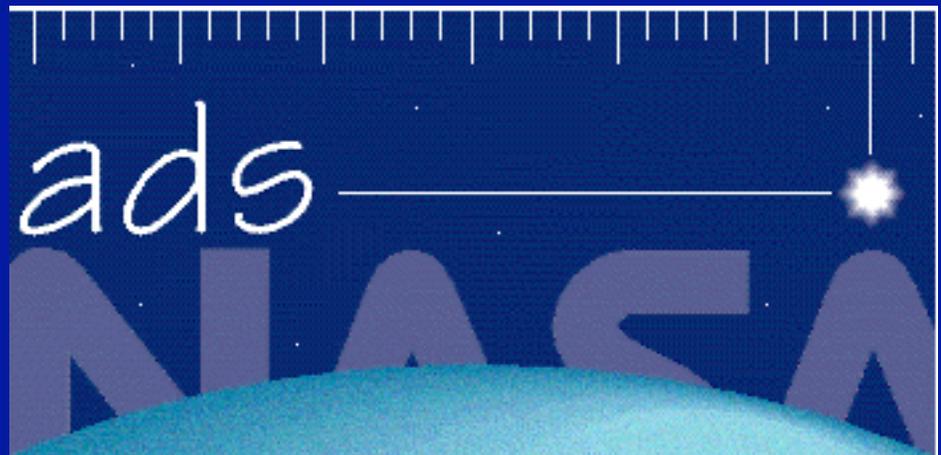
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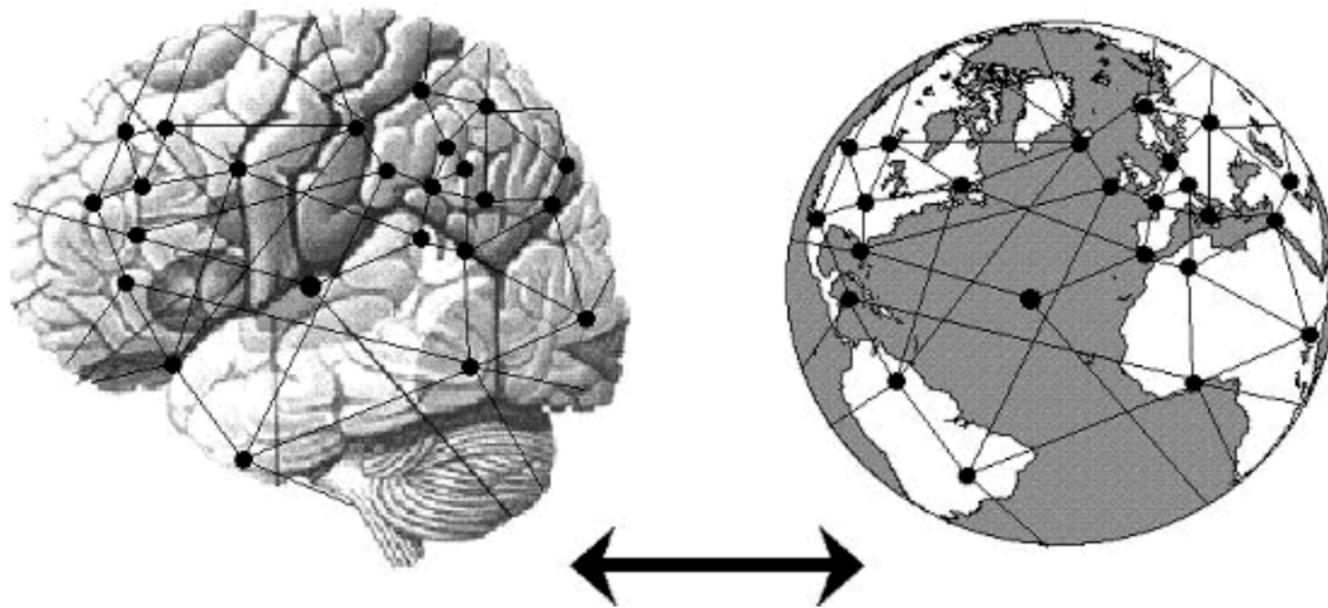
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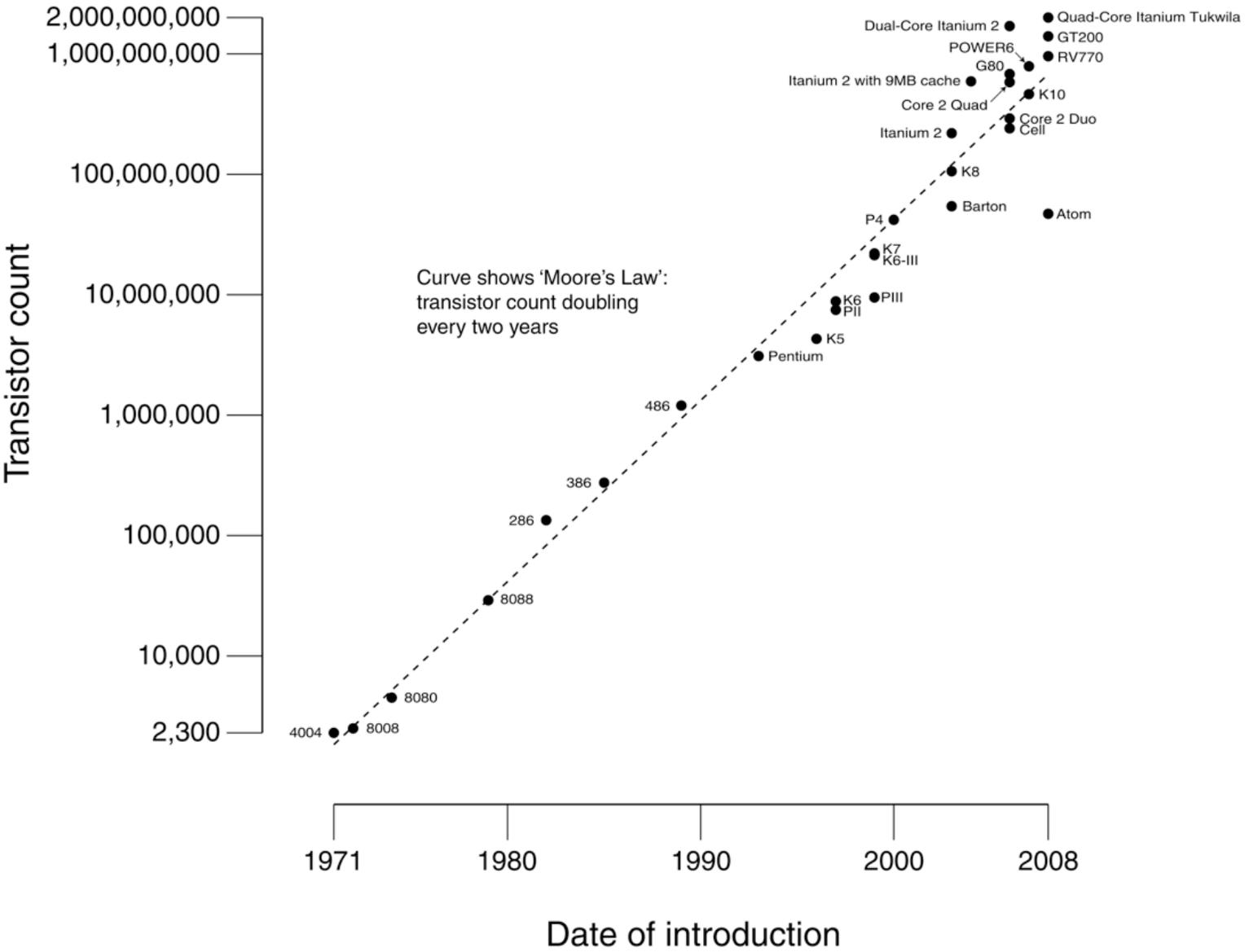
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Chapter 3

Advice from the Oracle: Really Intelligent Information Retrieval

Michael J. Kurtz

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Email: kurtz%cfazwi.decnet@cfa.harvard.edu*

3.1 Introduction

What is “intelligent” information retrieval? Essentially this is asking what is intelligence. In this article I will attempt to show some of the aspects of human intelligence, as related to information retrieval. I will do this by the device of a semi-imaginary Oracle. Every Observatory has an oracle, someone who is a distinguished scientist, has great administrative responsibilities, acts as mentor to a number of less senior people, and as trusted advisor to even the most accomplished scientists, and knows essentially everyone in the field.

In an appendix I will present a brief summary of the Statistical Factor Space method for text indexing and retrieval, and indicate how it will be used in the Astrophysics Data System Abstract Service.

3.2 Advice from the Oracle

1. The Oracle sometimes answers without being asked.

Our Oracle walks the hallways, looks into offices, and offers unsolicited advice, often. For example a conversation about the proper definition of galaxy photometry for a particular project was occurring in my office; the Oracle appeared out of nowhere and said “the amplifier on the new chip will not do any better than ten electrons readout



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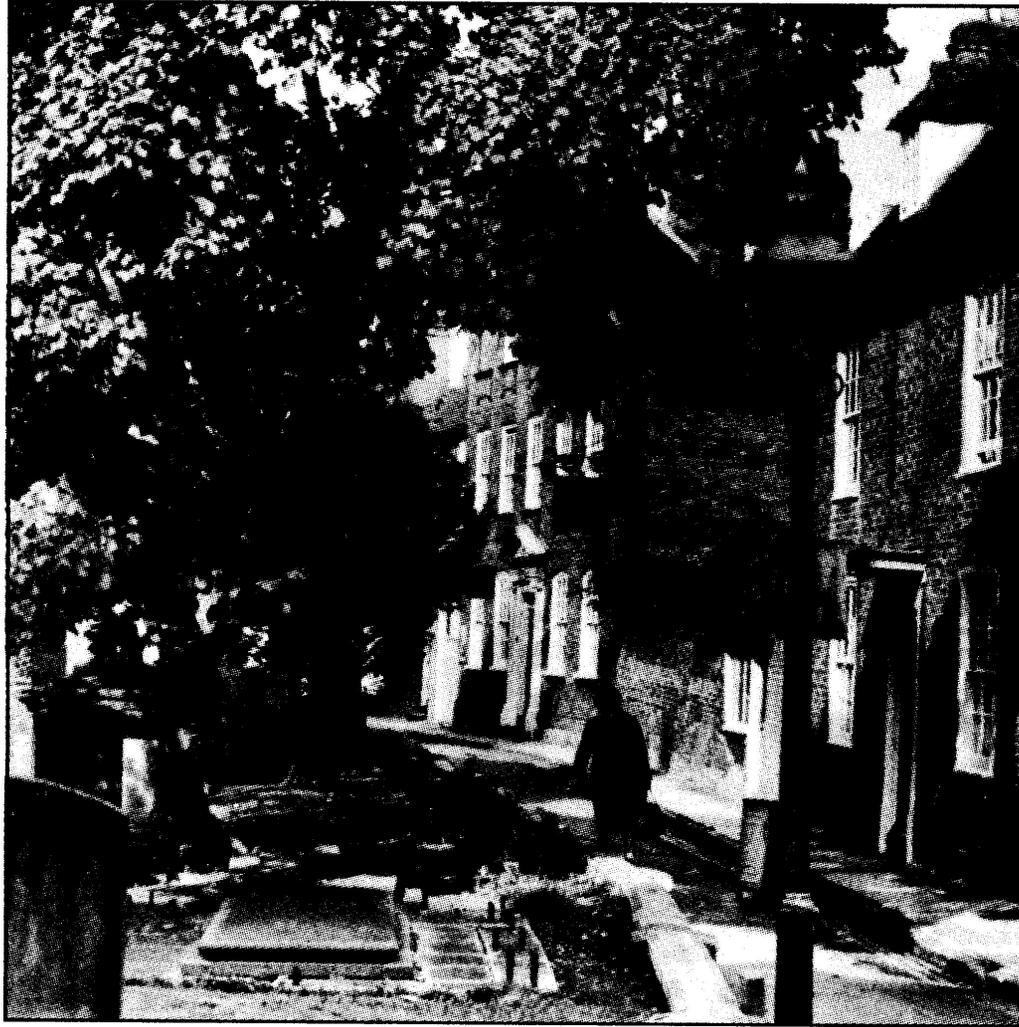








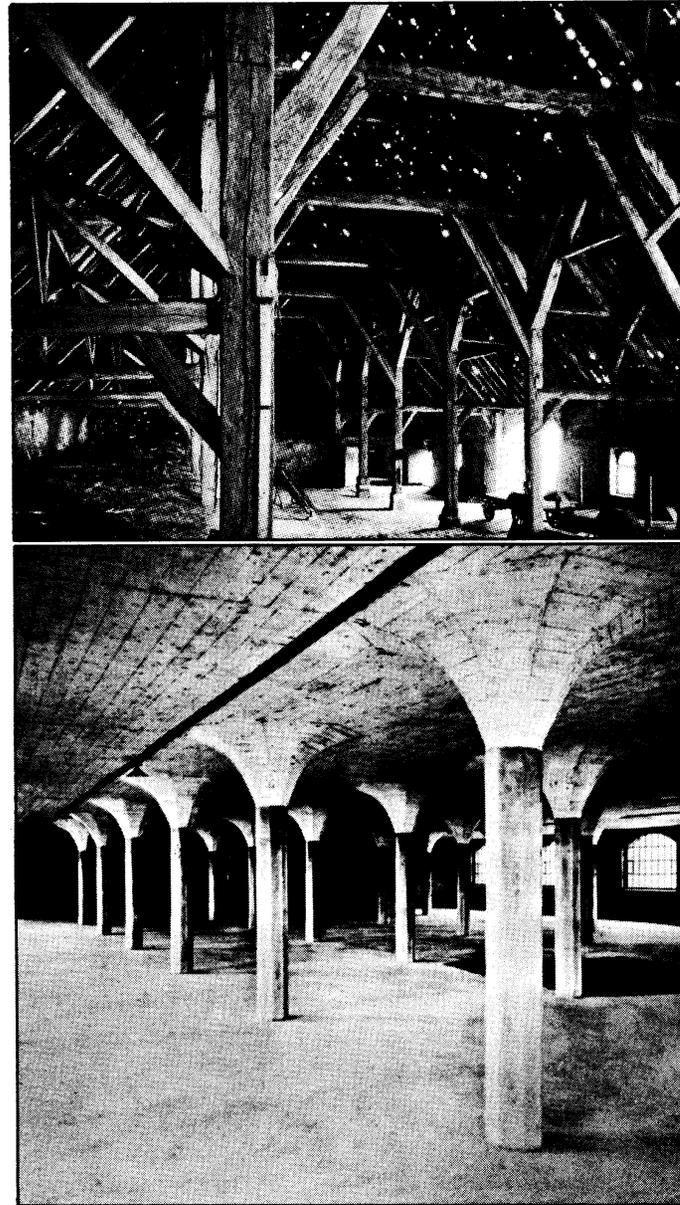
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THE PSYCHOLOGICAL REVIEW

THE VECTORS OF MIND¹

BY L. L. THURSTONE

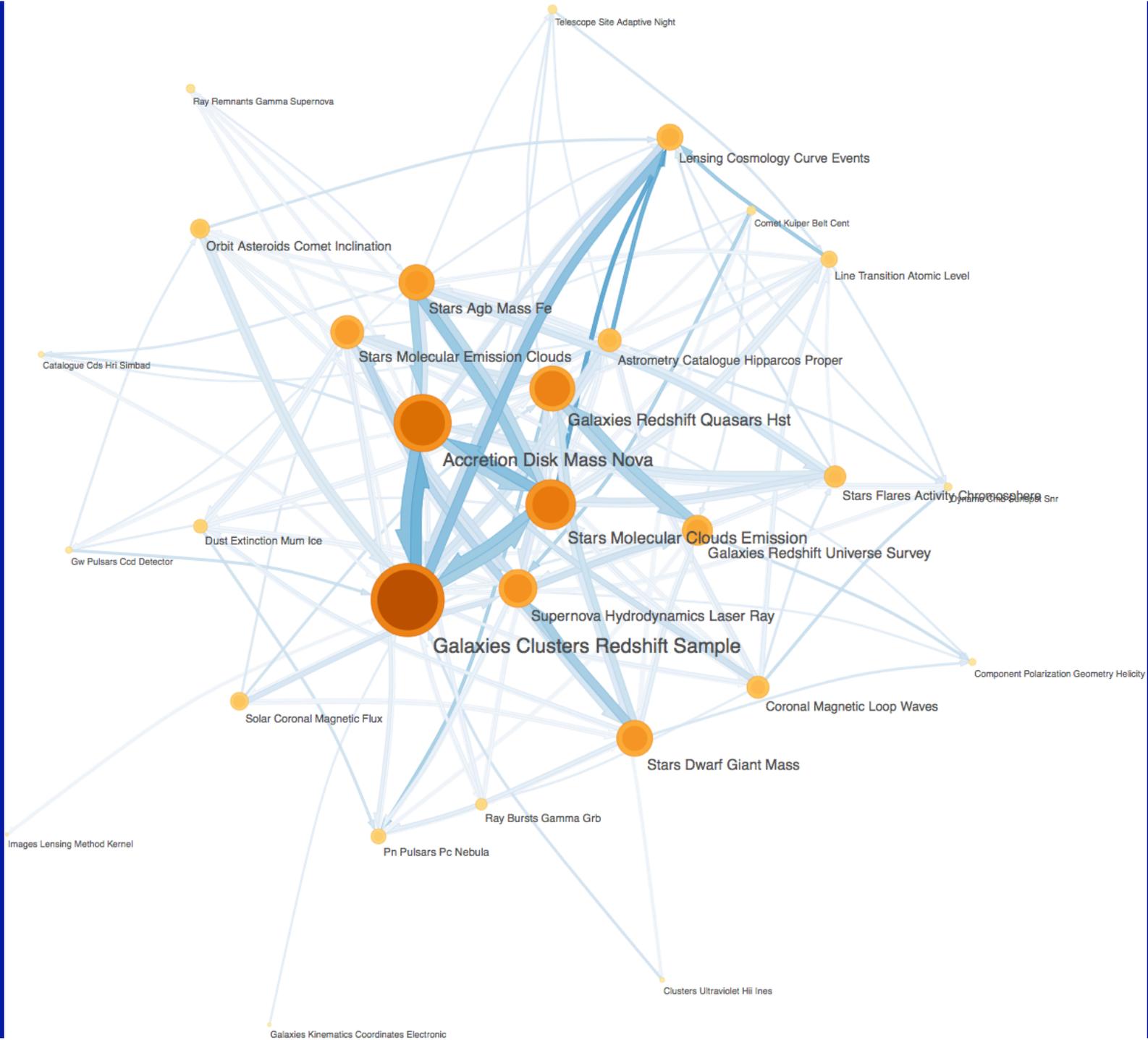
The University of Chicago

Under the title of this address, 'The Vectors of Mind,' I shall discuss one of the oldest of psychological problems with the aid of some new analytical methods. I am referring to the old problem of classifying the temperaments and personality types and the more recent problem of isolating the different mental abilities.

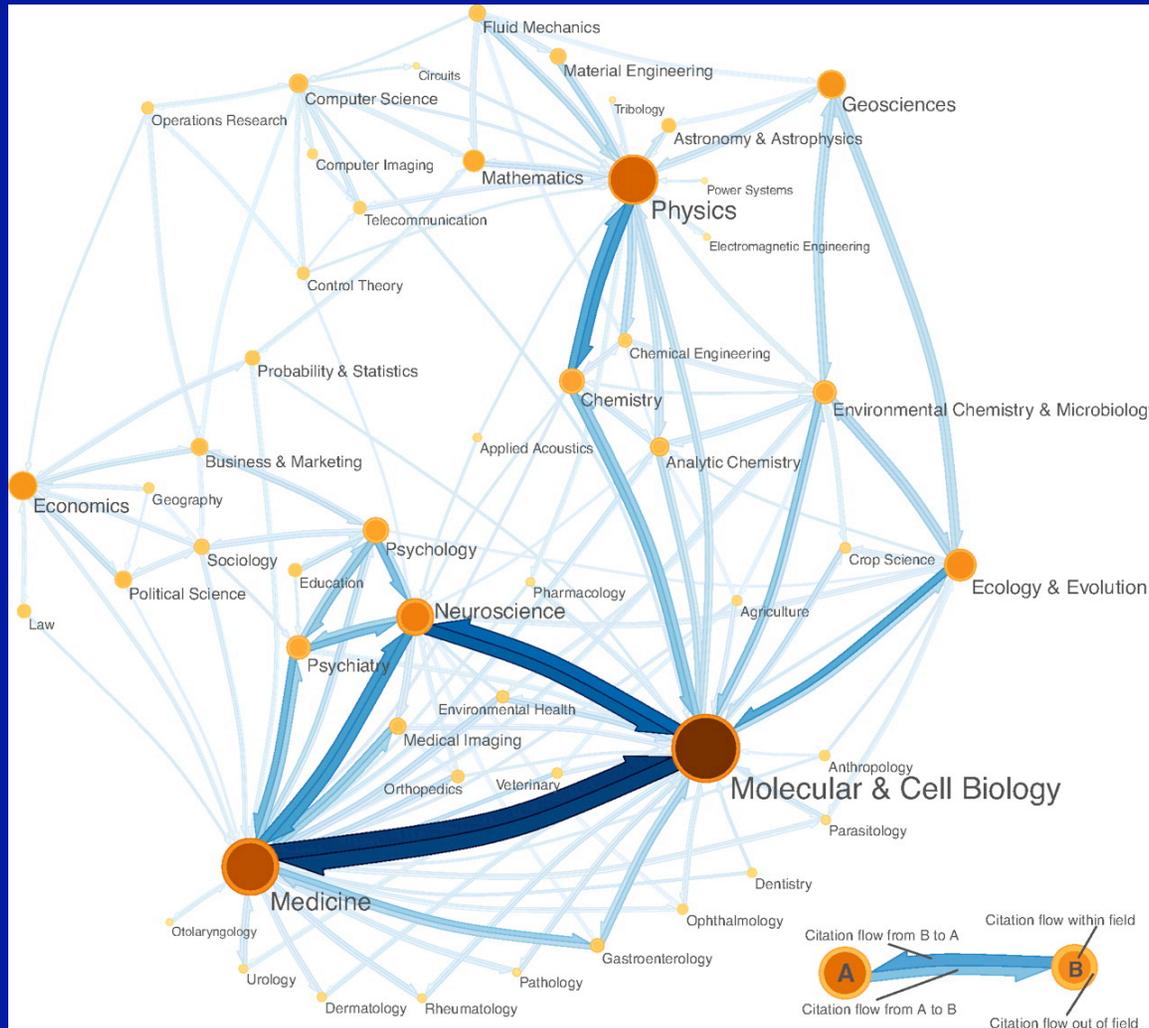
Until very recently the only attempt to solve this problem in a quantitative way seems to have been the work of Professor Spearman and his students. Spearman has formulated methods for dealing with the simplest case, in which all of the variables that enter into a particular study can be regarded as having only one factor in common. The factor theory that I shall describe starts without this limitation, in that I shall make no restriction as to the number of factors that are involved in any particular problem. The resulting factor theorems are quite different in form and in their underlying assumptions, but it is of interest to discover that they are consistent with Spearman's factor theory, which turns out to be a special case of the present general factor theory.

In this paper I shall first review the single-factor theory of Spearman. Then I shall describe a general factor theory. Those who have only a casual interest in the theoretical aspects of this problem will be more interested perhaps in the applications of the new factor theory to a number of psycho-

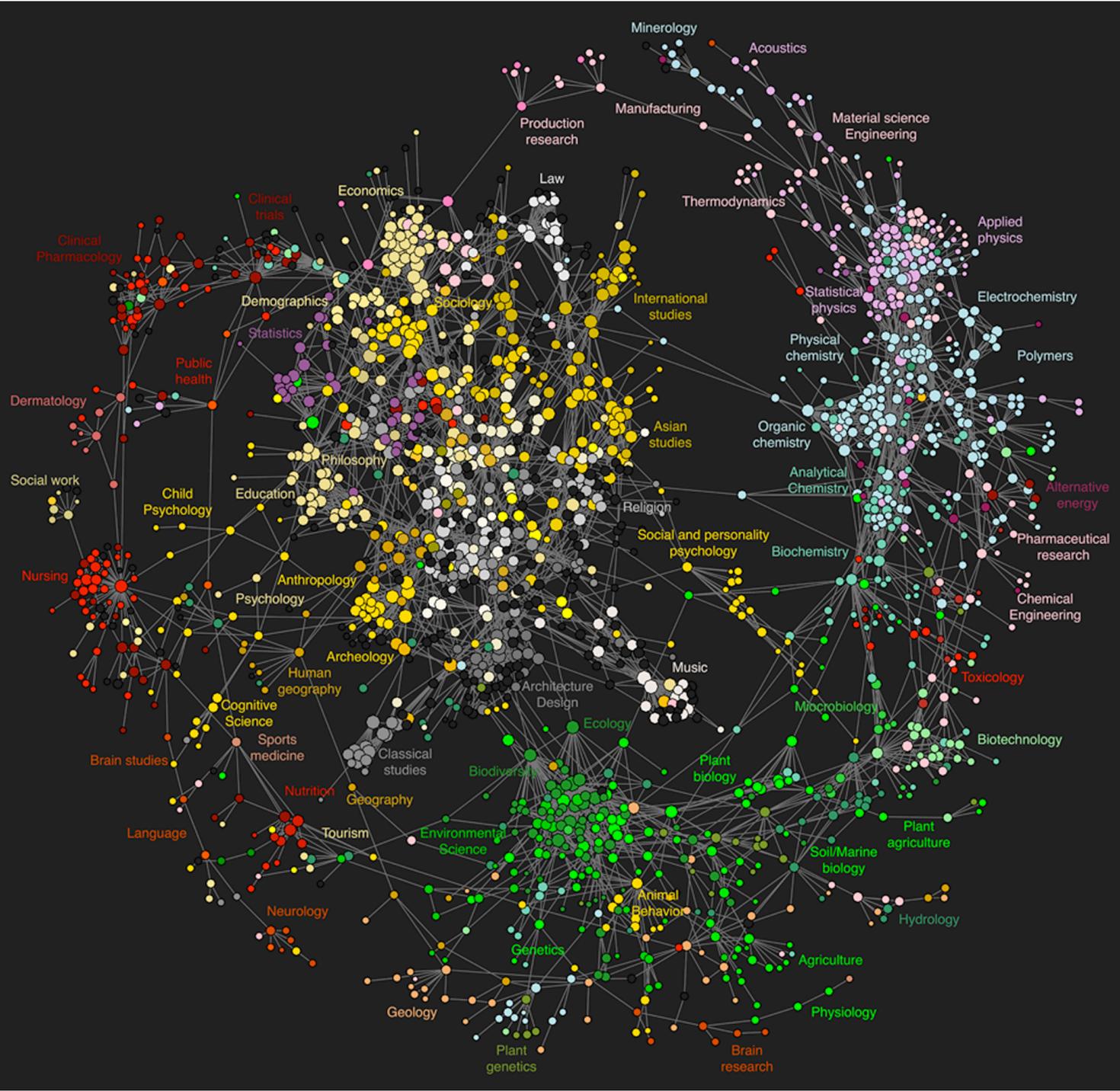
¹ Address of the president before the American Psychological Association, Chicago meeting, September, 1933.



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Rosvall M , Bergstrom C T PNAS 2008;105:1118-1123



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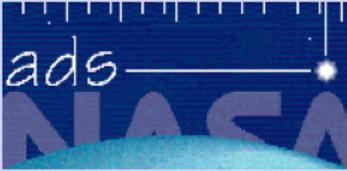
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On the influence of relativistic effects on X-ray variability of accreting black holes

[Życki, Piotr T.](#); [Niedźwiecki, Andrzej](#)

Monthly Notices of the Royal Astronomical Society, Volume 359, Issue 1, pp. 308-314.

X-rays produced by compact flares corotating with a Keplerian accretion disc are modulated in time by Doppler effects. We improve on previous calculations of these effects by considering recent models of intrinsic X-ray variability, and we compute the expected strength of the relativistic signal in current data of Seyfert galaxies and black hole binaries. Such signals can clearly be seen in, for example, recent XMM-Newton data from MCG-6-30-15, if indeed the X-rays are produced by corotating flares concentrated toward the inner disc edge around an extreme Kerr black hole. The lack of the signal in the data collected so far gives support to models where the X-ray sources in active galaxies do not follow Keplerian orbits close to the black hole.

Keywords: *accretion, accretion discs - relativity - galaxies: active - X-rays: binaries - X-rays: individual: MCG-6-30-15.*

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3. *Zur Elektrodynamik bewegter Körper;* *von A. Einstein.*

Daß die Elektrodynamik Maxwells — wie dieselbe gegenwärtig aufgefaßt zu werden pflegt — in ihrer Anwendung auf bewegte Körper zu Asymmetrien führt, welche den Phänomenen nicht anzuhaften scheinen, ist bekannt. Man denke z. B. an die elektrodynamische Wechselwirkung zwischen einem Magneten und einem Leiter. Das beobachtbare Phänomen hängt hier nur ab von der Relativbewegung von Leiter und Magnet, während nach der üblichen Auffassung die beiden Fälle, daß der eine oder der andere dieser Körper der bewegte sei, streng voneinander zu trennen sind. Bewegt sich nämlich der Magnet und ruht der Leiter, so entsteht in der Umgebung des Magneten ein elektrisches Feld von gewissem Energiewerte, welches an den Orten, wo sich Teile des Leiters befinden, einen Strom erzeugt. Ruht aber der Magnet und bewegt sich der Leiter, so entsteht in der Umgebung des Magneten kein elektrisches Feld, dagegen im Leiter eine elektromotorische Kraft, welcher an sich keine Energie entspricht, die aber — Gleichheit der Relativbewegung bei den beiden ins Auge gefaßten Fällen

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