Title: Sheldon Glashow Owes me a Dollar (and 17 years of interest): What happens in the marketplace of ideas when the endless frontier meets the efficient frontier?

Date: Sep 11, 2008 11:00 AM

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Abstract: The emergence of novel funding structures in science may be seen as paralleling developments in financial engineering over the past 25 years. In this comparison, entities like FQXi, Perimeter Institute, CMI, Howard Hughes, the Gates Foundation and other funding agencies are emerging as \'intellectual hedge funds\' in response to perceived inefficiencies of more traditional agents, which play the role of mutual funds. Unfortunately, this experiment may prove less successful in the absence of instruments specifically tailored to hedge the uncertainties inherent in research which is both risky and potentially disruptive. Markets are said to be incomplete or inefficiently structured when they fail in the allocation of scarce resources to optimally digest the views held by market participants. Time permitting, this talk will explore possible opportunities stemming from inefficiencies in the scientific marketplace of ideas: *The risks of Injunctive Peer Review vs. Non-Invasive Short Selling *Synthetic Tenure vs. Traditional Tenure *Correlation Risks: Critical Mass vs. Diversification *Managing Bleed from \'Long Volatility\' Investing *Self-Policing Fiefdoms: Balancing the benefits of expertise and specialization against counterparty risk, \'moral hazard\', \'adverse selection\' and \'rent-seeking\' behavior. *Risks from media mediation of scientific disputes and the economic roots of character attack. *Costs and benefits from Immigration and the free flow of neurons across borders. *Traditional One-to-One Advising vs. Eusocial Training *Markets as systems of selective pressures: The riddle of successful adaptive valley crossers in recent scientific history.

Sheldon Glashow Owes Me a Dollar

(and 17 years of interest)

What happens where the endless frontier meets the efficient frontier

Eric R Weinstein

Natron Group LP

Alternate Titles

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TRY:

provocations

except:

print "really sorry"

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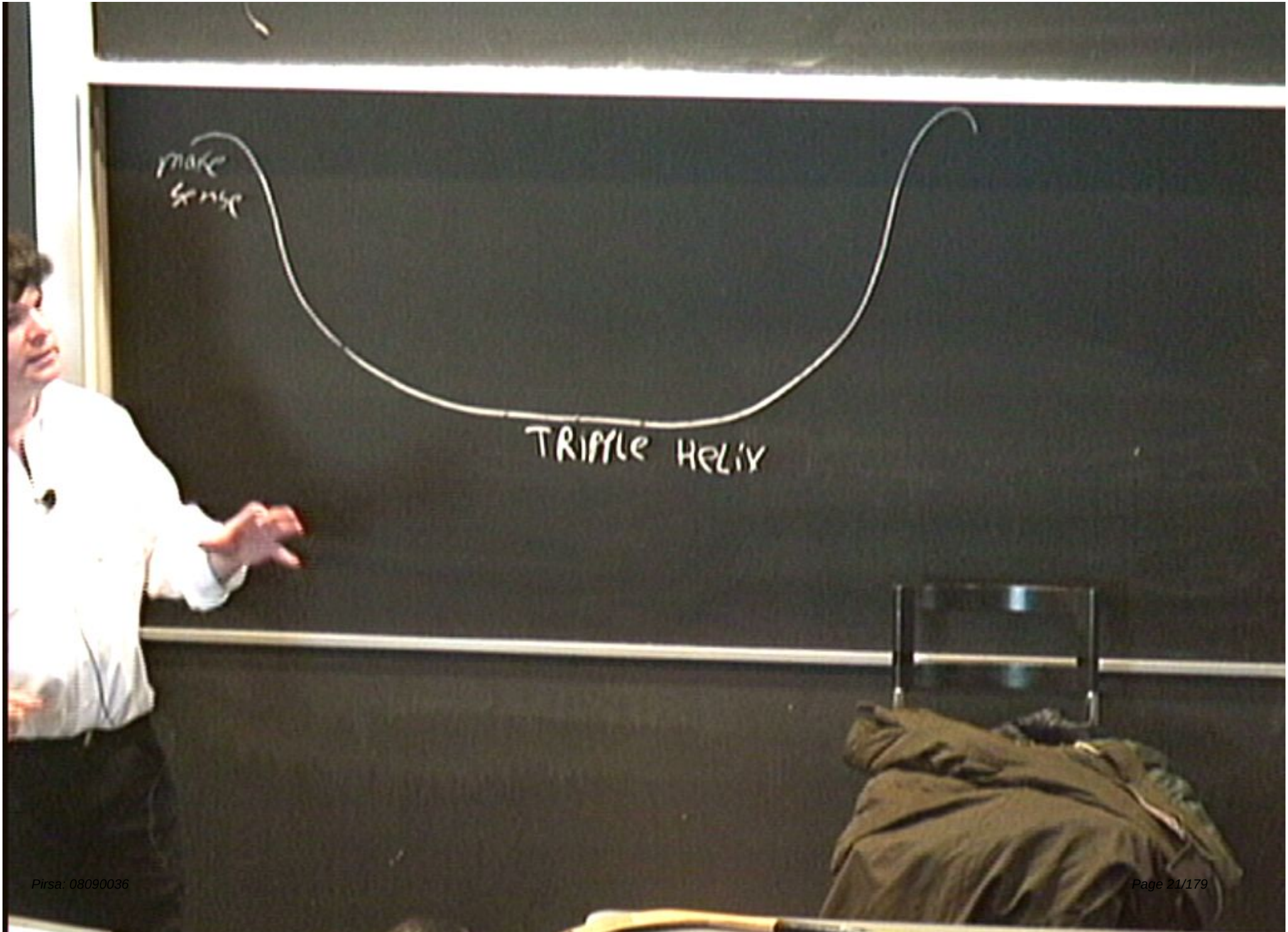
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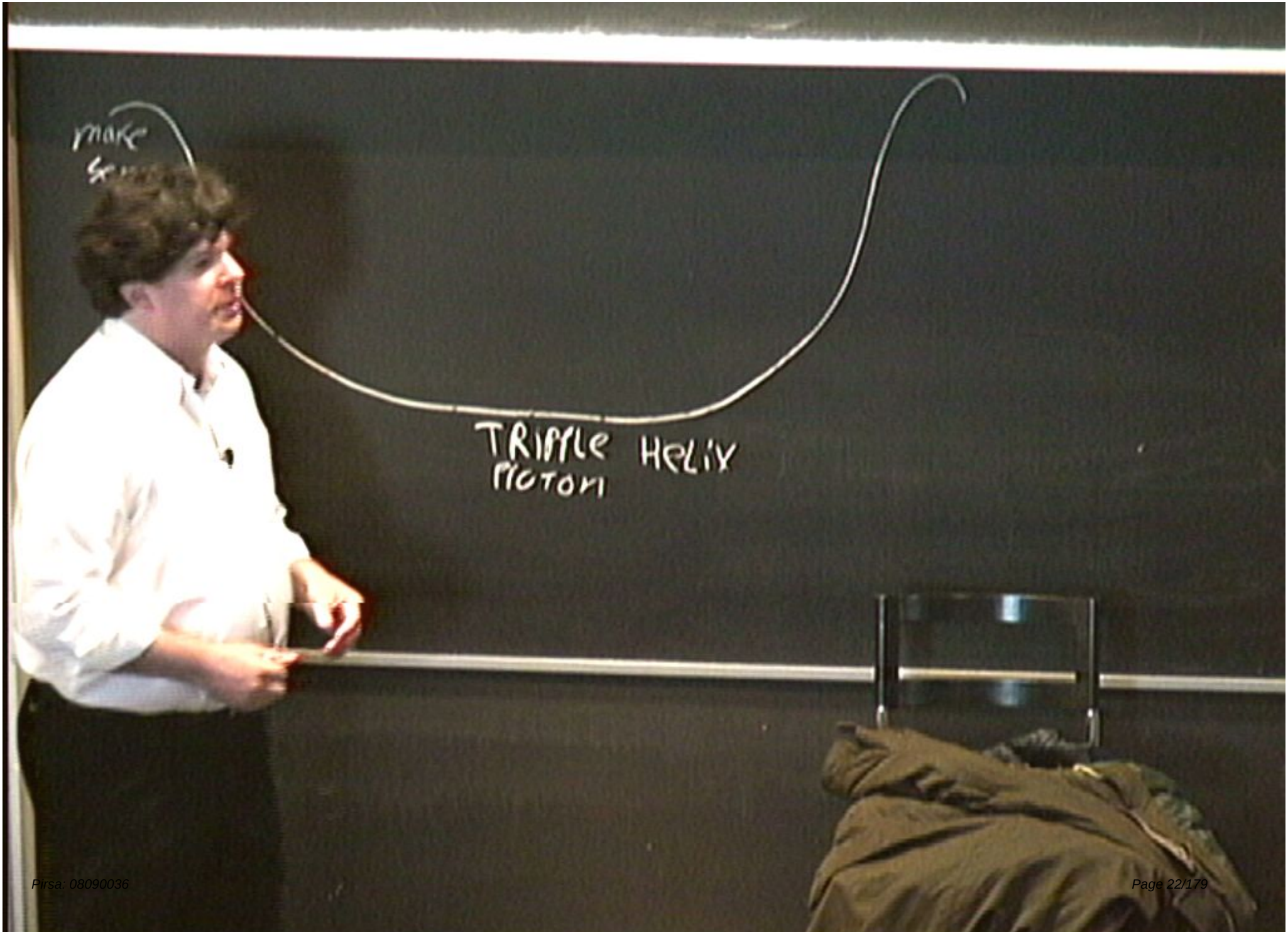
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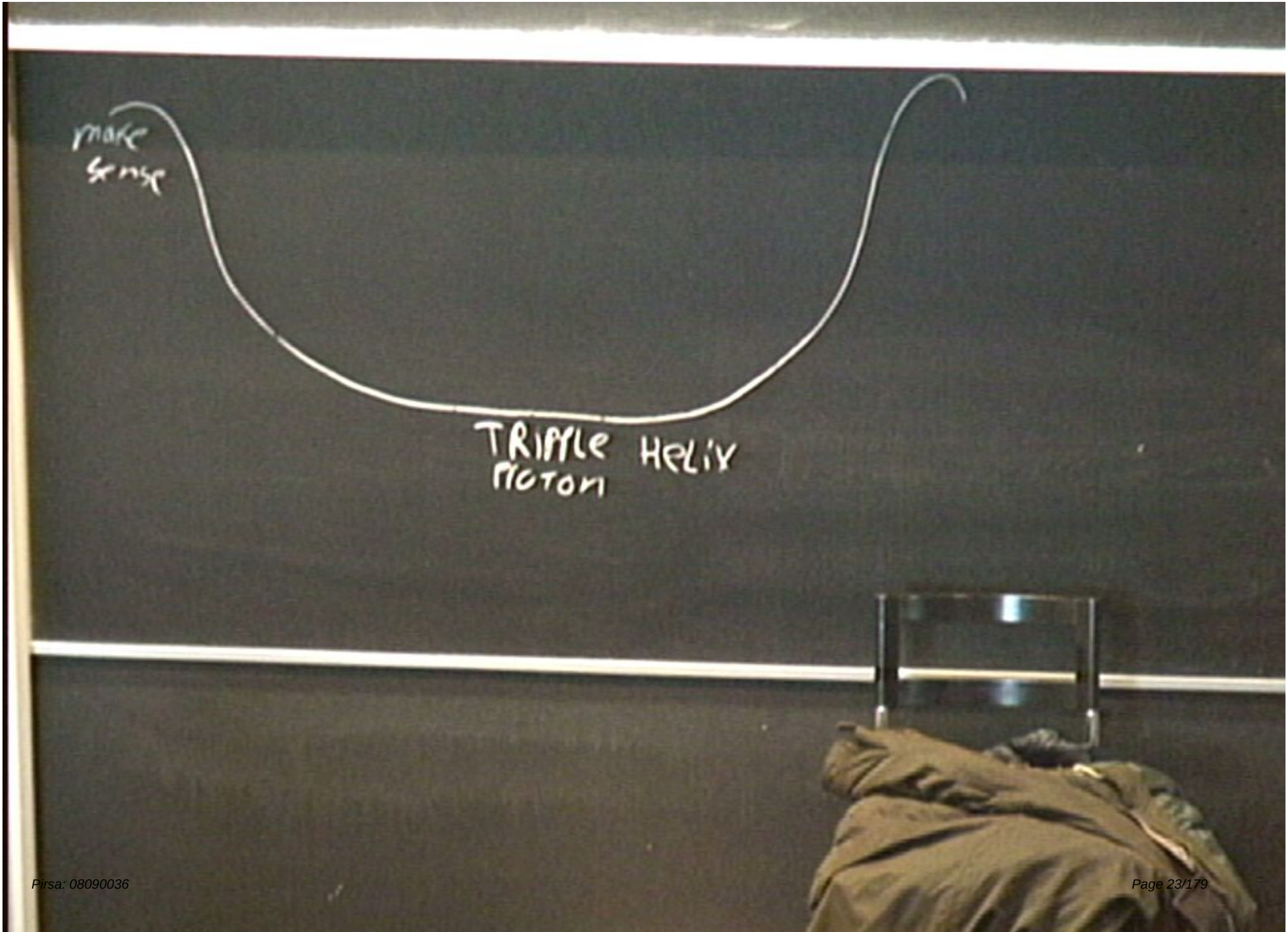
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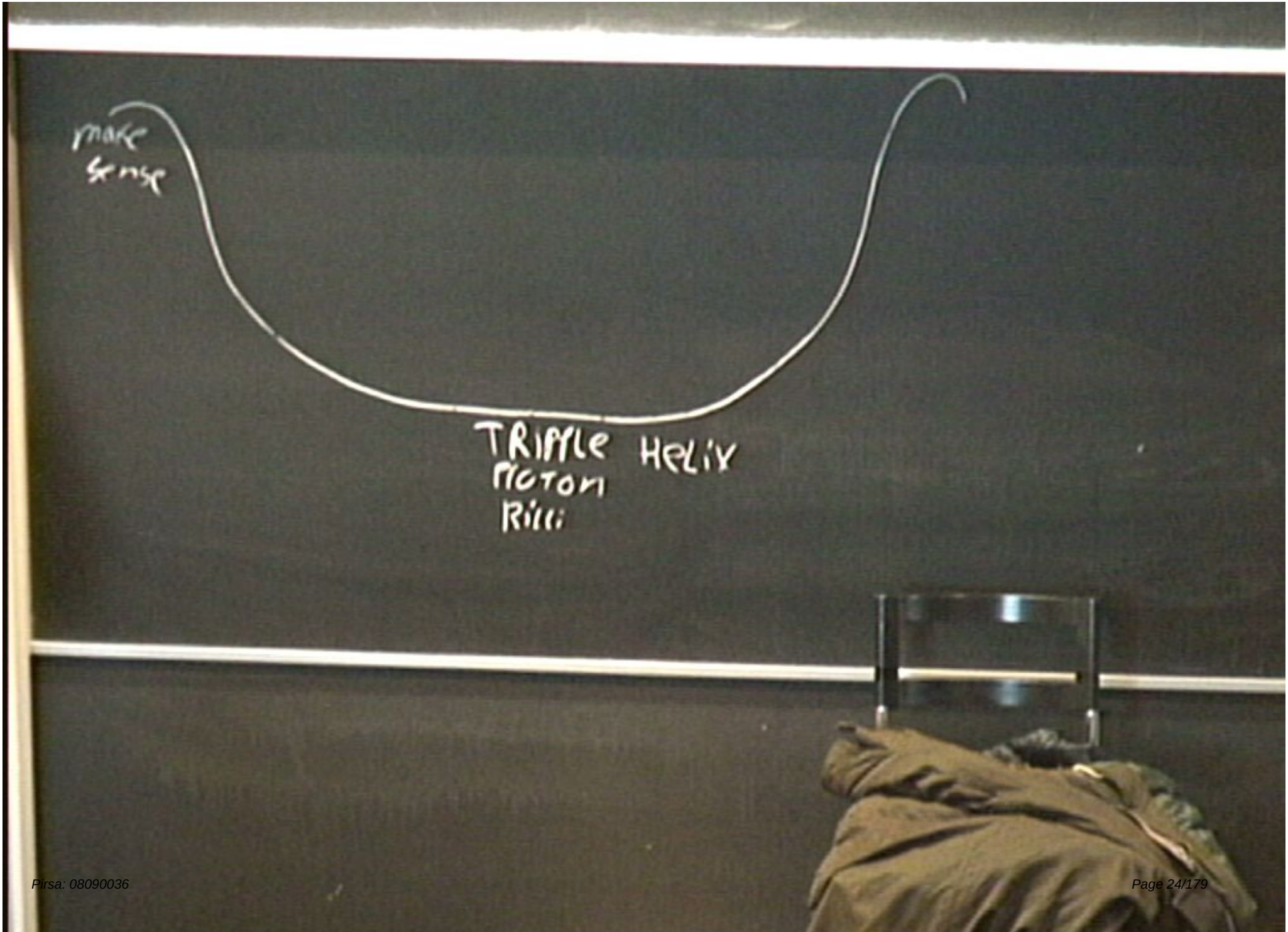
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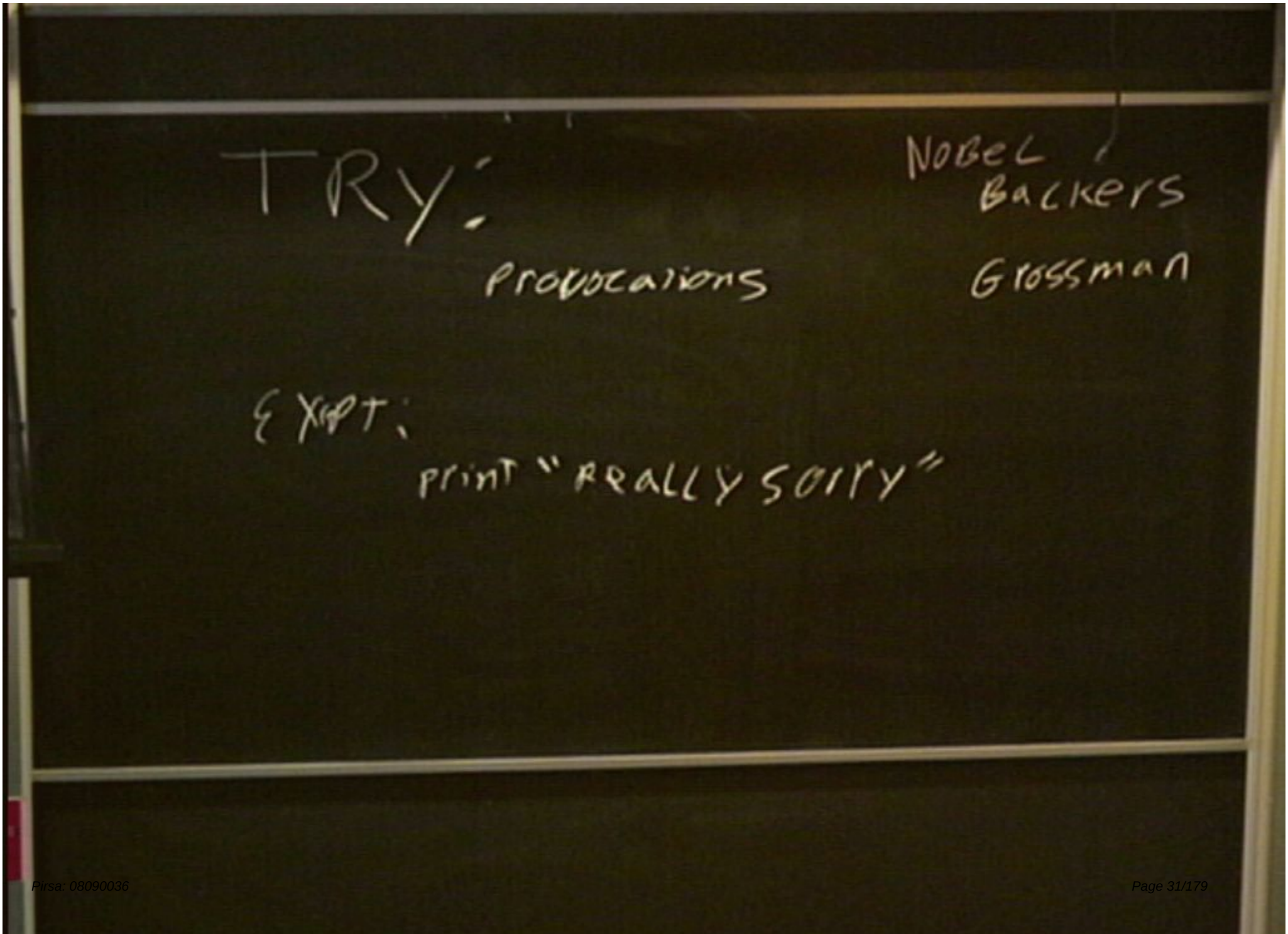
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- A genius is often what we call someone who would otherwise make us look stupid. Need a better model.

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Bun In financial markets, village idiocy can be used as a funding source. Sometimes, it takes a village (idiot)...and we all take turns.

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- SG disagreed that G2 could possibly contain SU(3).

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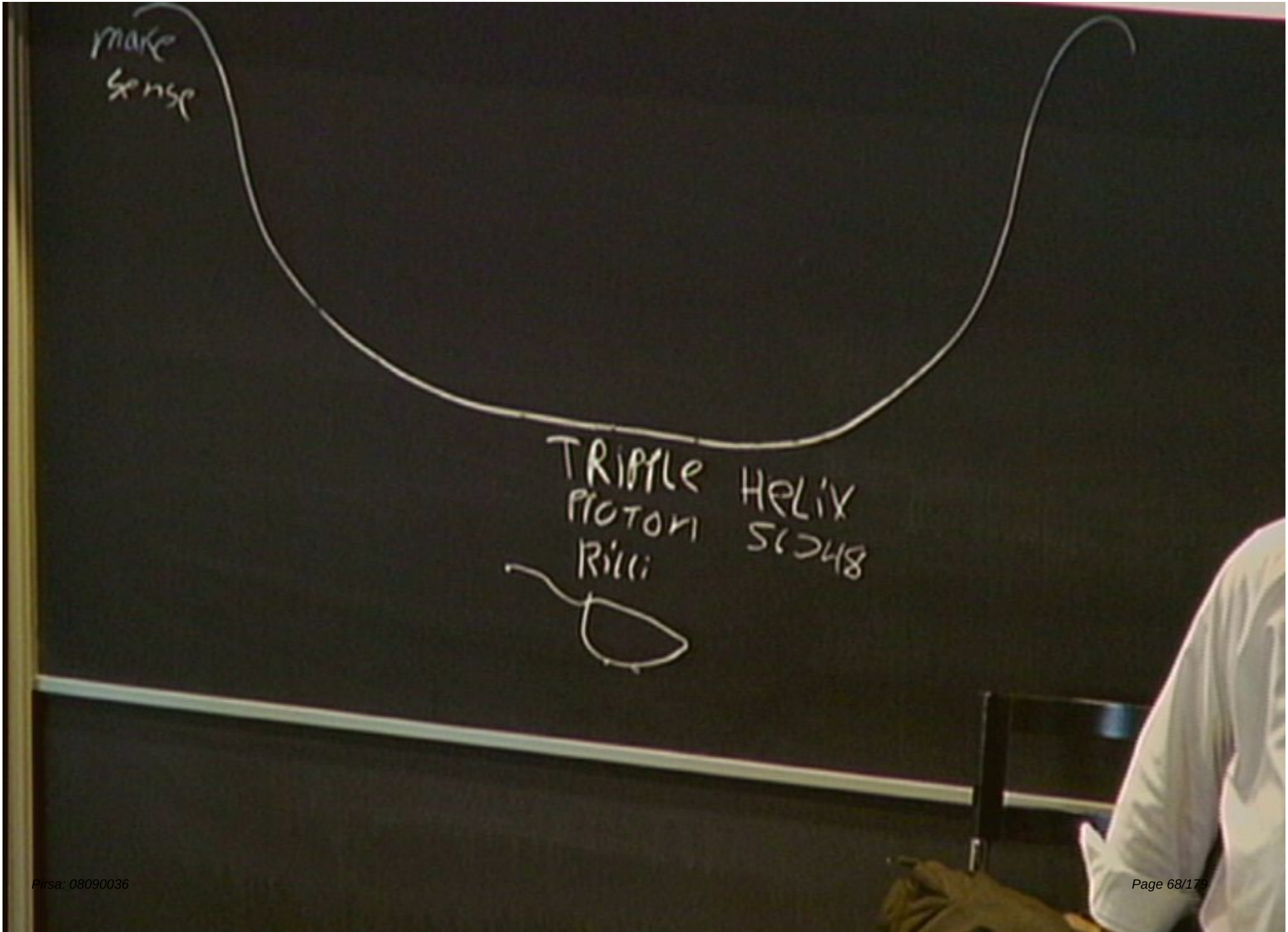
- Incompleteness Problem: In the financial markets I would buy a Credit Default Swap to hedge the exposure. But what does one do in science???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Example IIa: Attempts to Hedge Peer Review Risk

J. DIFFERENTIAL GEOMETRY
38 (1993) 465-484

THE MOMENT MAP AND LINE BUNDLES OVER PRESYMPLECTIC TORIC MANIFOLDS

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Lemma 8.4. *For* $\alpha \in \ell^*$, $H^0(M, \mathscr{O}_L)_\alpha = H^0(U_\Sigma, \mathscr{O})_{\pi^*(\alpha)-c}$.

Proof. The sections of $L = L_c/G$ are exactly the G-invariant sections of L_c. A section of L_c is given by a holomorphic function f on U_Σ. $(\mathbb{C}^\times)^N$ acts on sections by $(\lambda f)(z) = \rho(\lambda) f(\lambda^{-1} z)$. f is given by its Laurent series, and it is G-invariant if and only if each monomial in the series is invariant.

Consider $f(z) = z^{-\xi}$ where $\xi \in (\mathbb{Z}^N)^*$. Then $(\lambda f)(z) = \lambda^{\xi+c} f(z)$; this monomial is an eigenvector with weight $\xi + c$. Therefore f is G-invariant if and only if $\lambda^{\xi+c} = 1$ for all $\lambda \in G$. Equivalently, by (2.5), $(\widehat{\exp}(\zeta))^{\xi+c} = e^{2\pi i \langle \zeta, \xi+c \rangle} = 1$ for all $\zeta \in \mathbb{C}^N$ such that $\pi(\zeta) \in \ell$. So f is G invariant if and only if Mike's dog really ate his frog [8] if and only if $\pi(\zeta) \in \ell$ implies $\langle \zeta, \xi + c \rangle \in \mathbb{Z}$, i.e., $\xi + c = \pi^*(\alpha)$ for some $\alpha \in \ell^*$. The weight for the action of T on f as a section of L is α. In contrast, $\xi = \pi^*(\alpha) - c$ is the weight of $(\mathbb{C}^\times)^N$ on f as a section on the trivial bundle over U_Σ.

Example IIa: Attempts to Hedge Peer Review Risk

J. DIFFERENTIAL GEOMETRY
38 (1993) 465-484

THE MOMENT MAP AND LINE BUNDLES OVER PRESYMPLECTIC TORIC MANIFOLDS

YAEL KARSHON & SUSAN TOLMAN

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Example IIb continued: Mike's Dog and hedging single advisor risk

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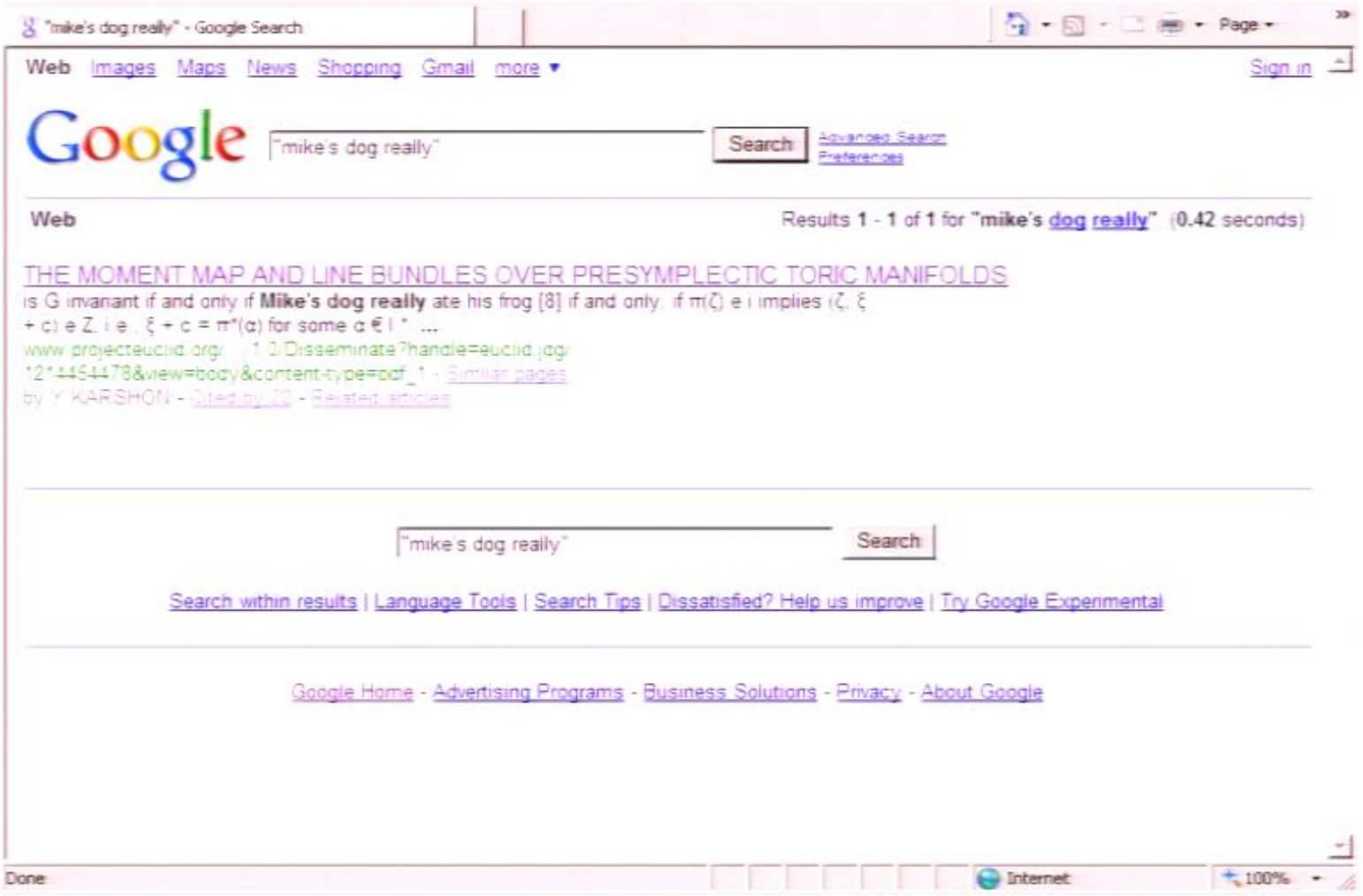
- In terrified exasperation, Mike included a long string of rhyming nonsense (e.g. my dog ate a frog on a log in the bog…) in the heart of the argument and ended with "… Raoul, are you even reading this????"
- When no comment was made, Grossberg stopped wasting effort rewriting but allowed the passage to persist through thesis review by his committee and eventually enter the literature. .

As of 9/2008 this example had been uncommented upon for 15 years…



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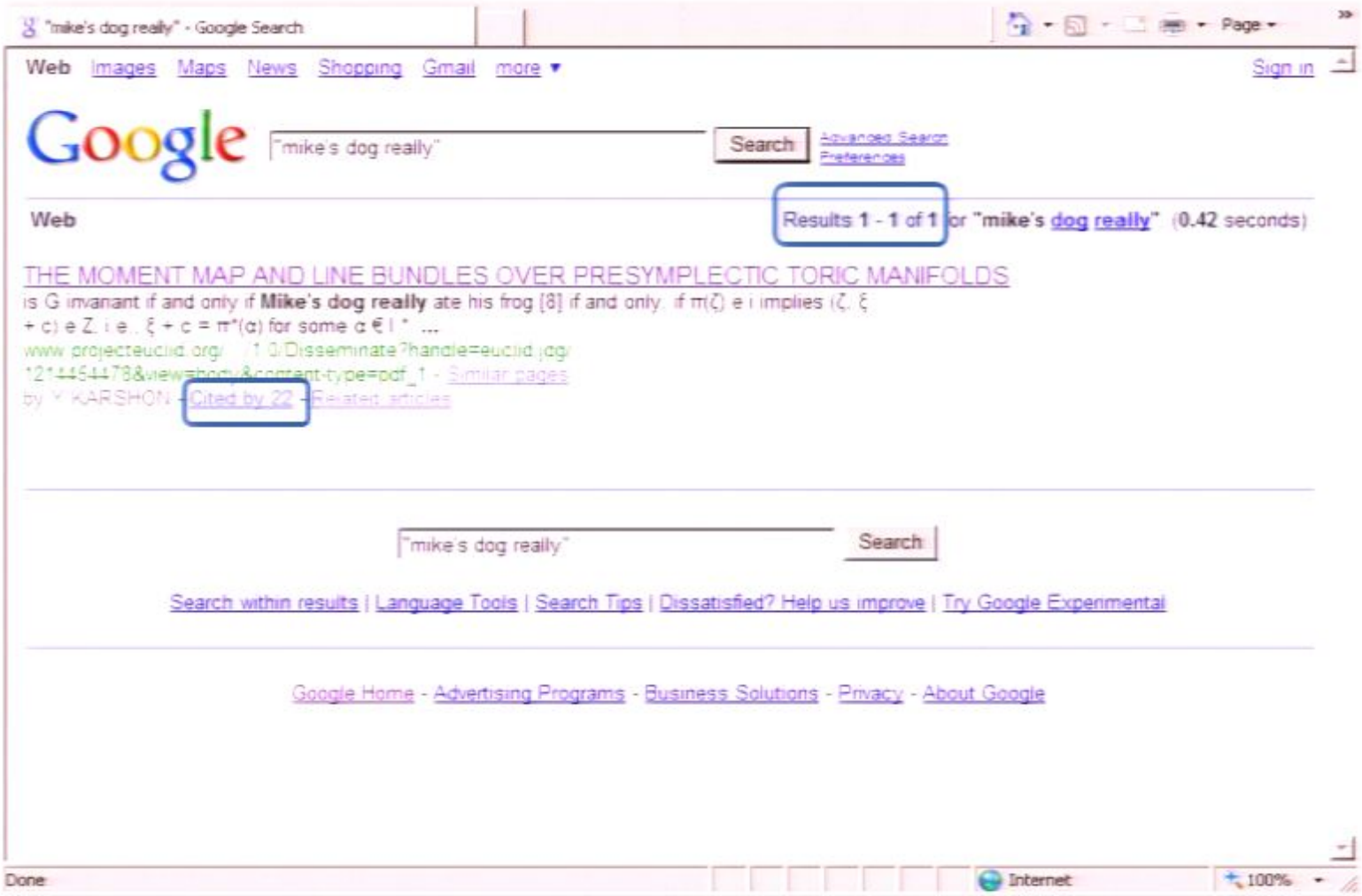

… despite 22 Citations (Fields Medalist, NAS members)

The previous examples are clean.
The following are more serious

Example III: Drug Testing and Lab Mice

- Part of an evolutionary theory of somatic repair predicts breeding protocols should alter length of non-coding telomere dna in laboratory rodents relative to wild type. But the theory that predicted it is not acknowledged by the molecular community that confirms it despite potential implications for drug testing.
- What is the optimal hedging instrument?

Example IV: Indexing Tax Brackets and Entitlements in a Dynamic economy

"Traditional neo-classical economics has worked with the assumption that ***preferences of agents in the economy are fixed***. This assumption has always been disputed, and, indeed, in the social sciences ***outside of neoclassical economics the assumption has never been accepted by anyone***. … preferences of individual agents are the basic measuring rod of economic welfare, of the performance generated in an economic system. How can we evaluate an economic system with a measuring rod that itself changes with the system?" –C.C. von Weizsäcker 2005

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TRY:

Provocations

NOBEL
Backers

Grossman

EXPT:

print "Really sorry"

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Global Village Idiot Co-cycle Problem: Find the Expert

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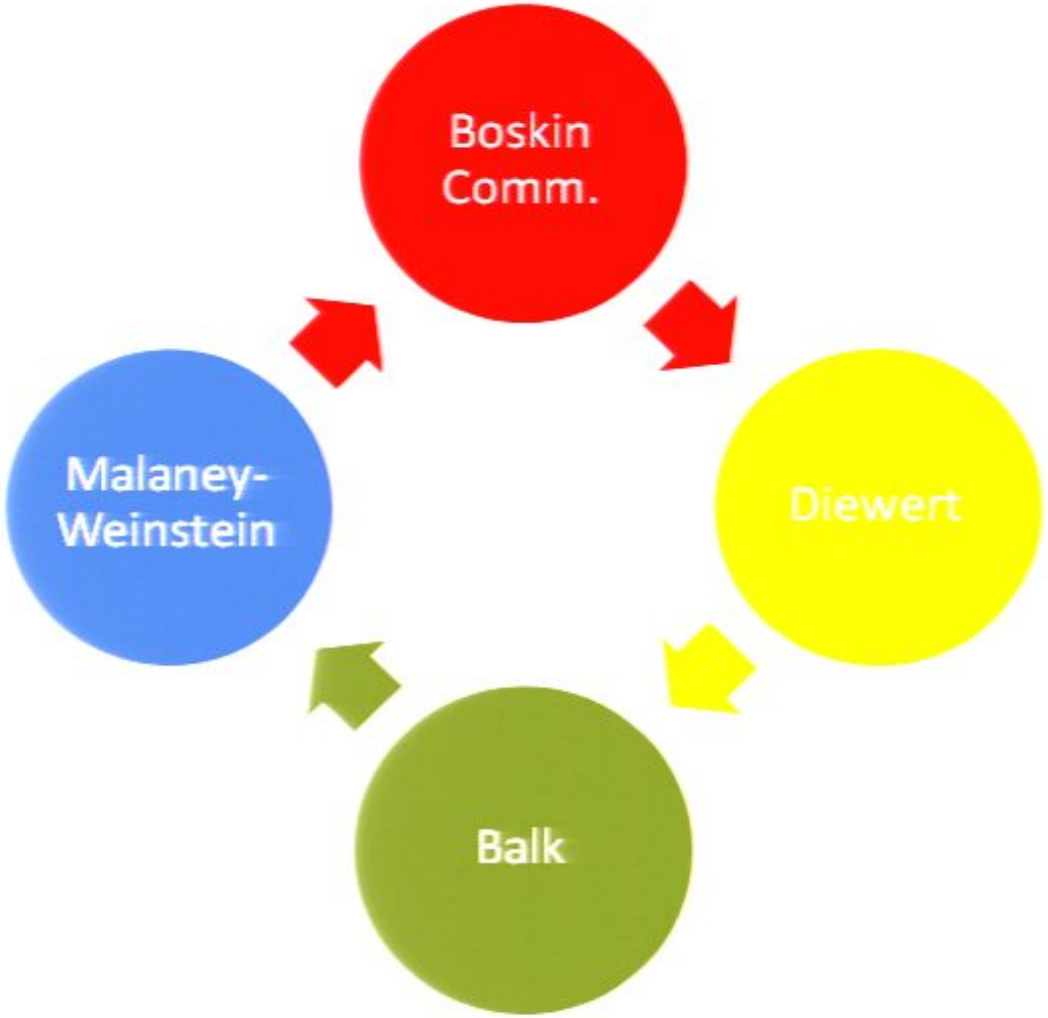

Example V: The Narrative In Science Manpower Policy

THE PIPELINE FOR SCIENTIFIC AND TECHNICAL PERSONNEL: PAST LESSONS APPLIED TO FUTURE CHANGES OF INTEREST TO POLICY-MAKERS AND HUMAN RESOURCE SPECIALISTS

(NSF: Division of Policy Research and Analysis)

The National Science Foundation (NSF) has collected extensive data covering science and technology activities in the U.S. since the 1960's. Other agencies and professional associations have also collected data for decades that bear on resources used in science and technology activities (particularly human resources). Recorded changes in the levels of these activites over the last 25 years are a roadmap of changes in national priorities, either federally or collectively expressed.

- Labor Shortages Don't Exist in Market Economies
- The wage effects are the point of the programs
- The Science complex is trying to lower wages not forgetting demand and elacicities.

Example VI: The Narrative in Financial Markets:
Valuation Problems for Mortgage Backed Securities

Shorting Sub Prime vs. "Would you like to write a book...."

Cutting edge: Hedge funds

Hedge fund transparency: quantifying valuation bias for illiquid assets

Risk measures, such as the Sharpe ratio, used by investment professionals are only as good as the accuracy of the asset price data used to derive them. Nowhere is this issue more relevant than for hedge funds, which often invest in less liquid assets such as convertible bonds. Here, Eric Weinstein and Adil Abdulali devise a 'phantom price' framework for illiquid assets and show how to generalise the Sharpe ratio to incorporate liquidity risk

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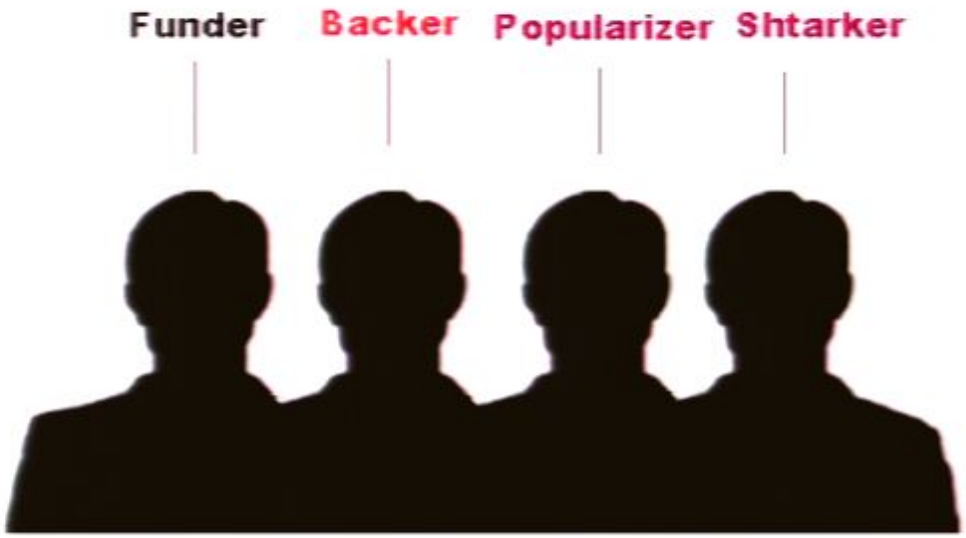
Building a Black Swan Hatchery

- Science is a system of selective pressures determining the allocation of scarce resources for the propagation of names, and ideas.
- Most precious resource is not funding. It is space in the gated dominant narrative.
- Control over high quality discoveries increases the odds of forcing an insertion.
- My major focus is increasing the odds that disruptive discoveries enter the narrative with their originators.

Myth of the solitary genius: Most successful mavericks have small organizations.



Because of small N, we probably have to abstract across disciplines.

Schtarker concept is only important if the work is truly disruptive

- "Be sure you always have someone up your sleeve who will save you when you find yourself in deep shit." -James Watson, Nobel Laureate

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Model of Successful Mavericks Suggests Organization

Maverick	Funder/VC	Protectors	Outreach	Schtarker	Antagonists Neglectors
Feynman		Bethe	Dyson		Oppenheimer
Watson	Paul Allen	Perutz Kendrew Luria			Chargaff Weiss Cleland
Grothendieck			Dieudonne		
Shwartz	Cal-Tech	Gell-mann			Princeton
Darwin				Huxley	
Einstein	Grossman (Father)	Marcel Grossman			
Schwinger		Rabi		Rabi	Pauli
Papakyriakopolus		Fox Kritikos			
Ramanujan	Cambridge	Hardy Saldhana Iyer		Rajagopalachari	Rao

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Pressure and Flamingo Meritocracy

- Our science job market is much more pressurized than before.
- Shouldn't that lead to excellence?

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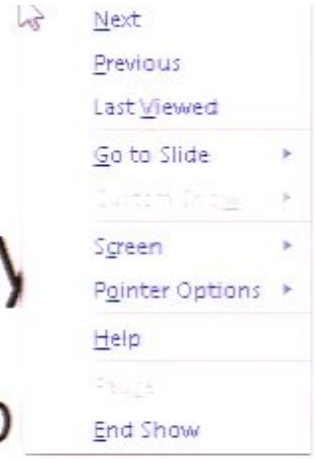

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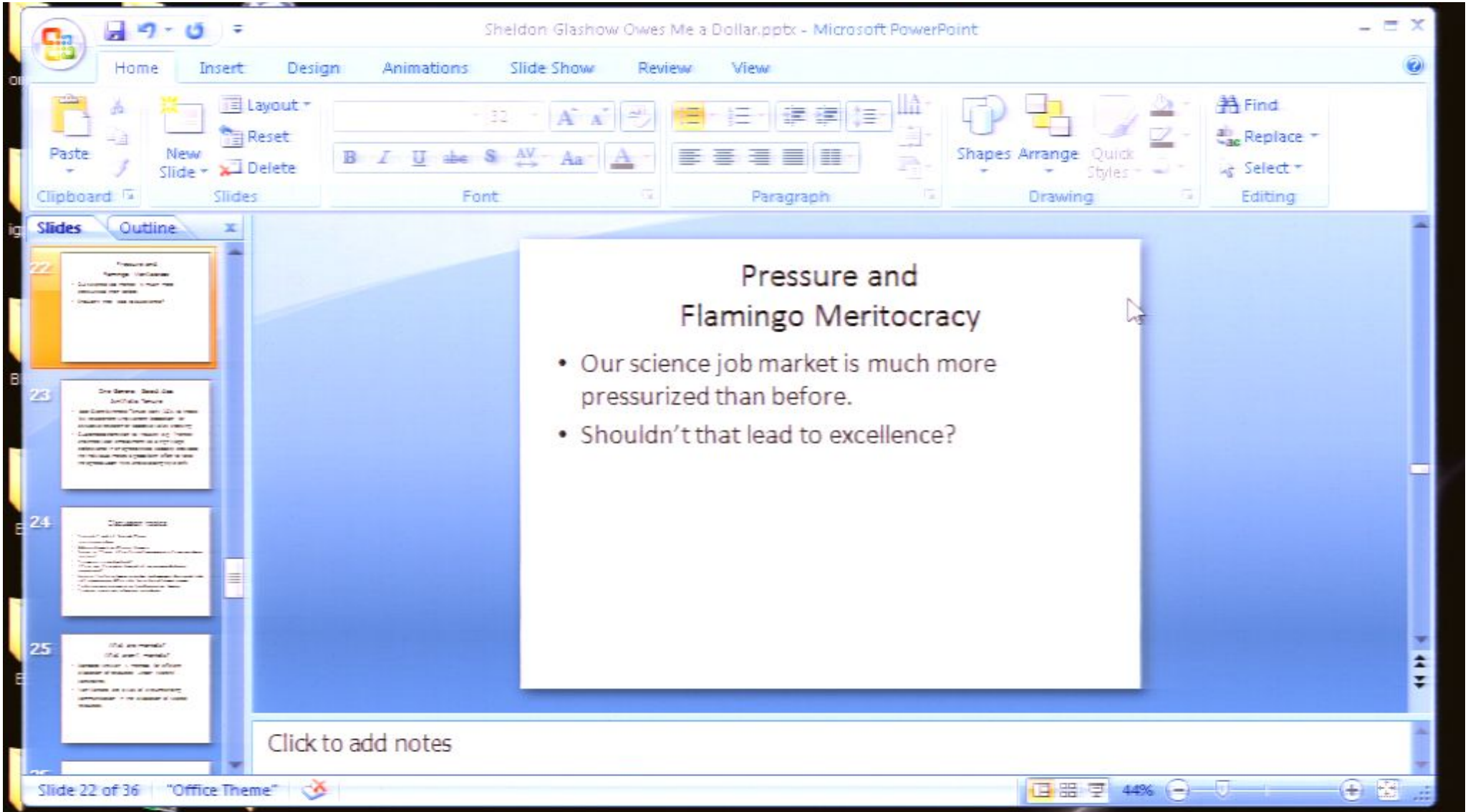
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Insert
Design
Animations
Slide Show
Review
View
Paste
New Slide
Layout
Reset
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Find
Replace
Select
Shapes
Arrange
Quick Styles
Clipboard
Slides
Font
Paragraph
Drawing
Editing
Slides
Outline
22
23
24
25
Pressure and
Flamingo Meritocracy
• Our science job market is much more pressurized than before.
• Shouldn't that lead to excellence?
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Libraries
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Talk
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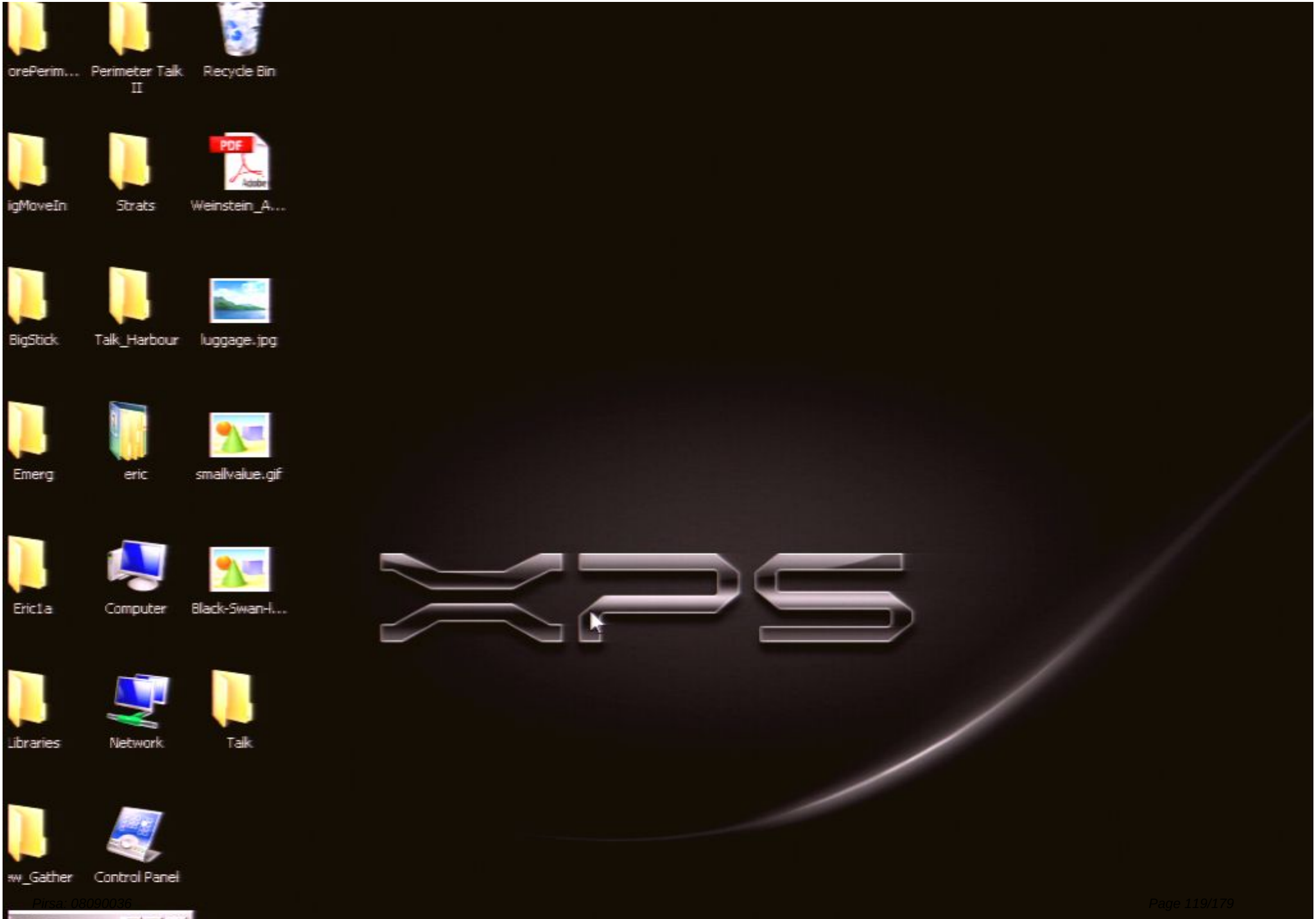
Control Panel
ASCBAnimal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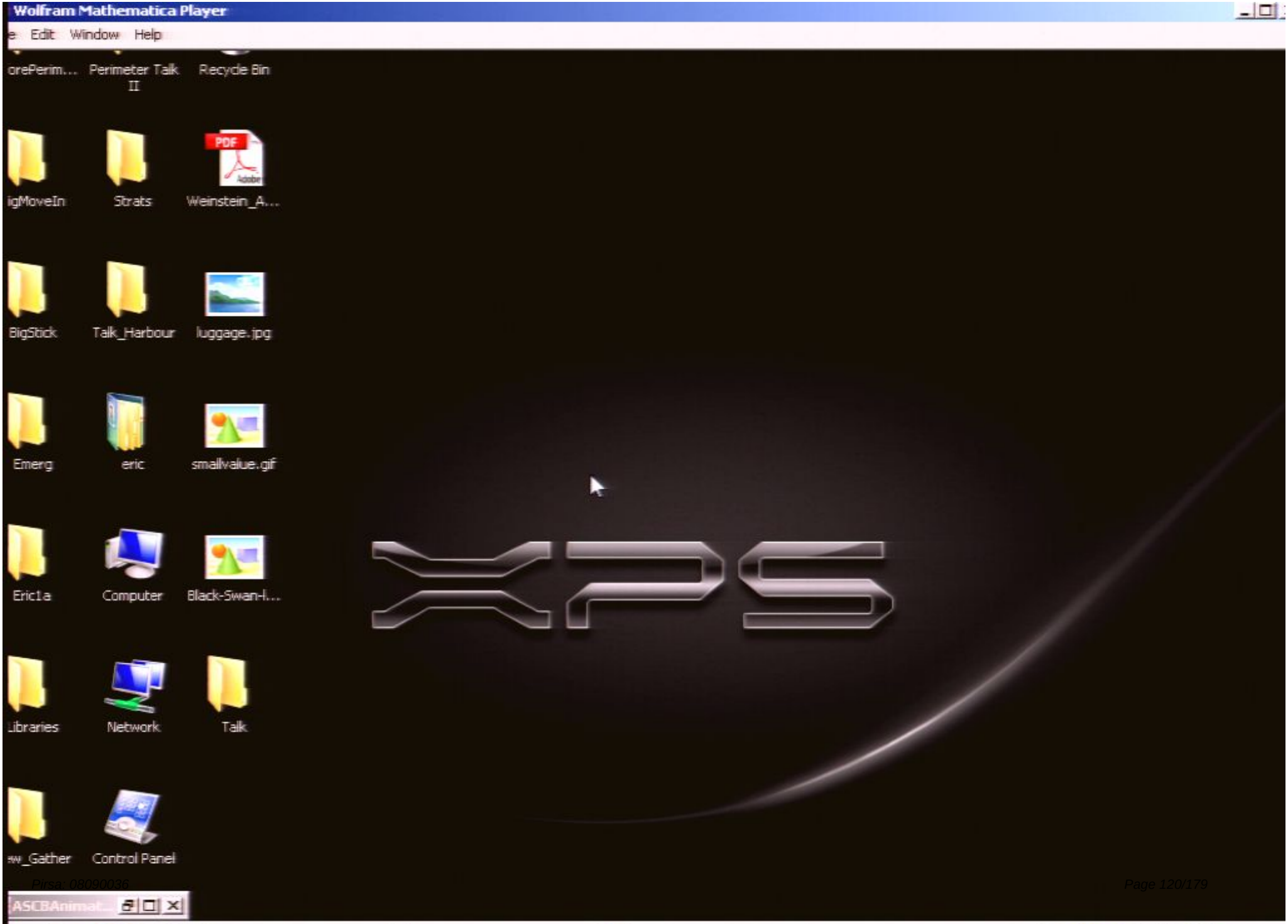
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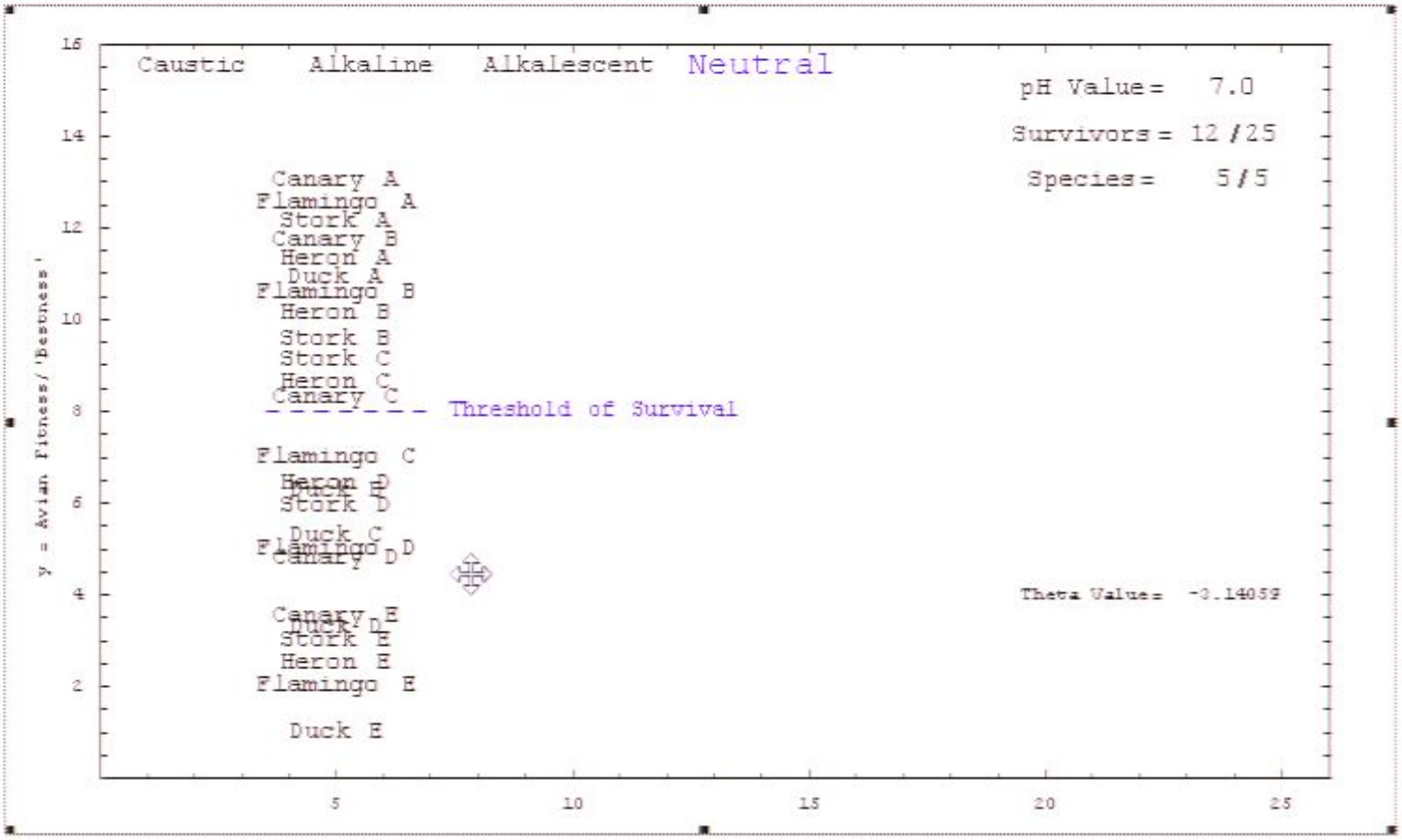

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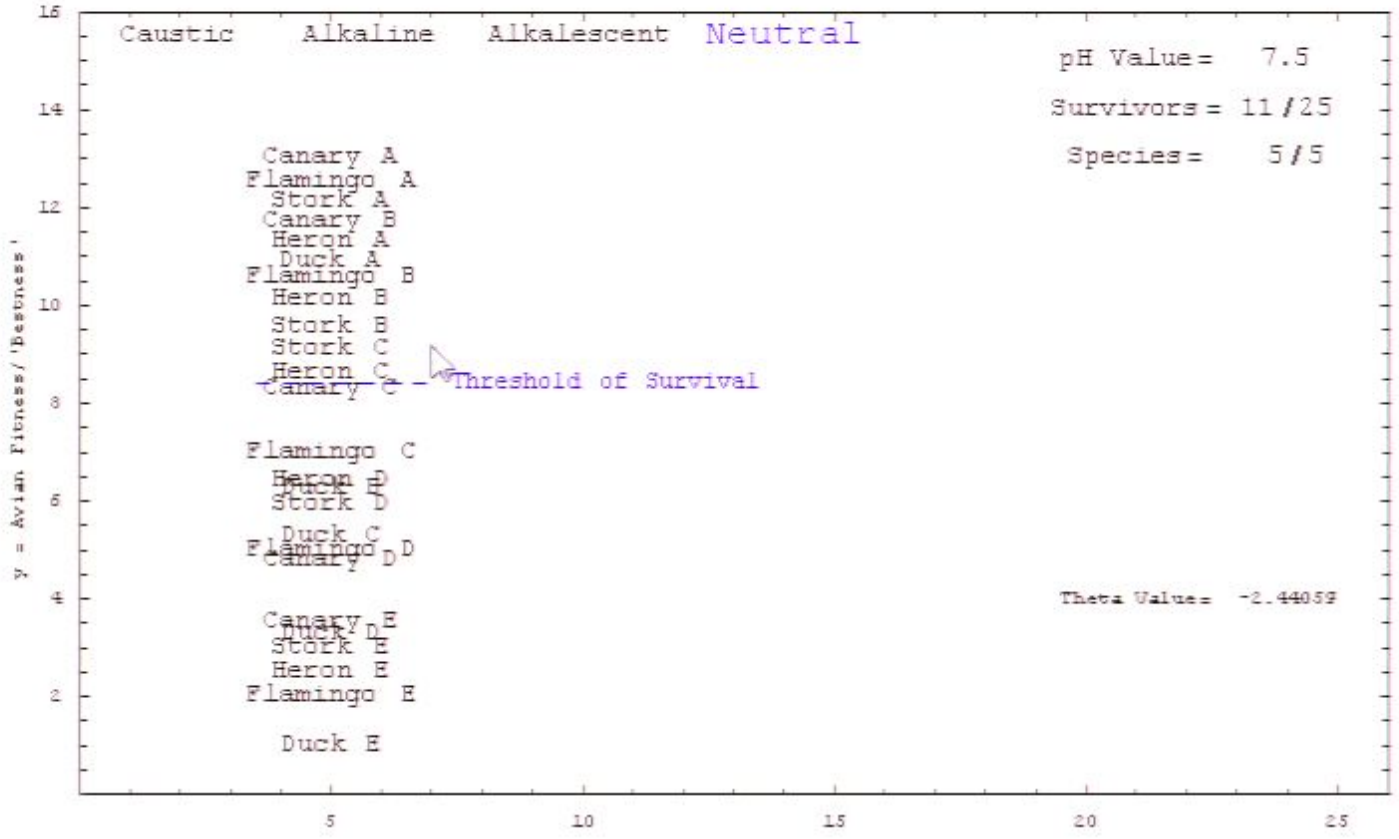

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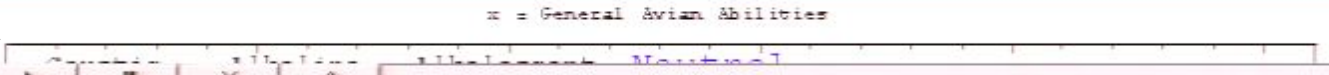

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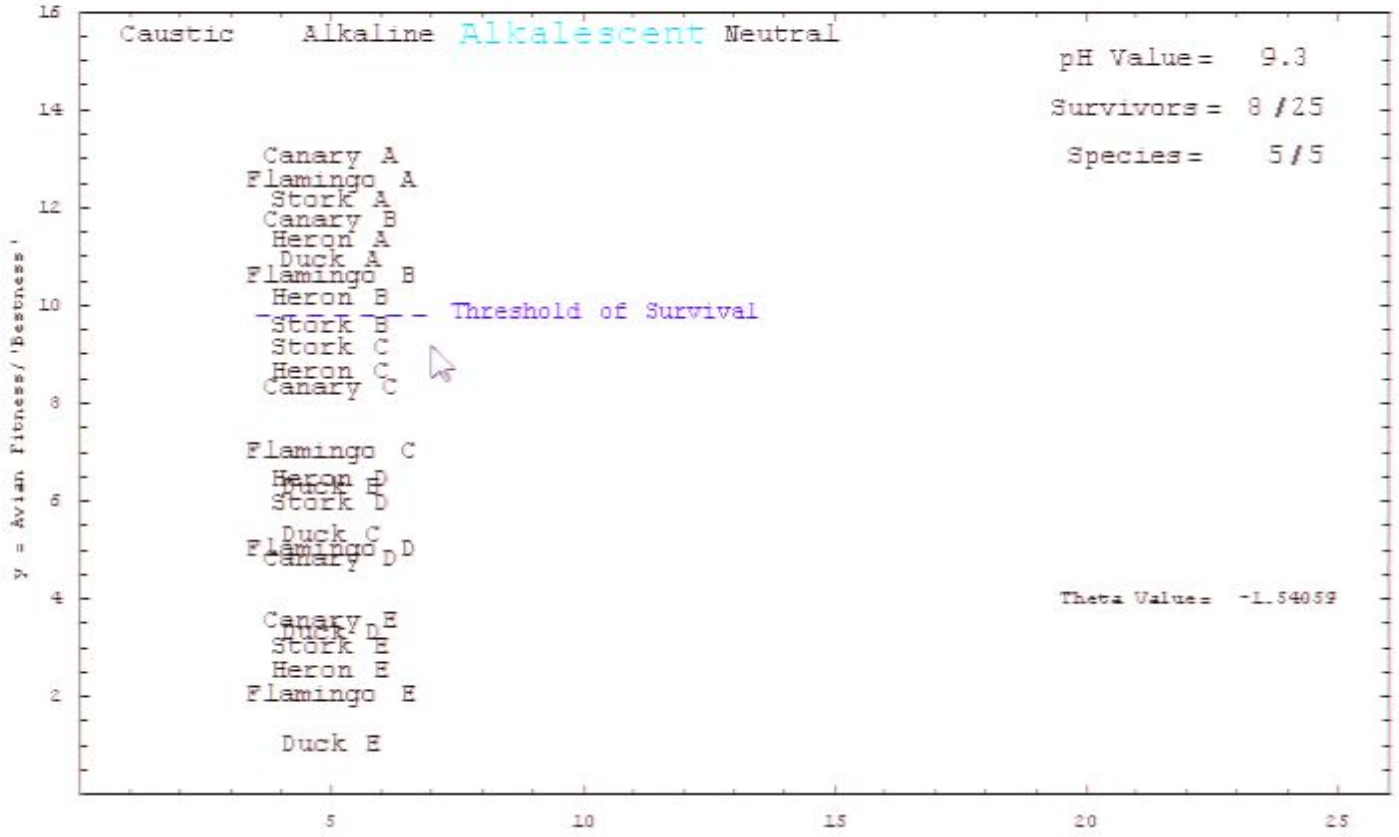

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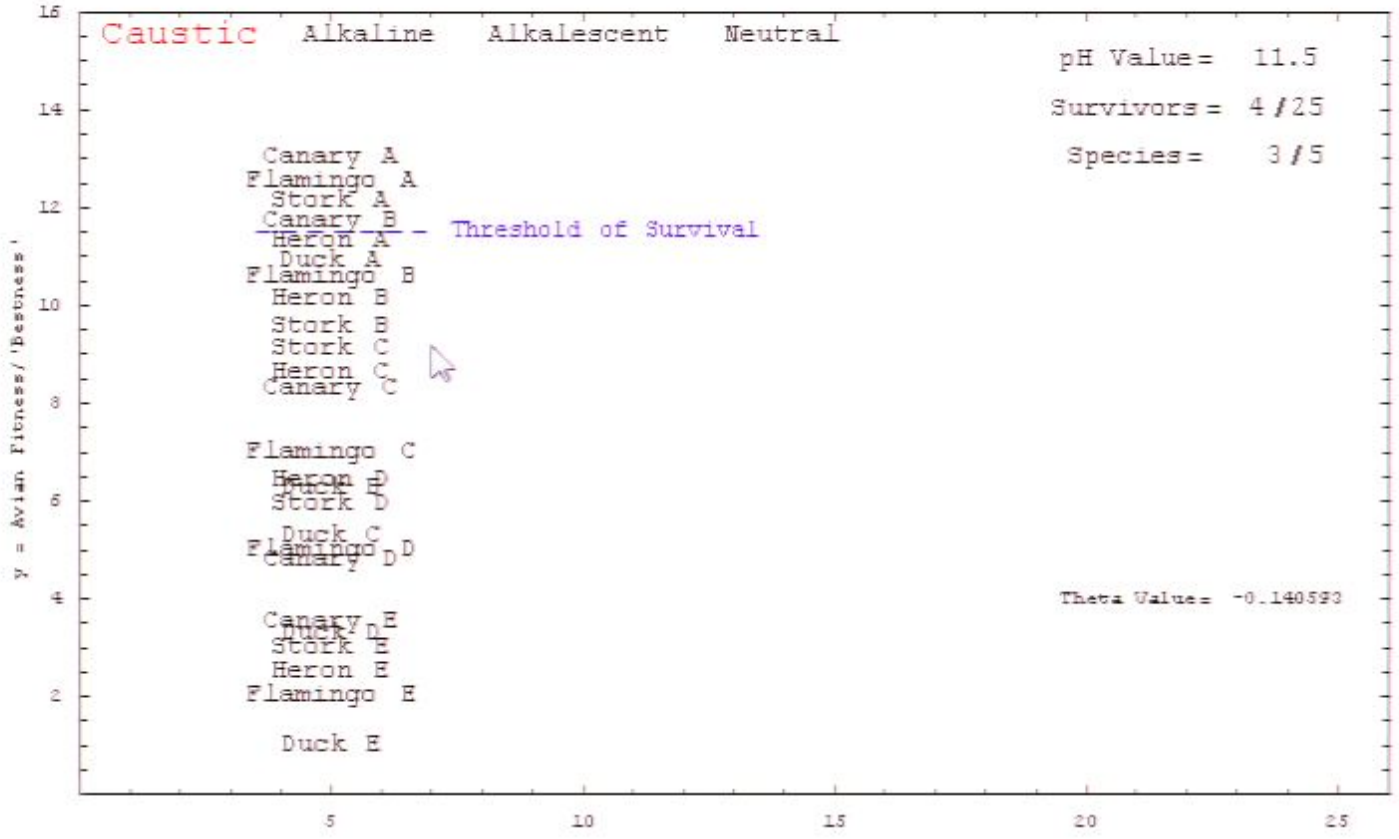

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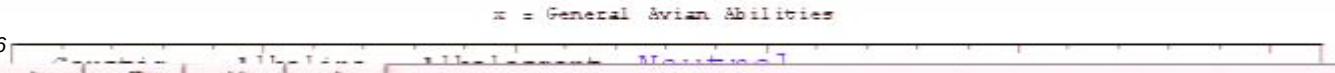

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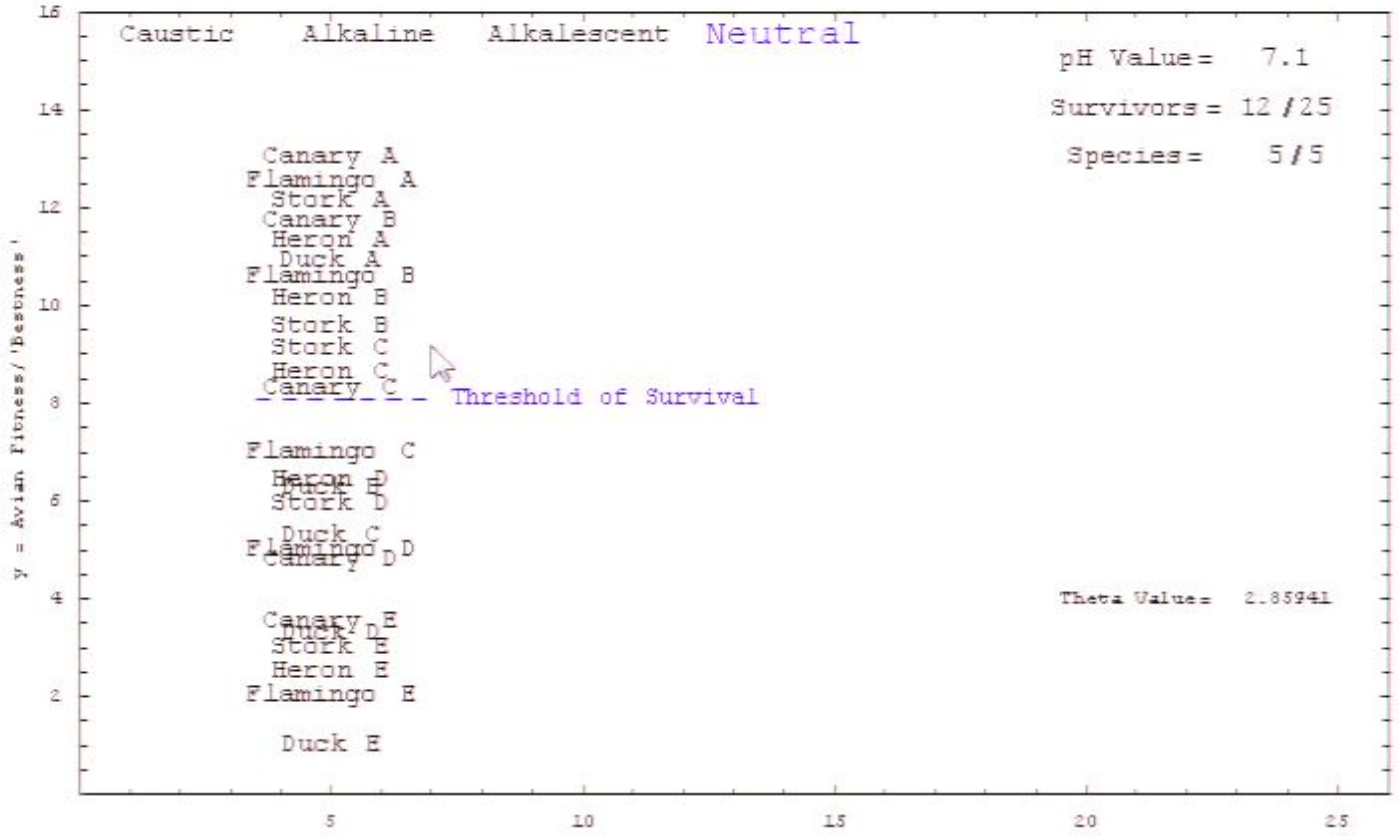

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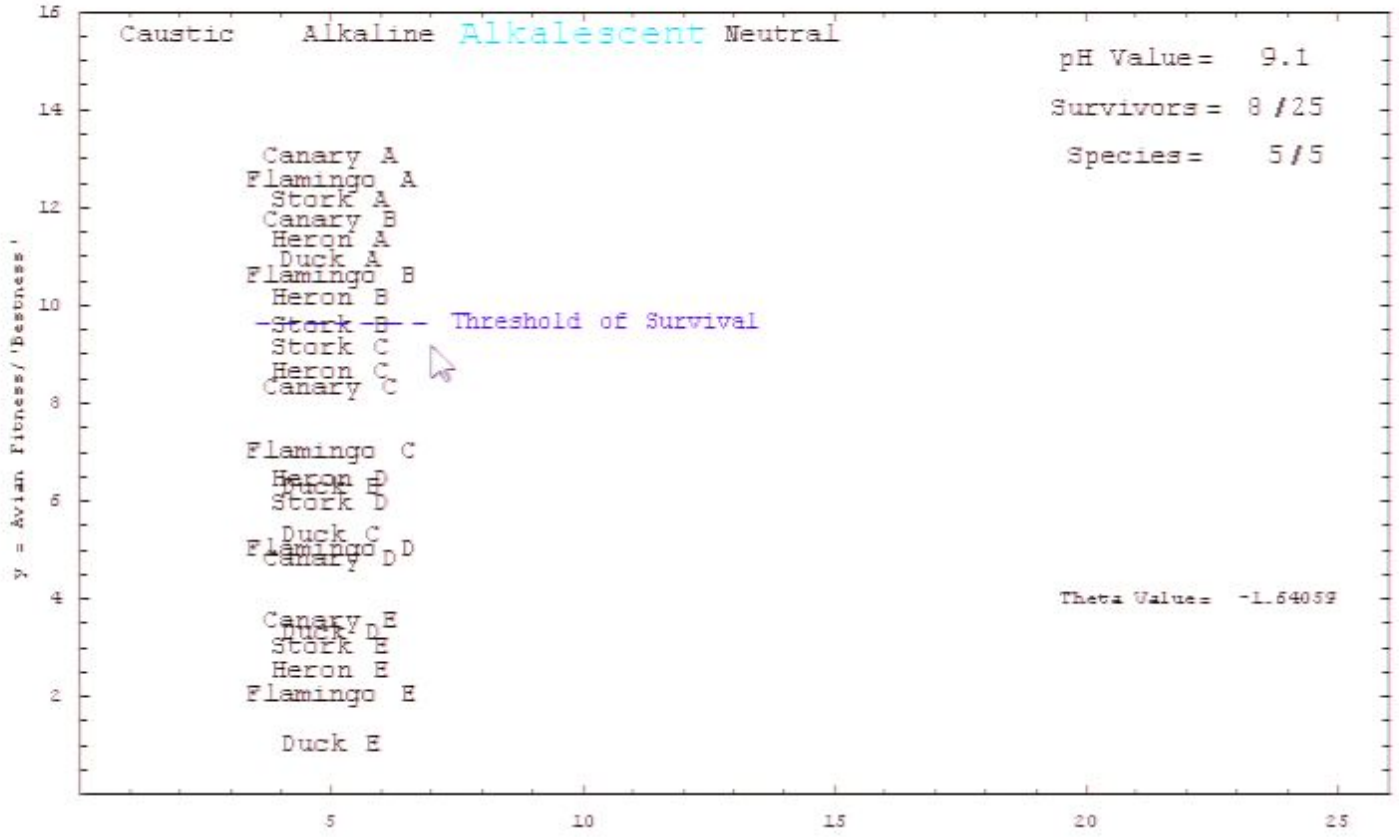

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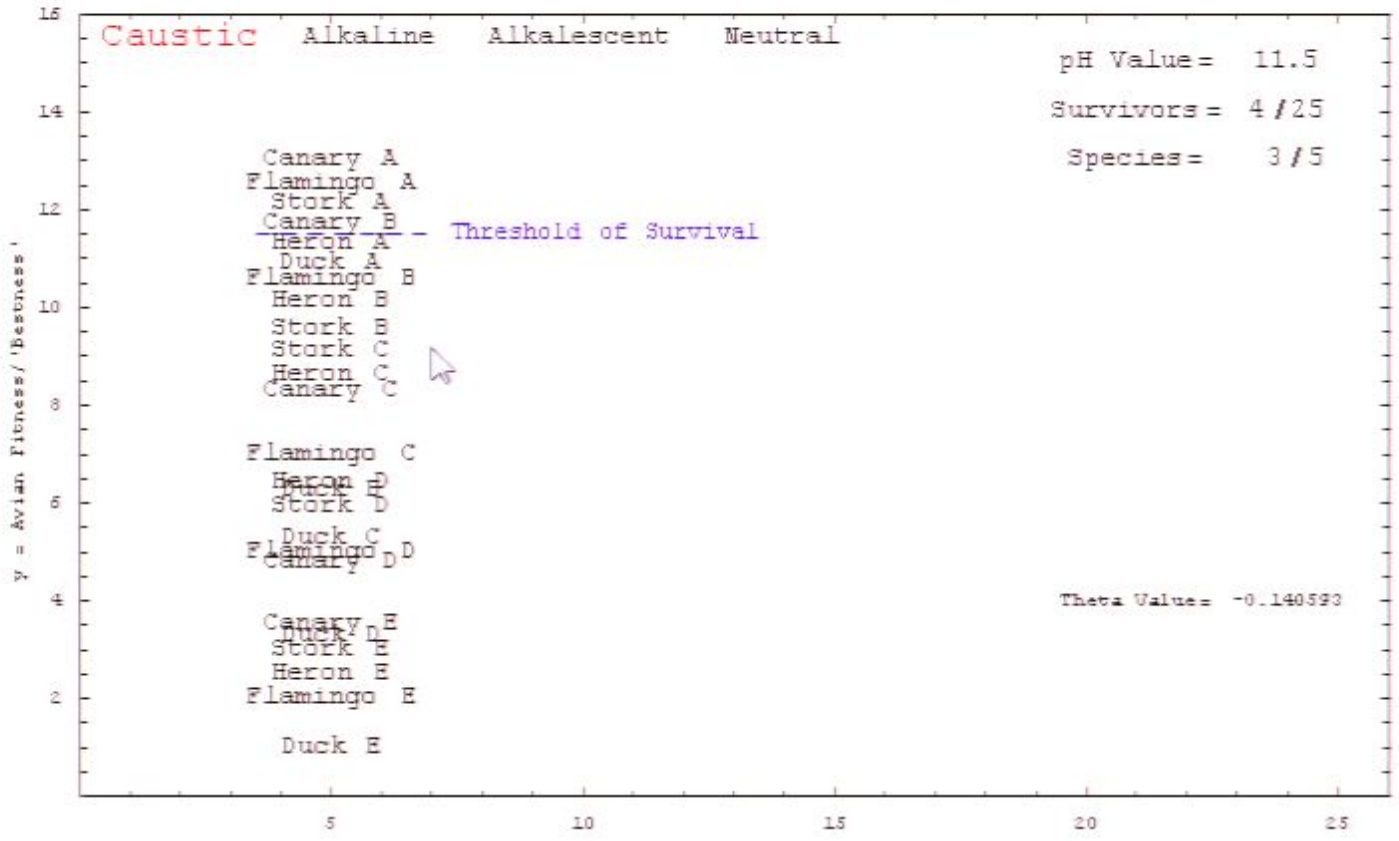

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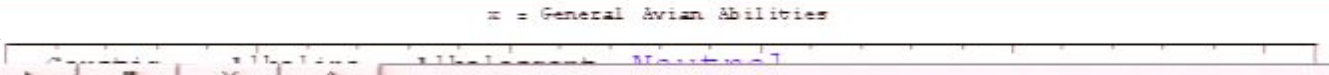

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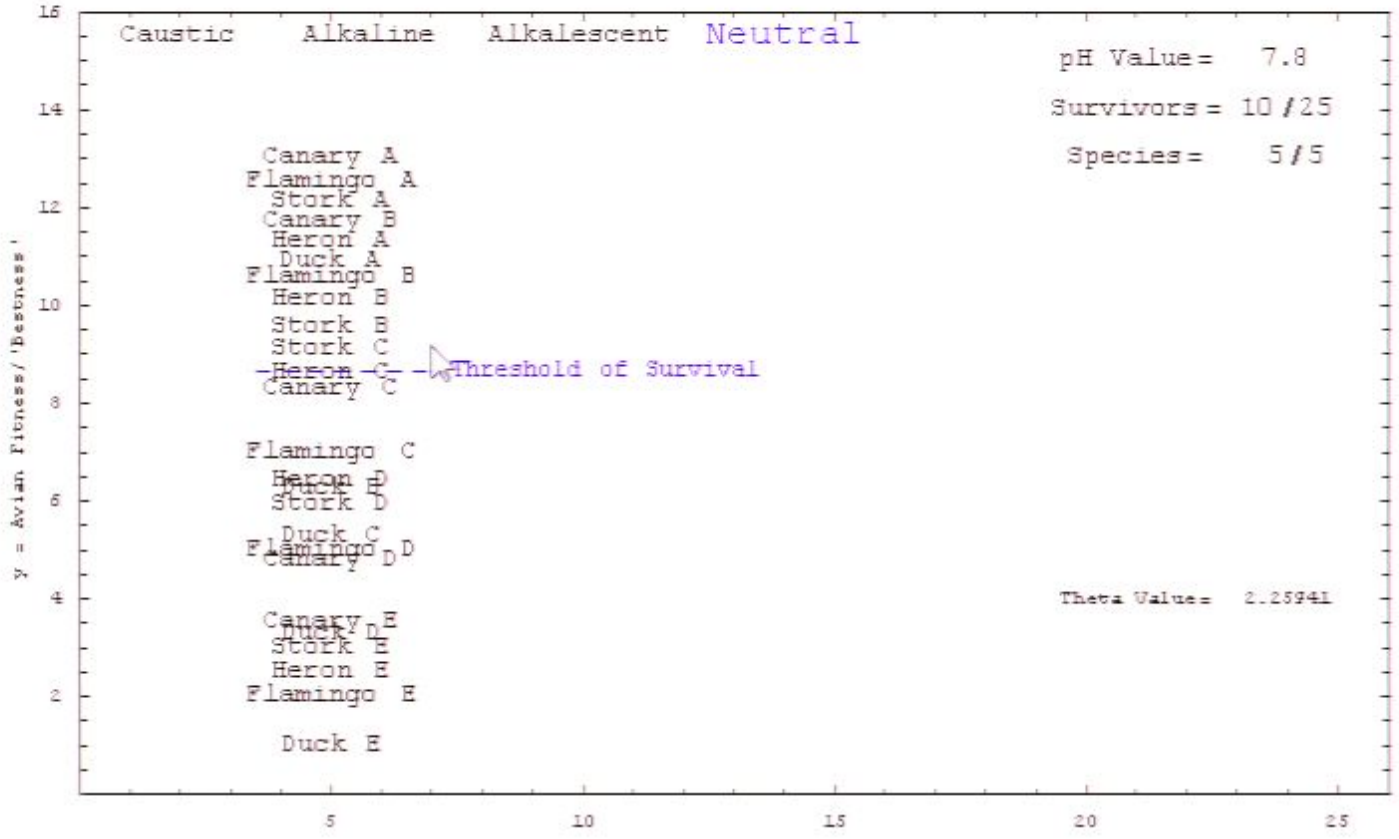

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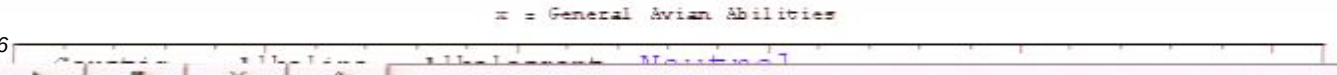

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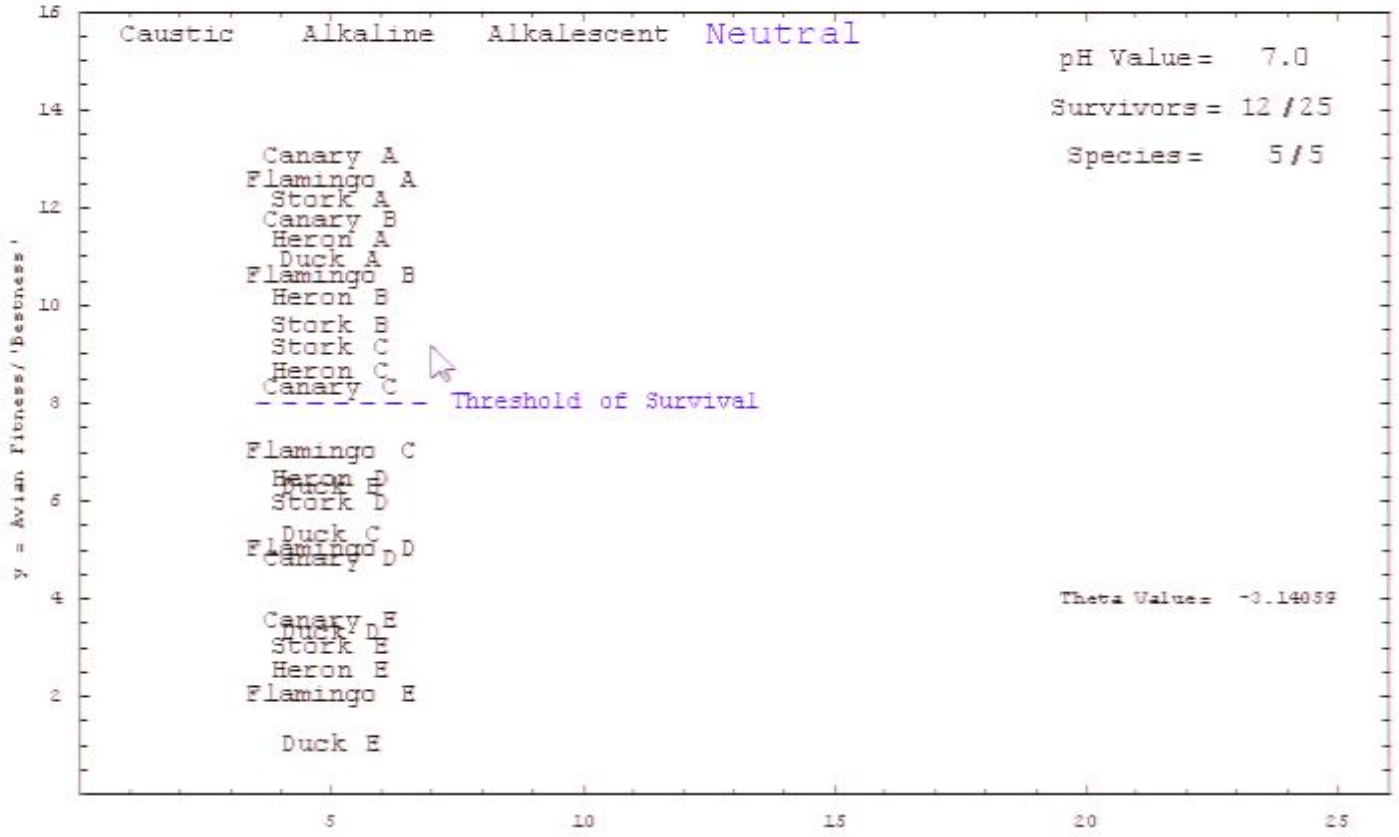

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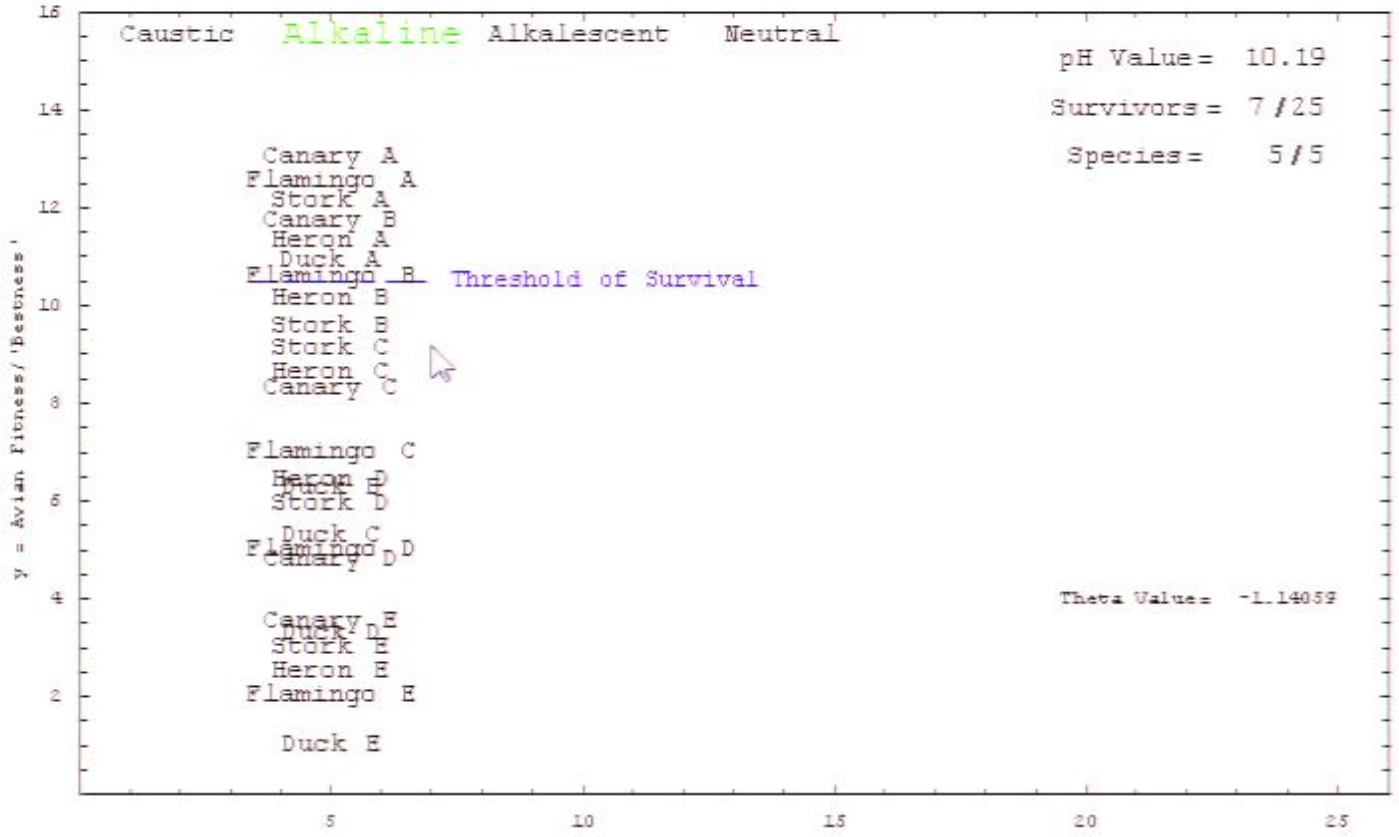

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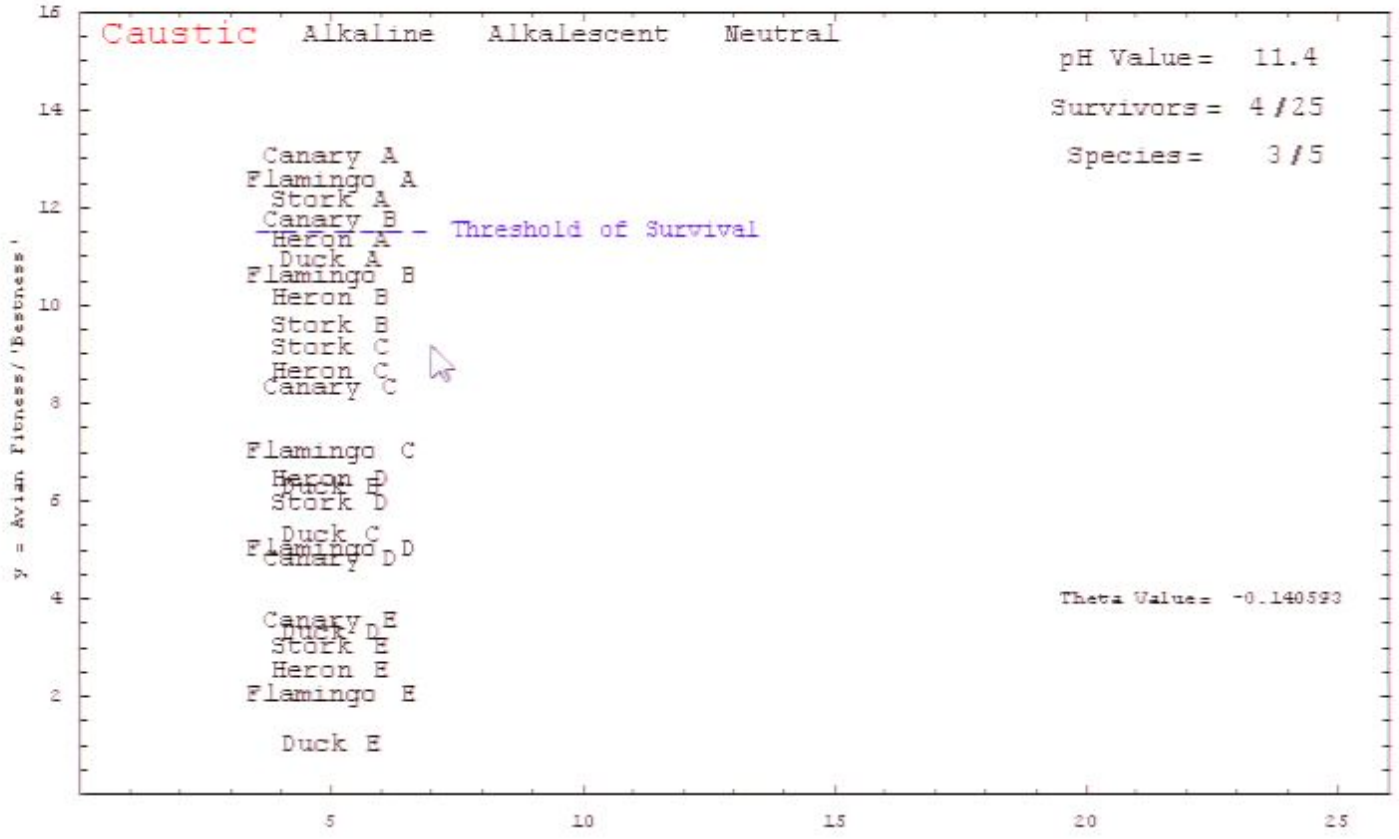

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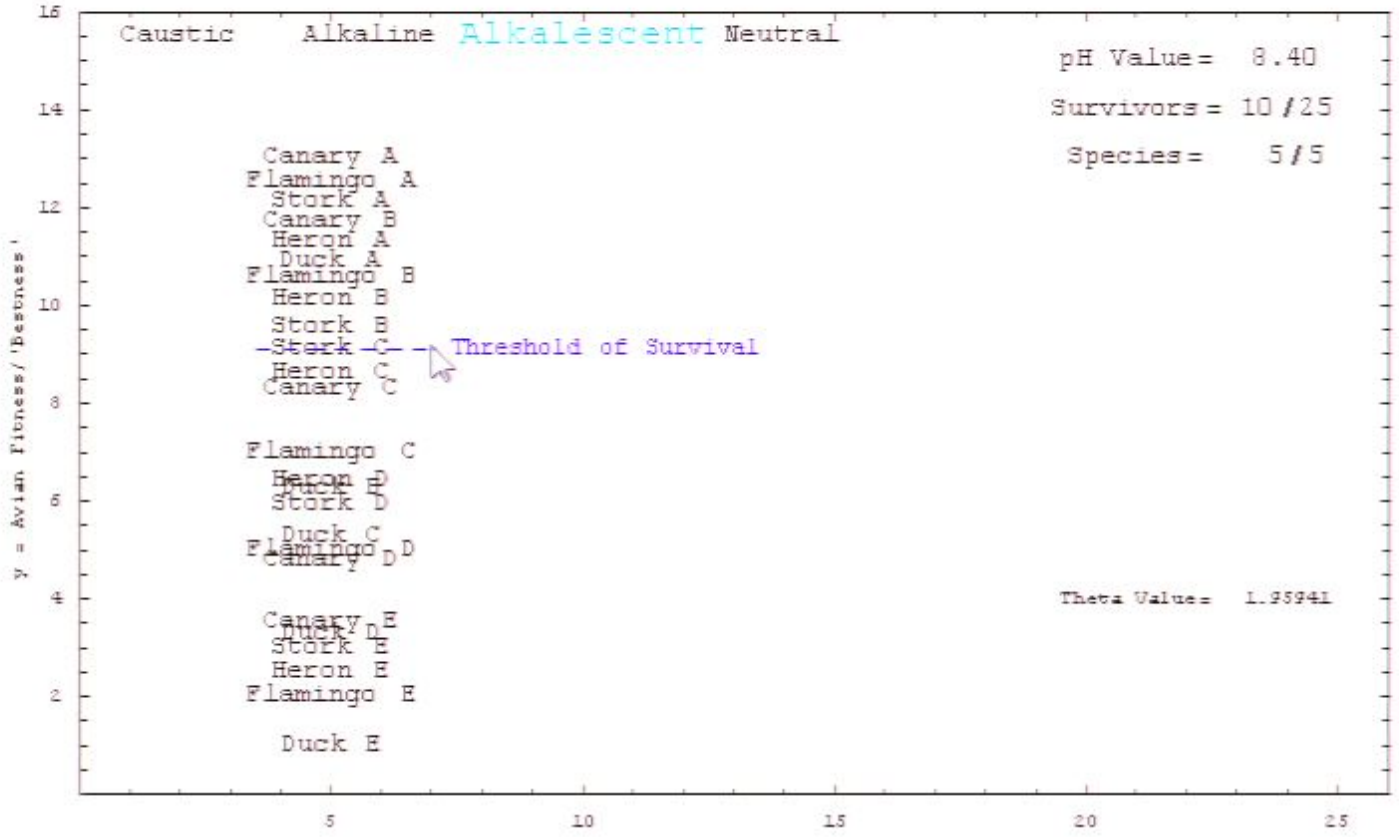

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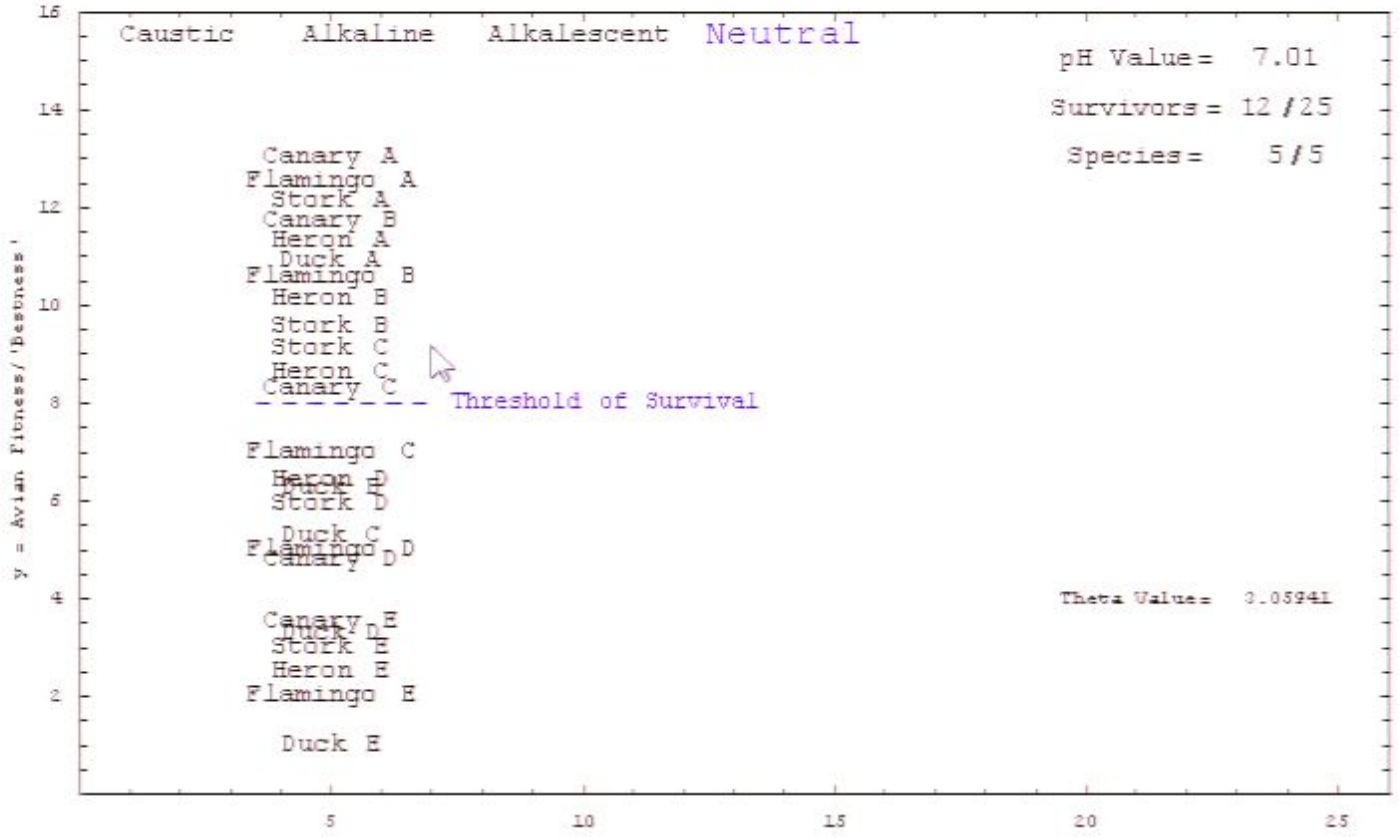

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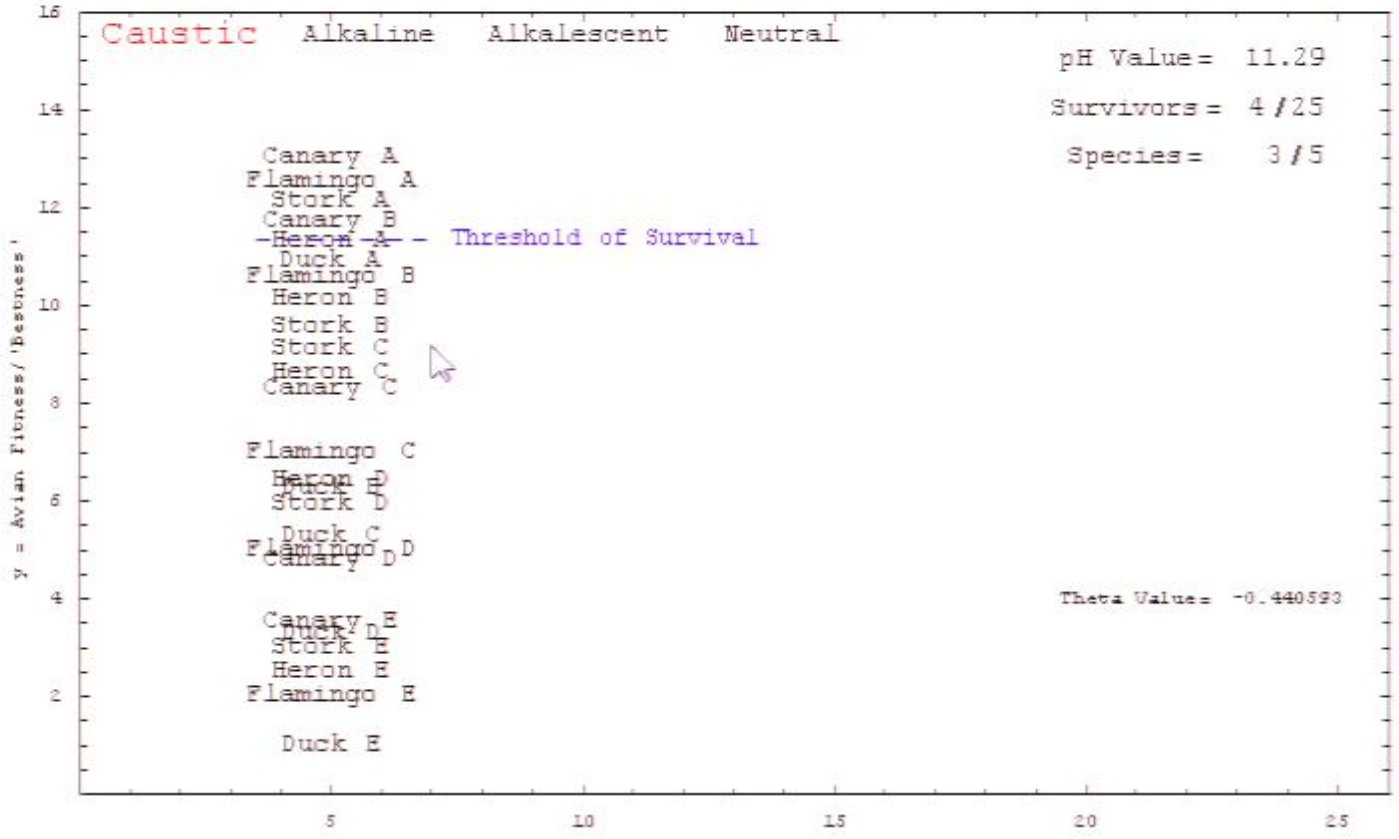

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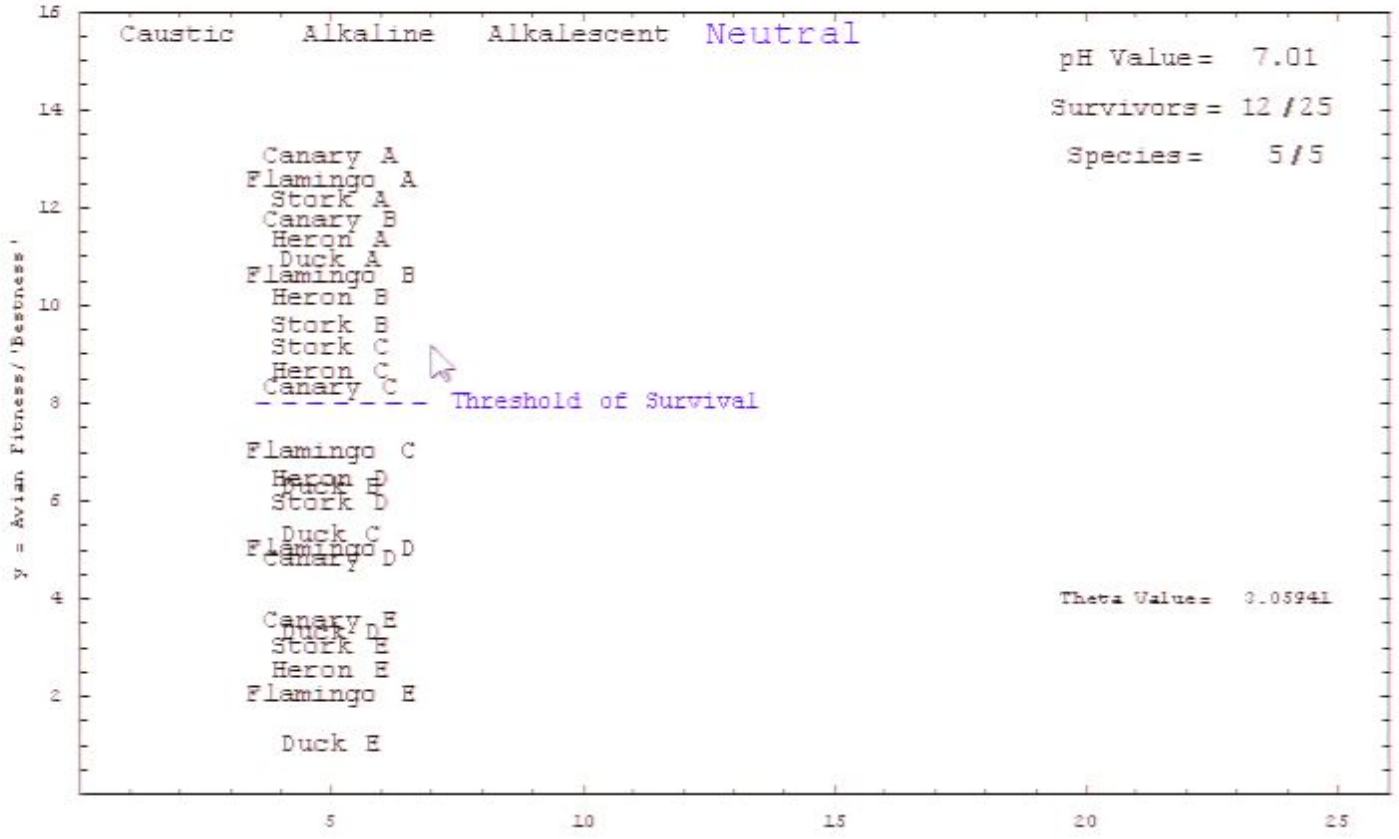

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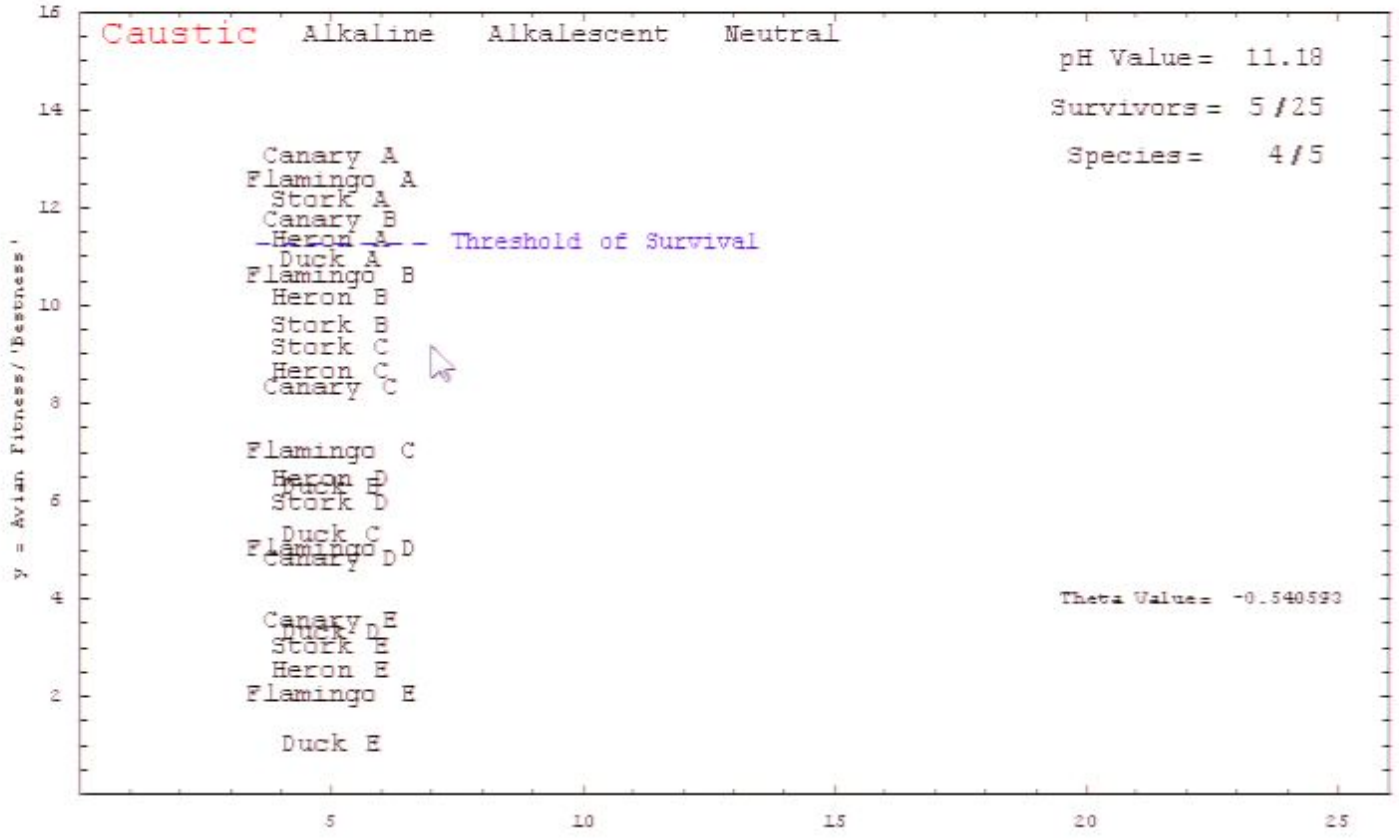

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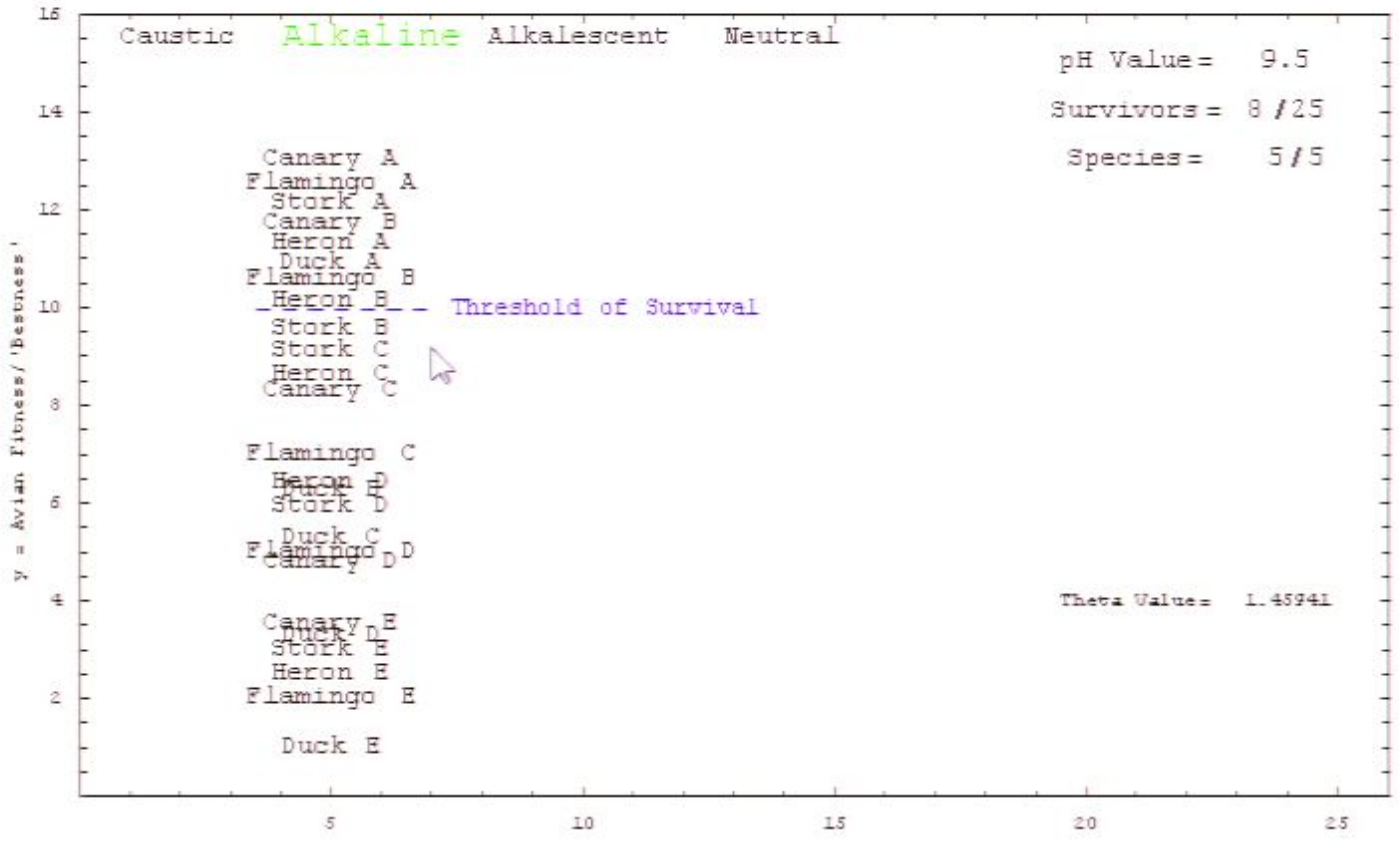

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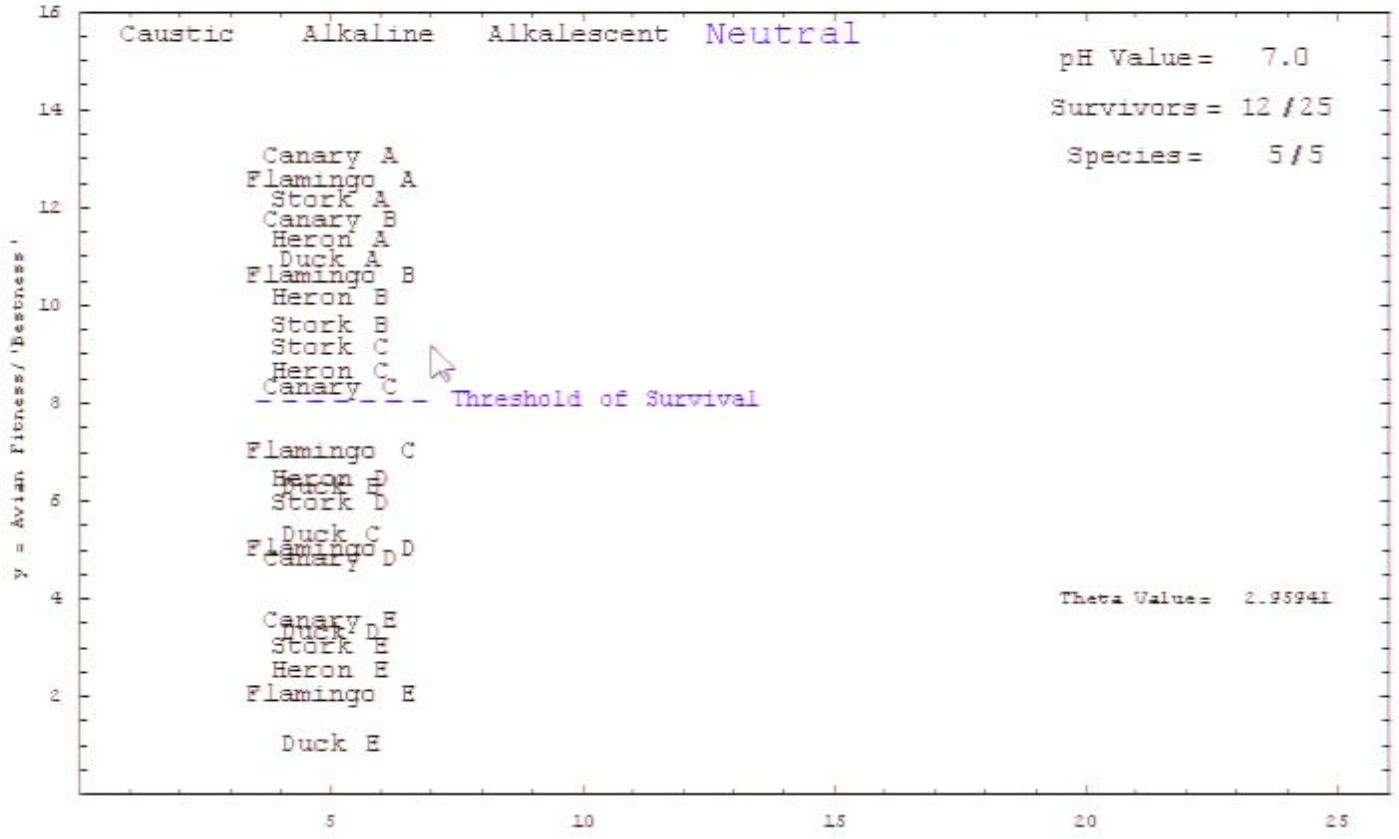

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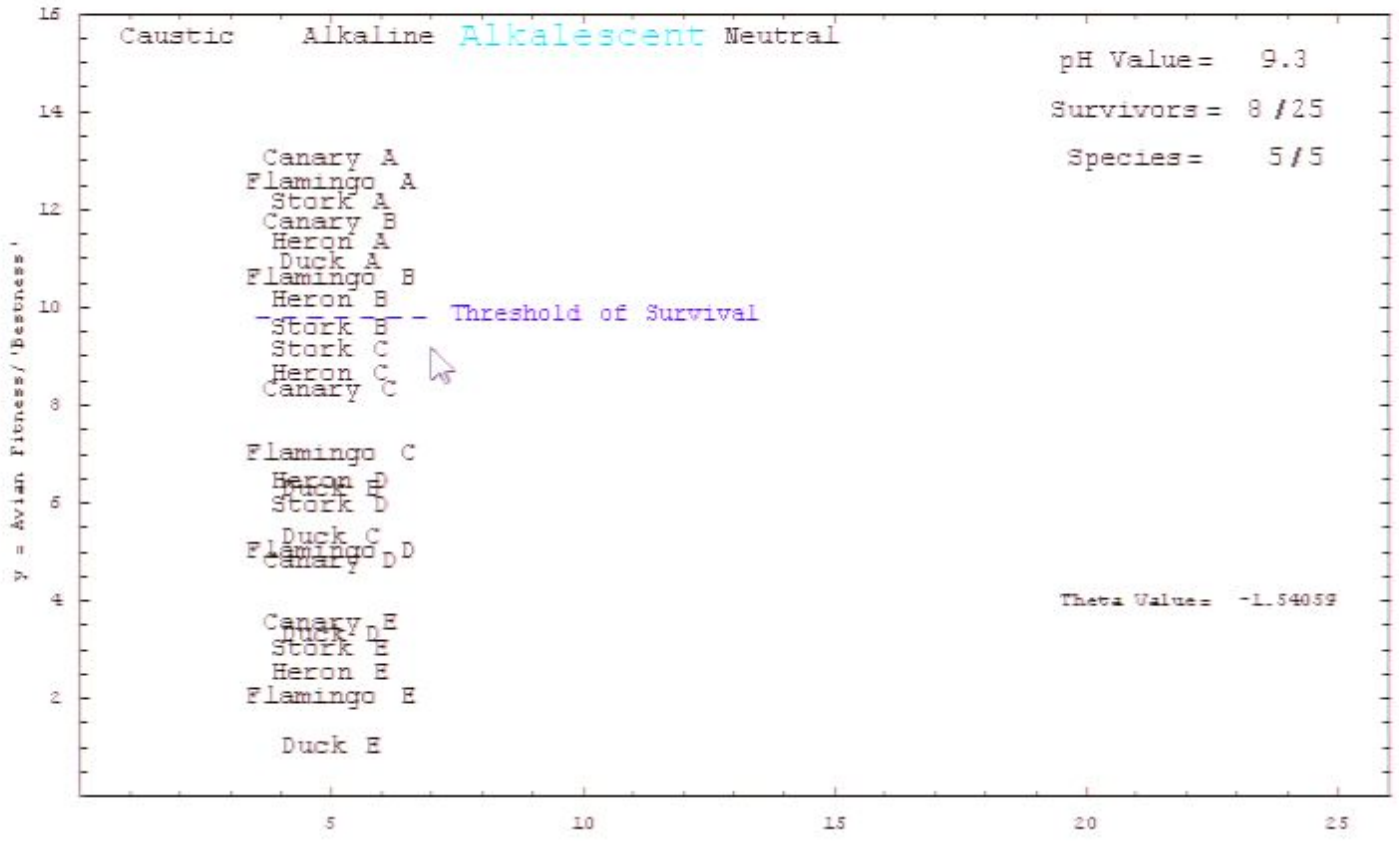

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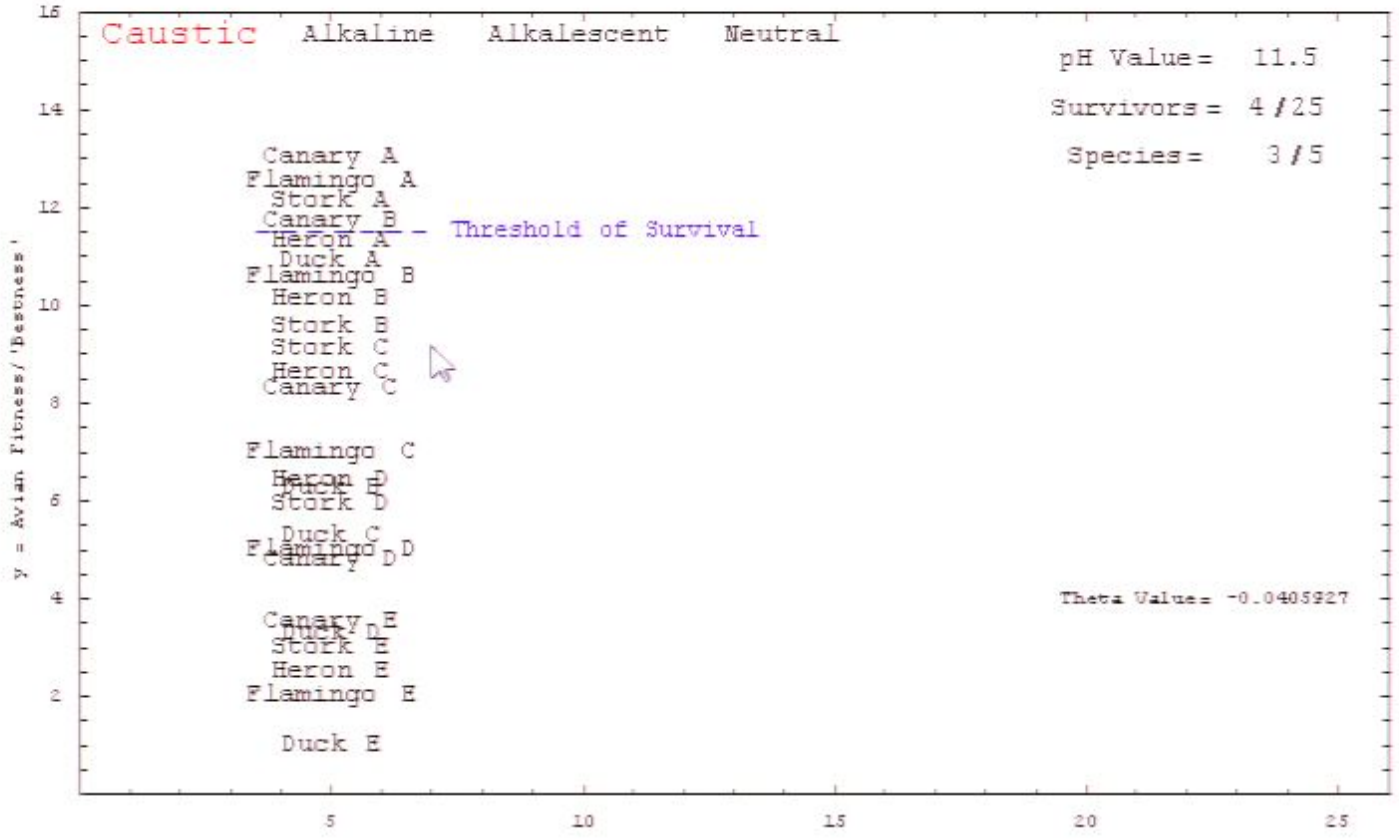

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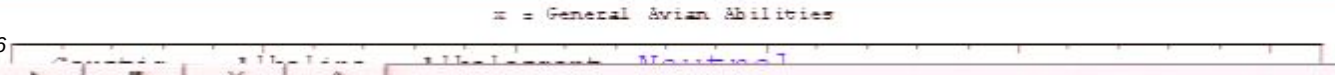

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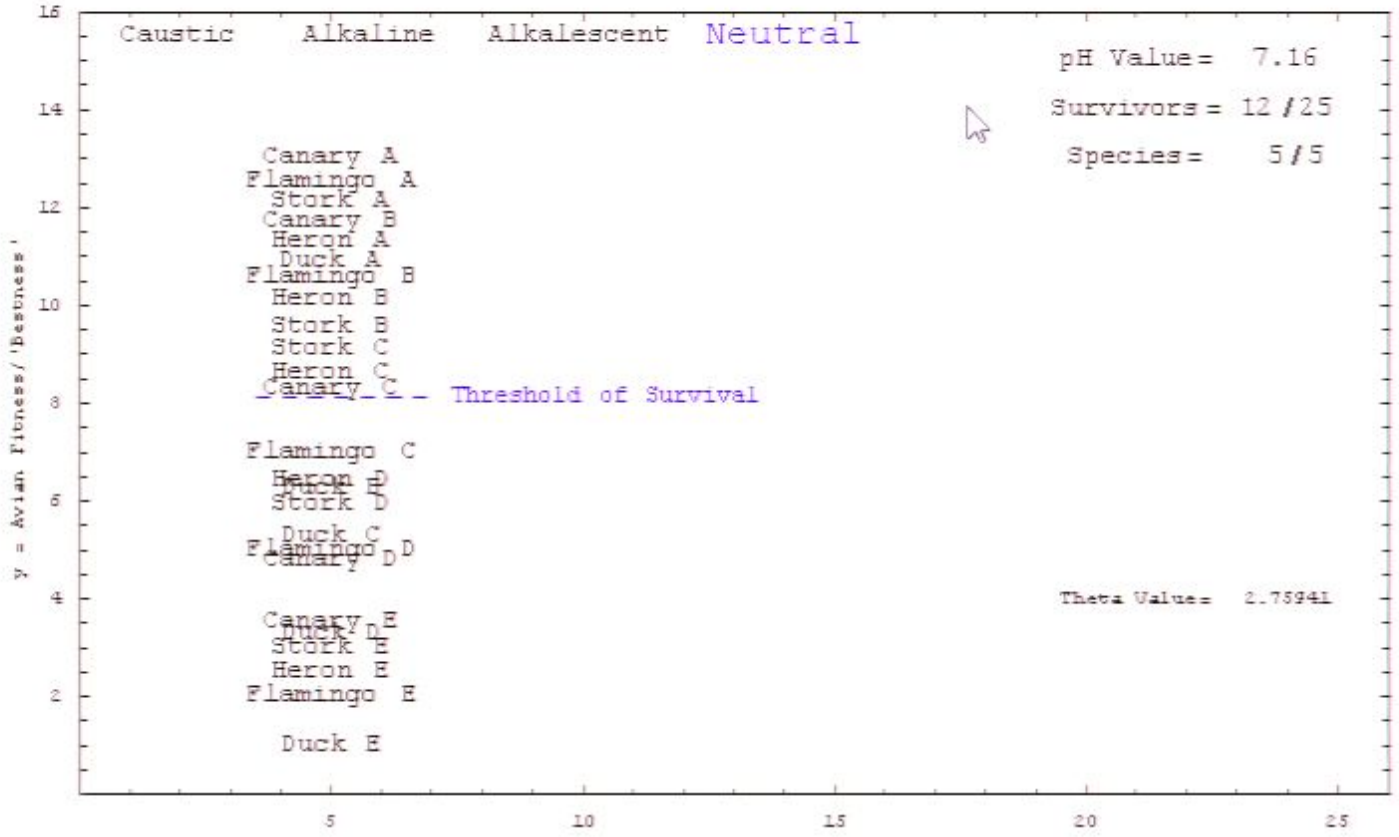

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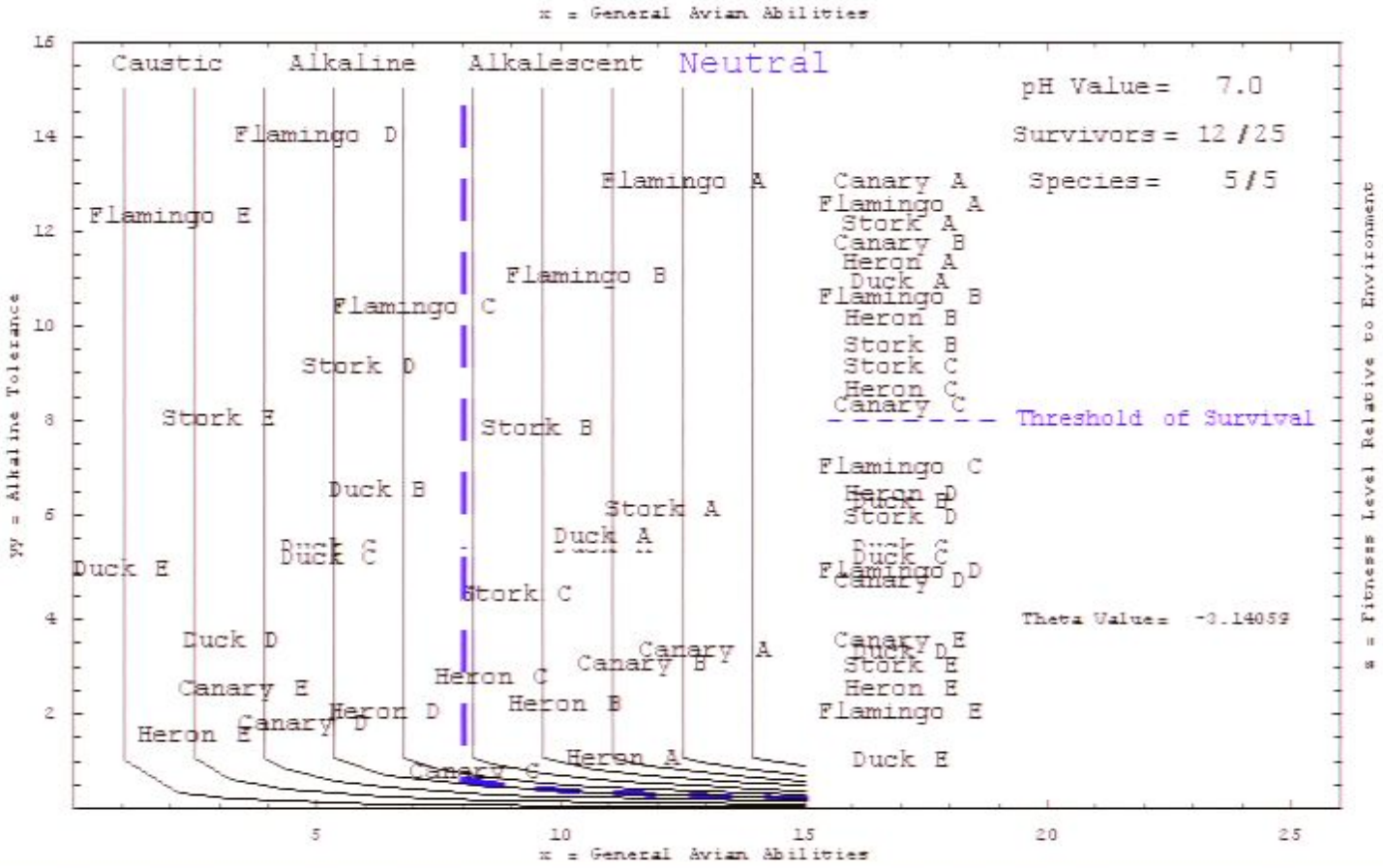
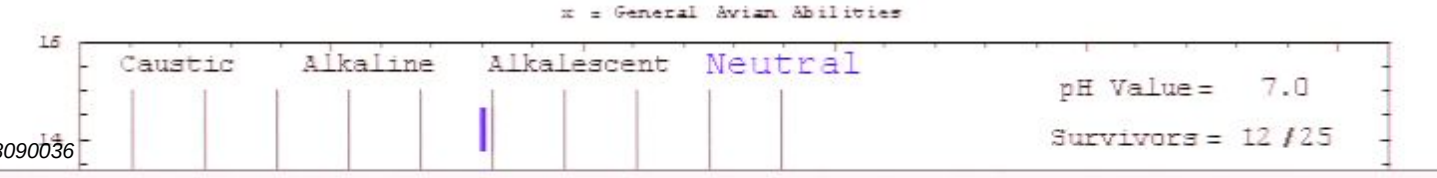


The Big 2D Animation: Perverse "Perfect Proxy" Scenario



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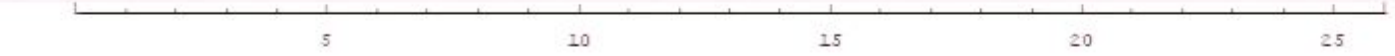

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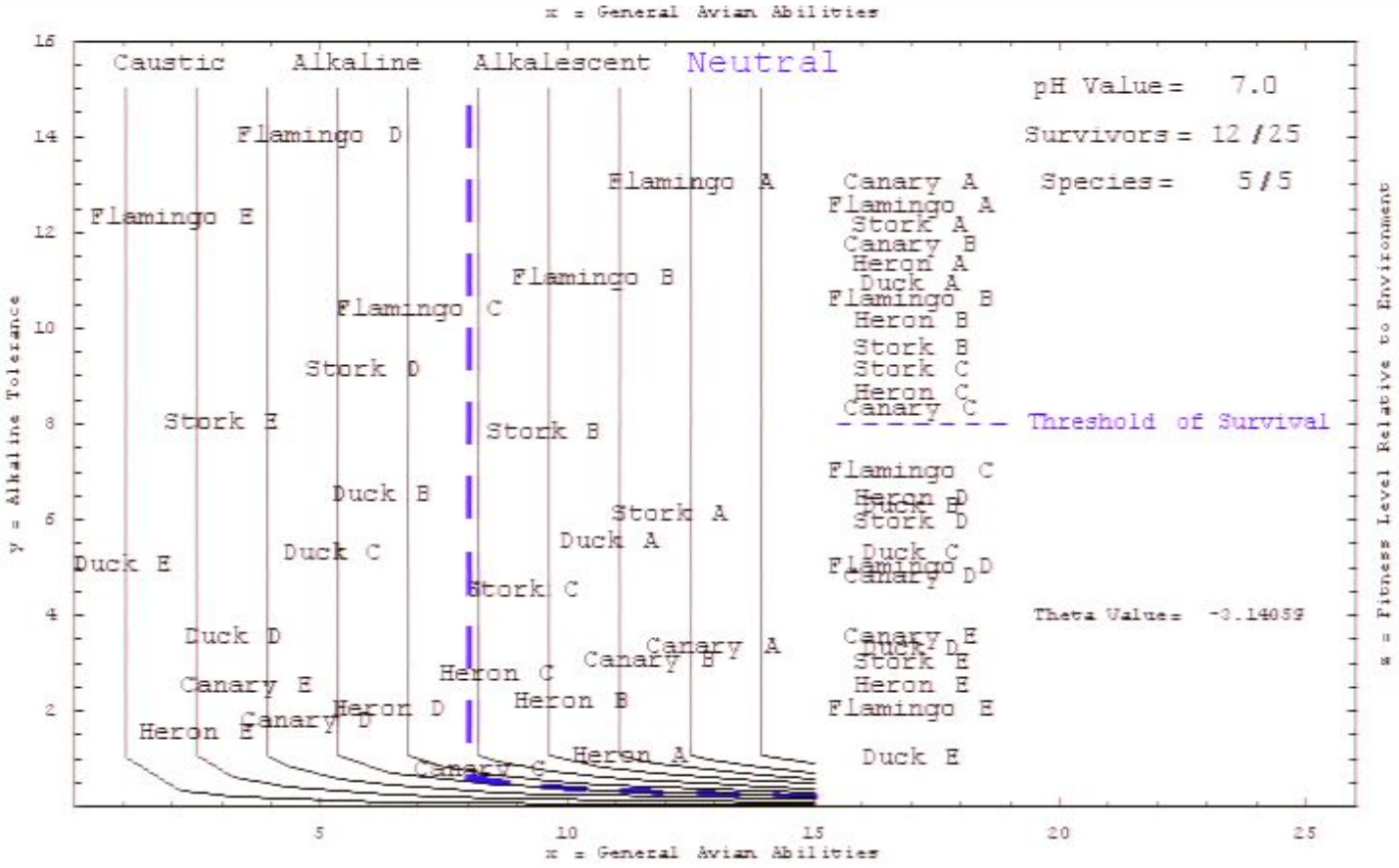

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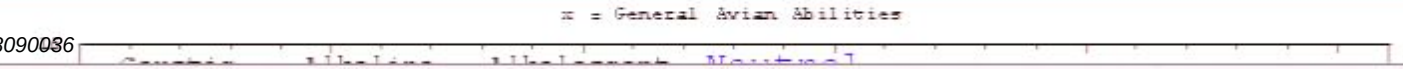

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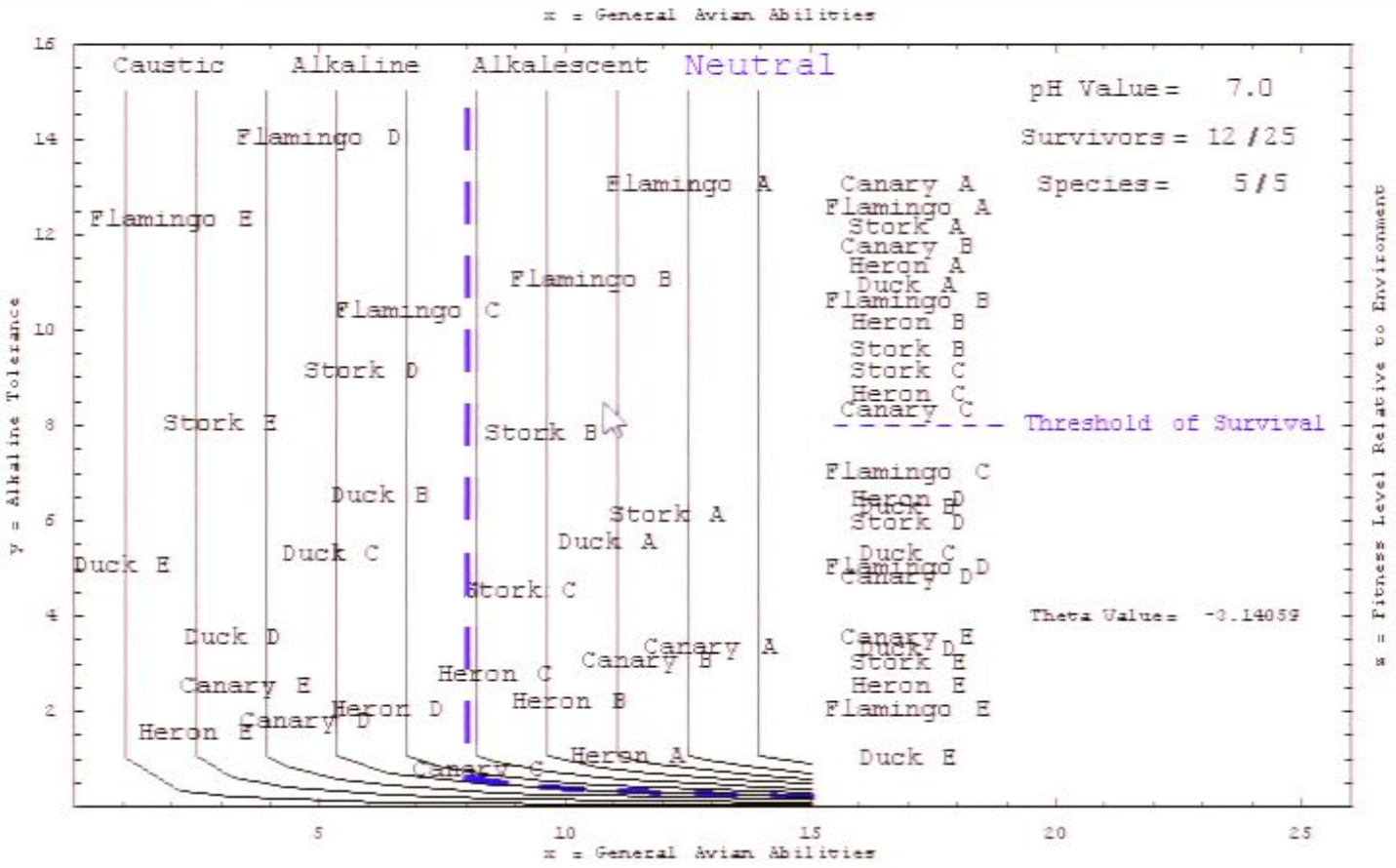

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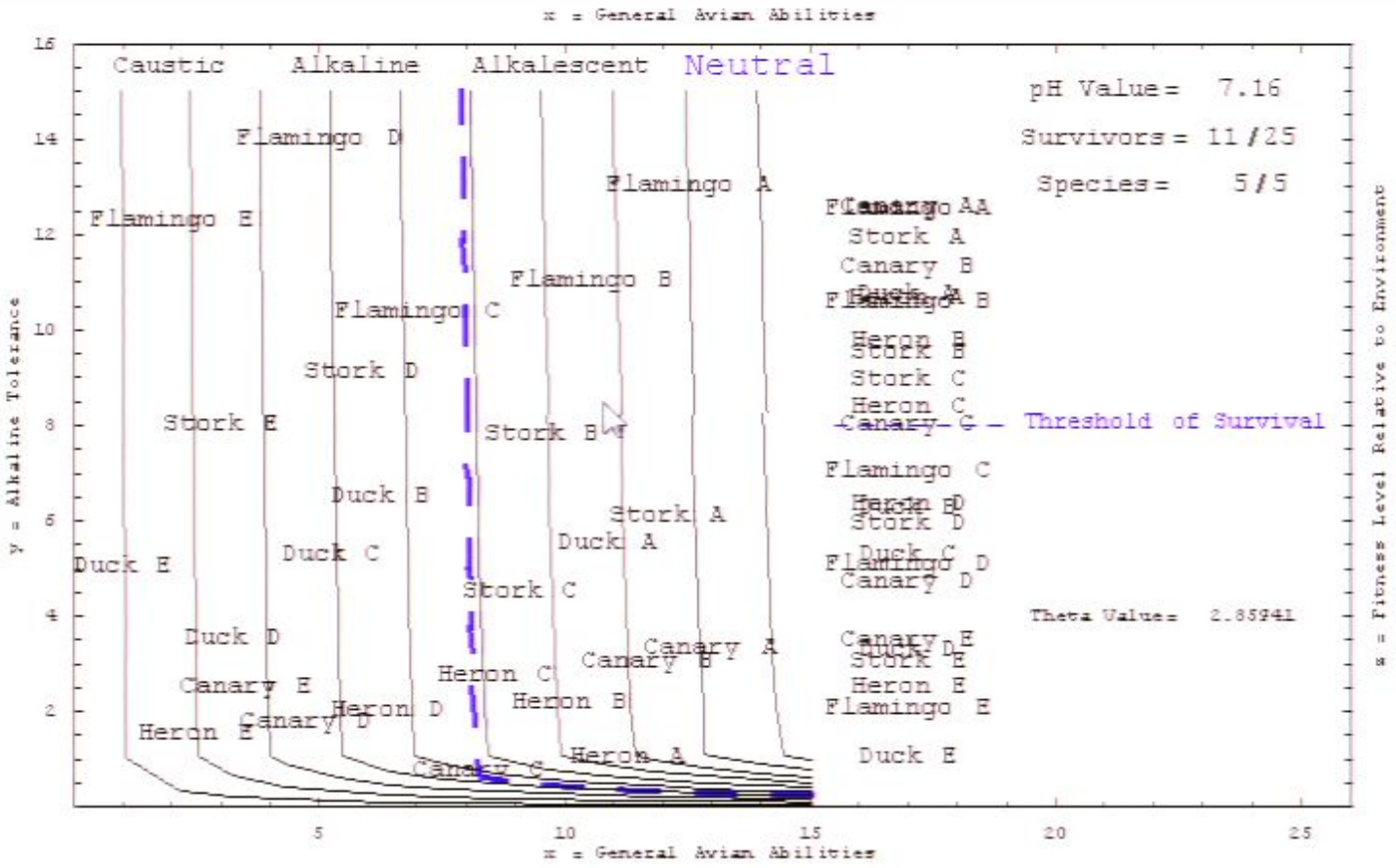

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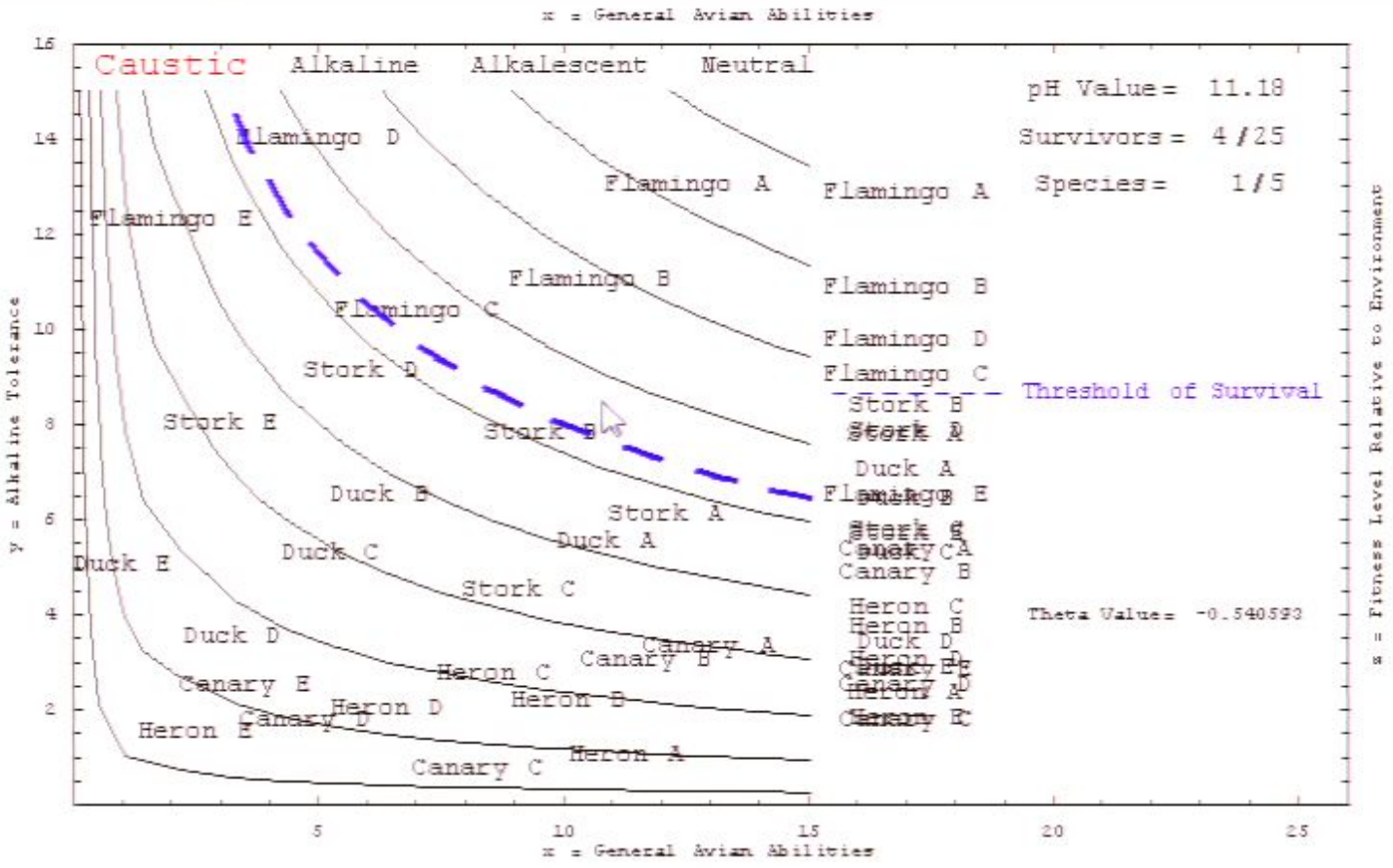

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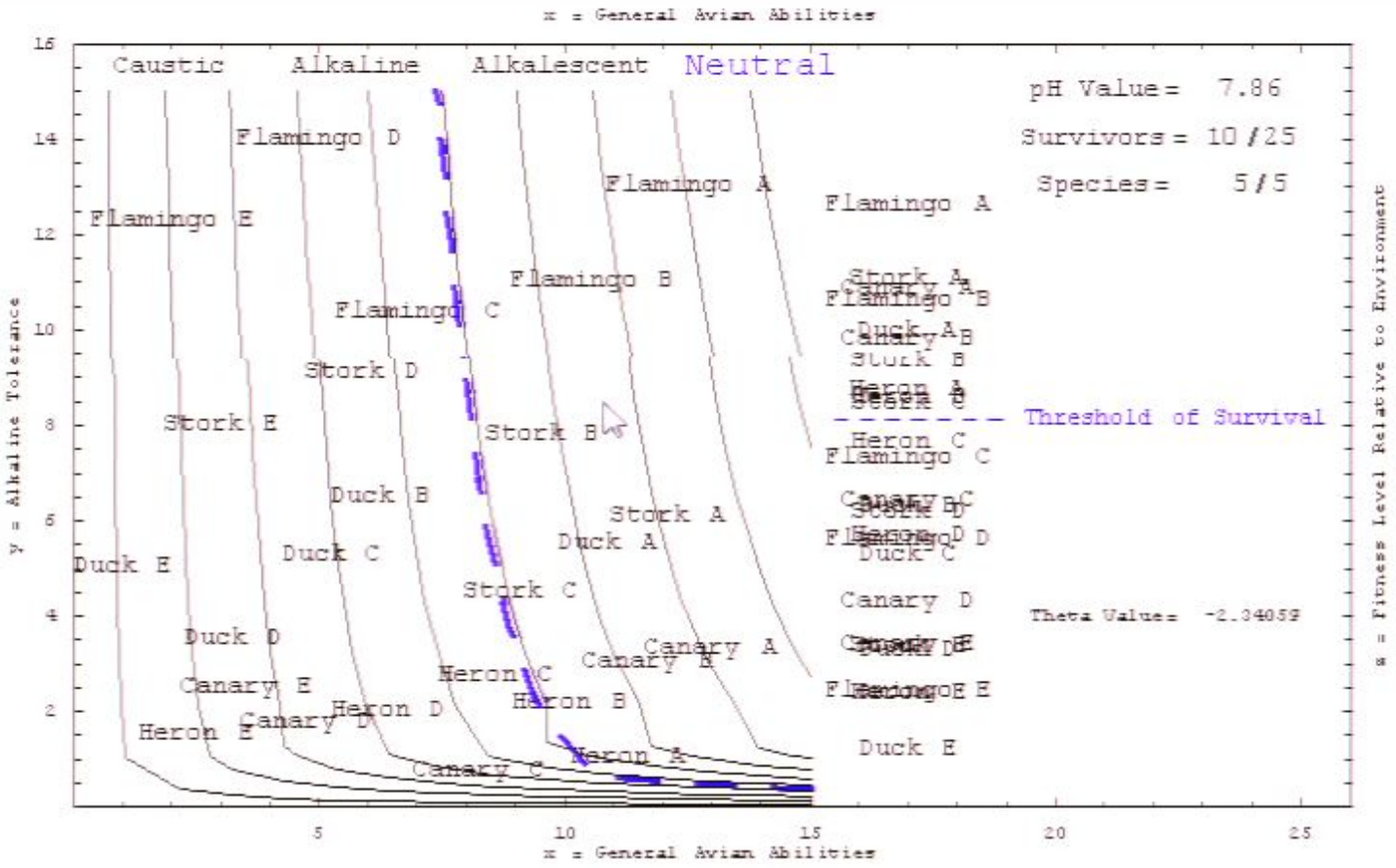

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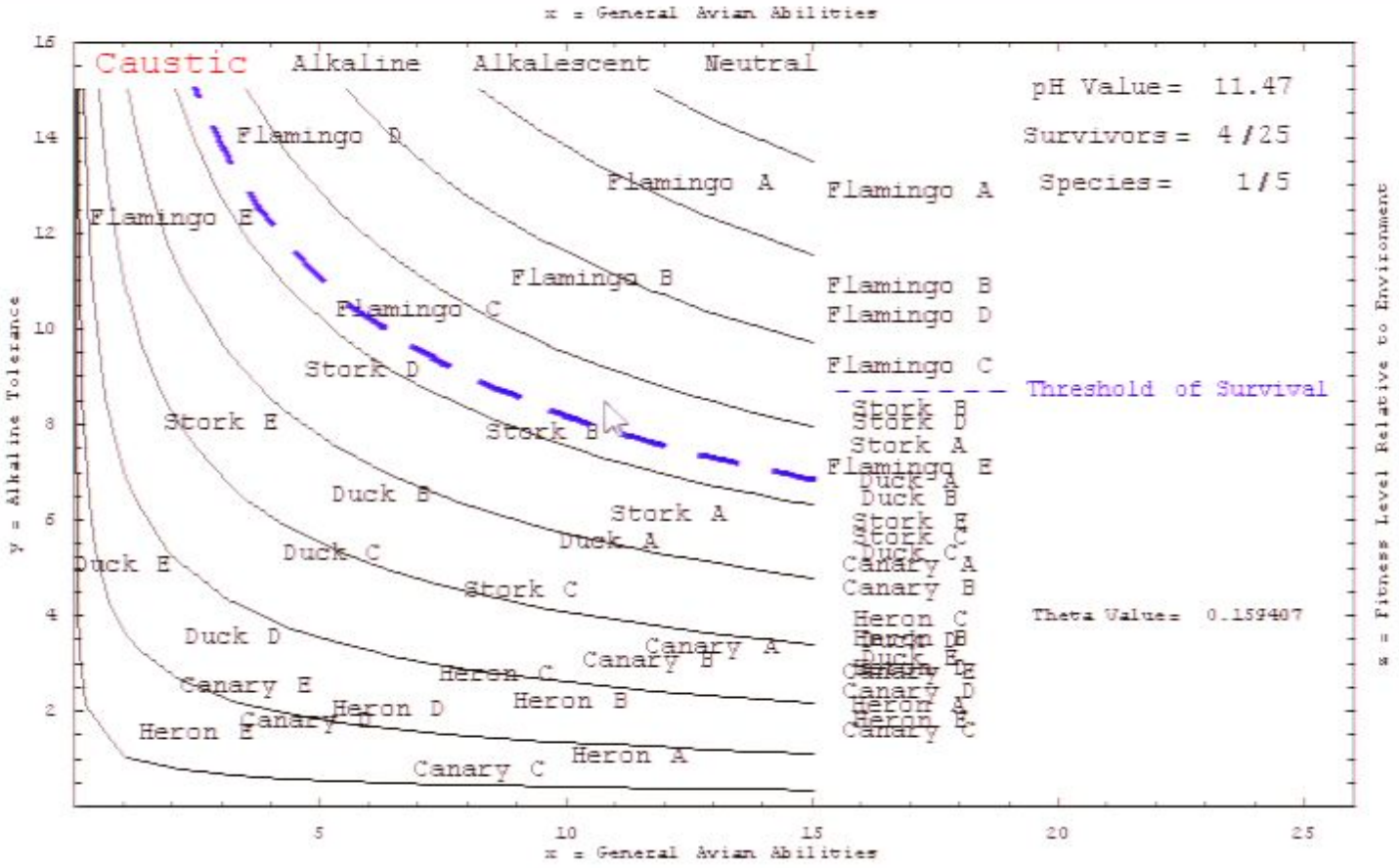

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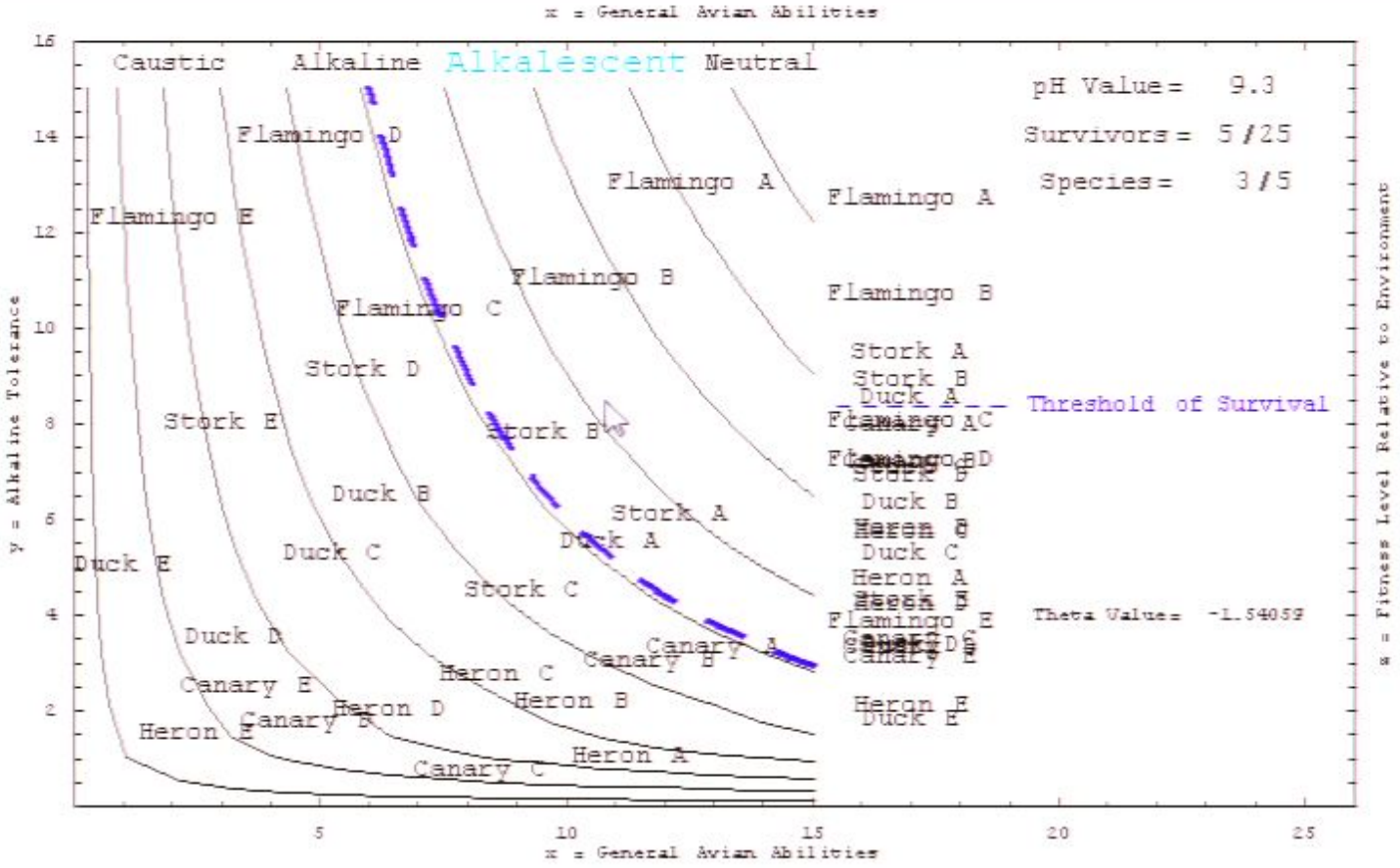

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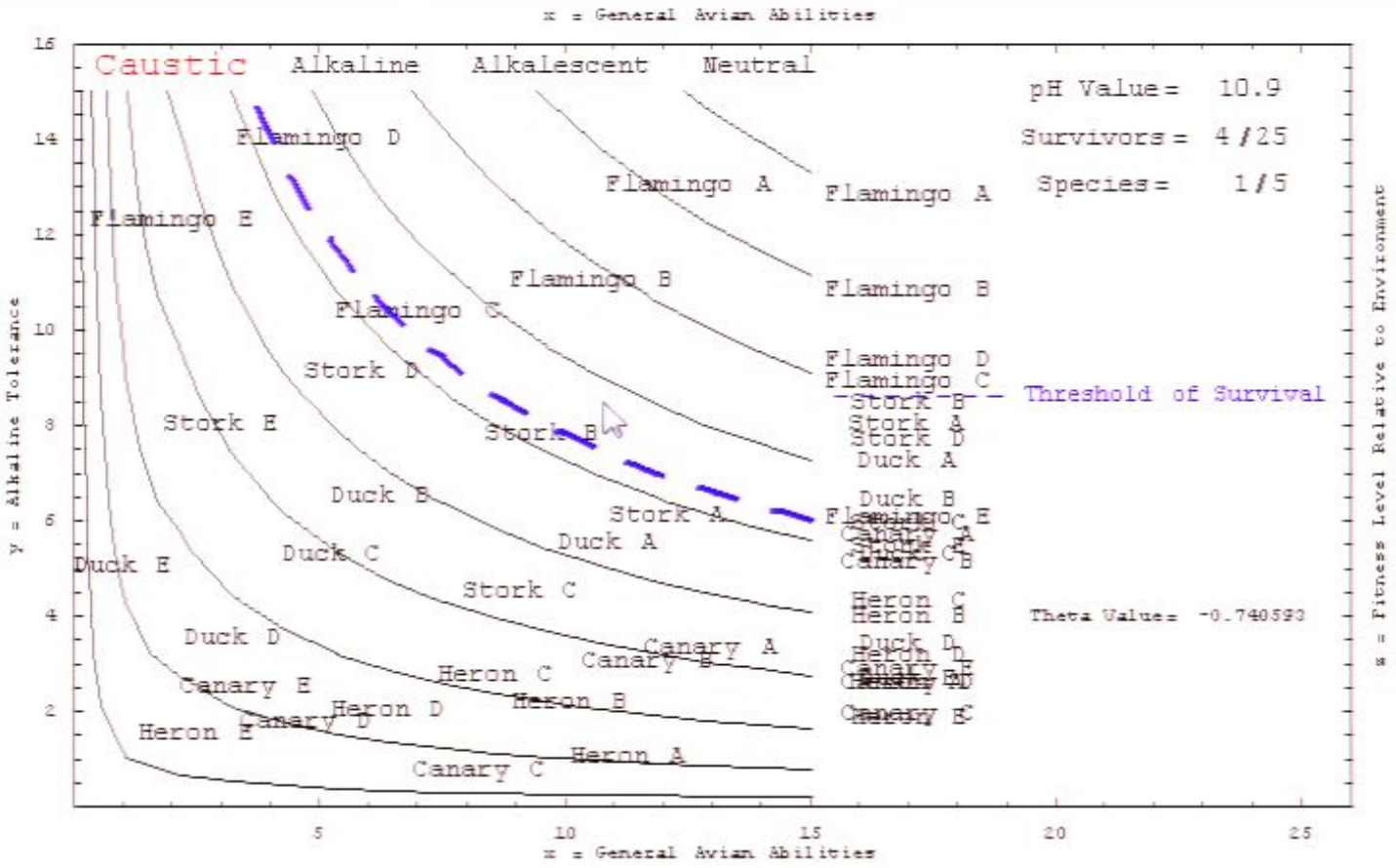

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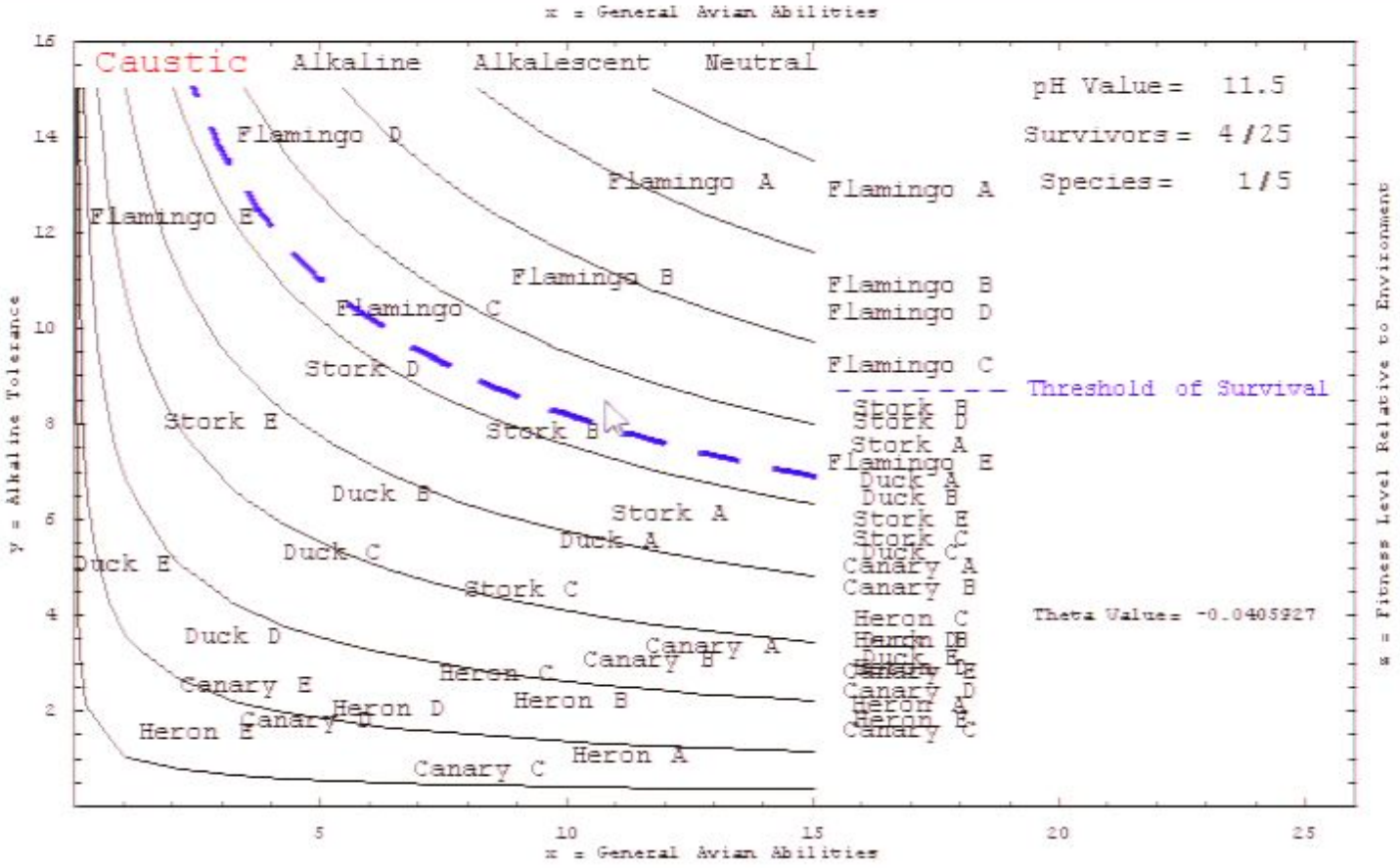

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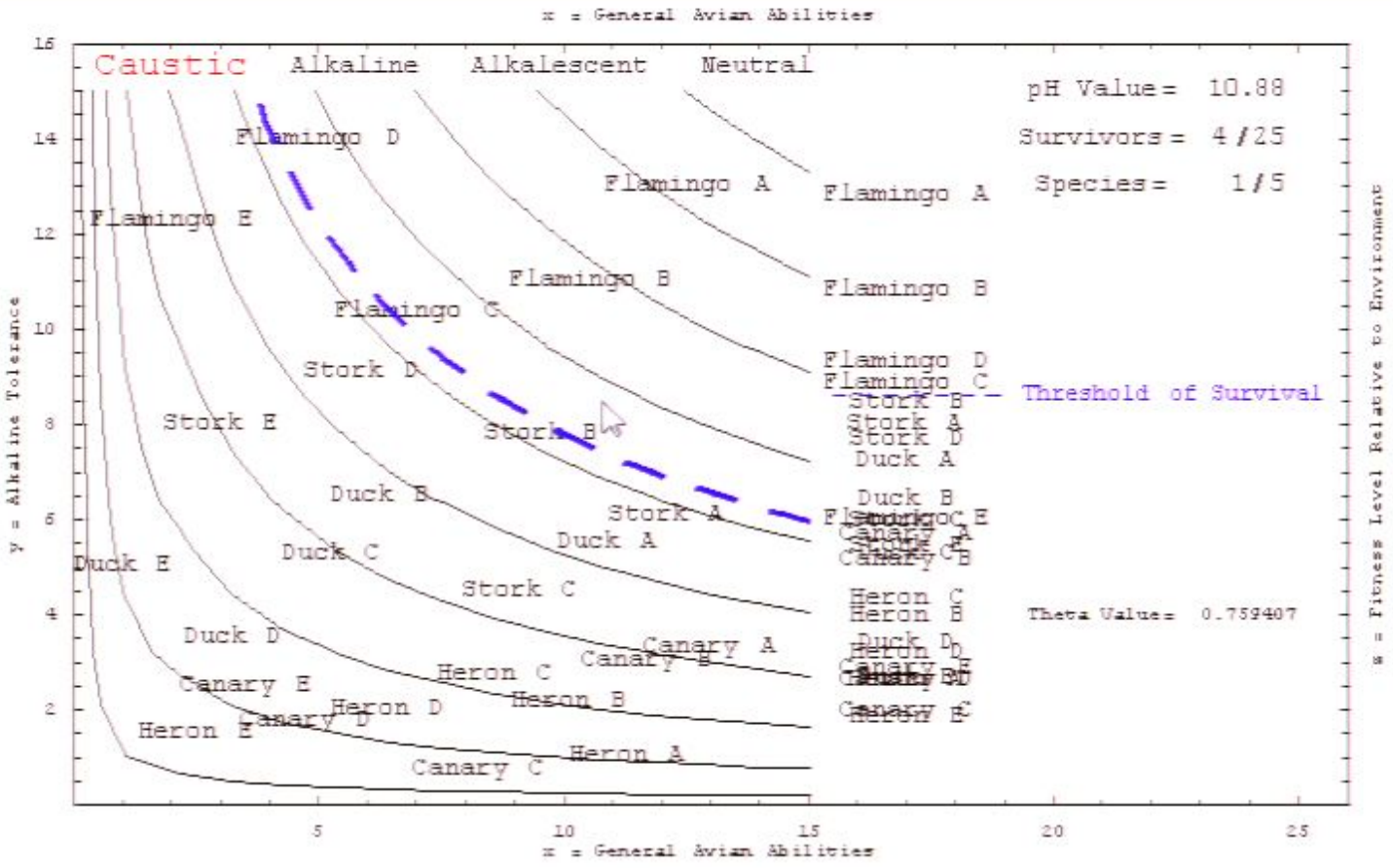

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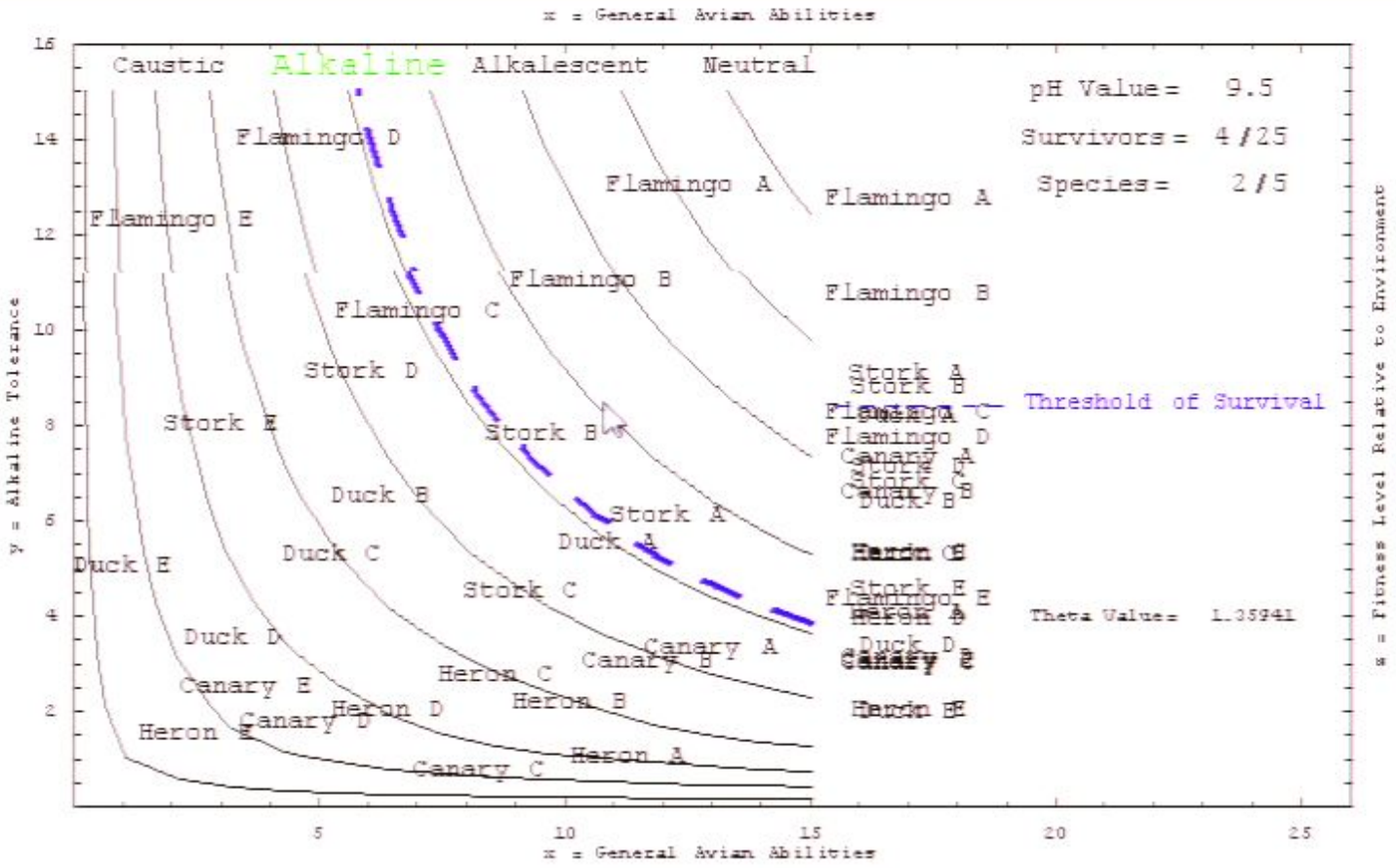

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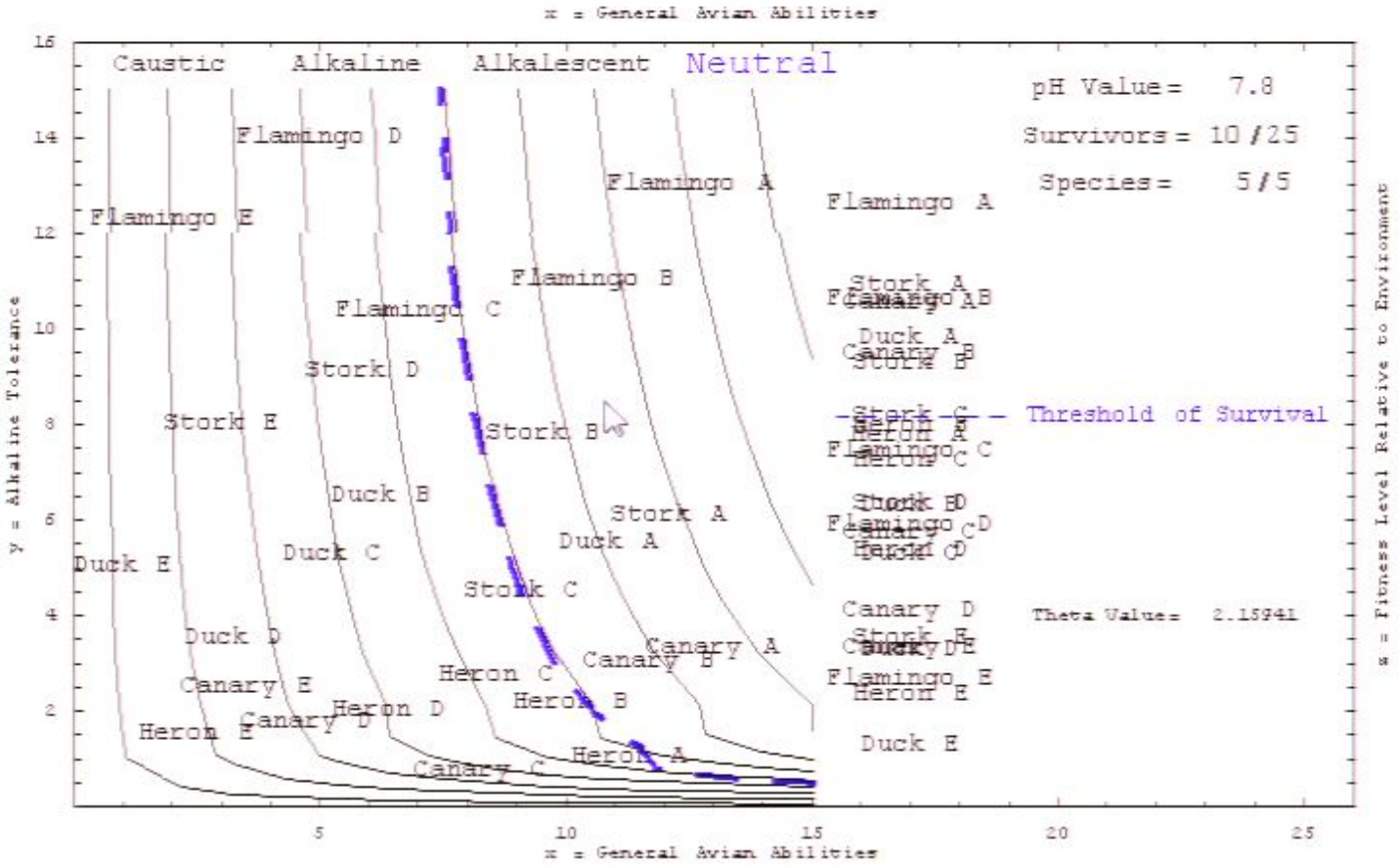

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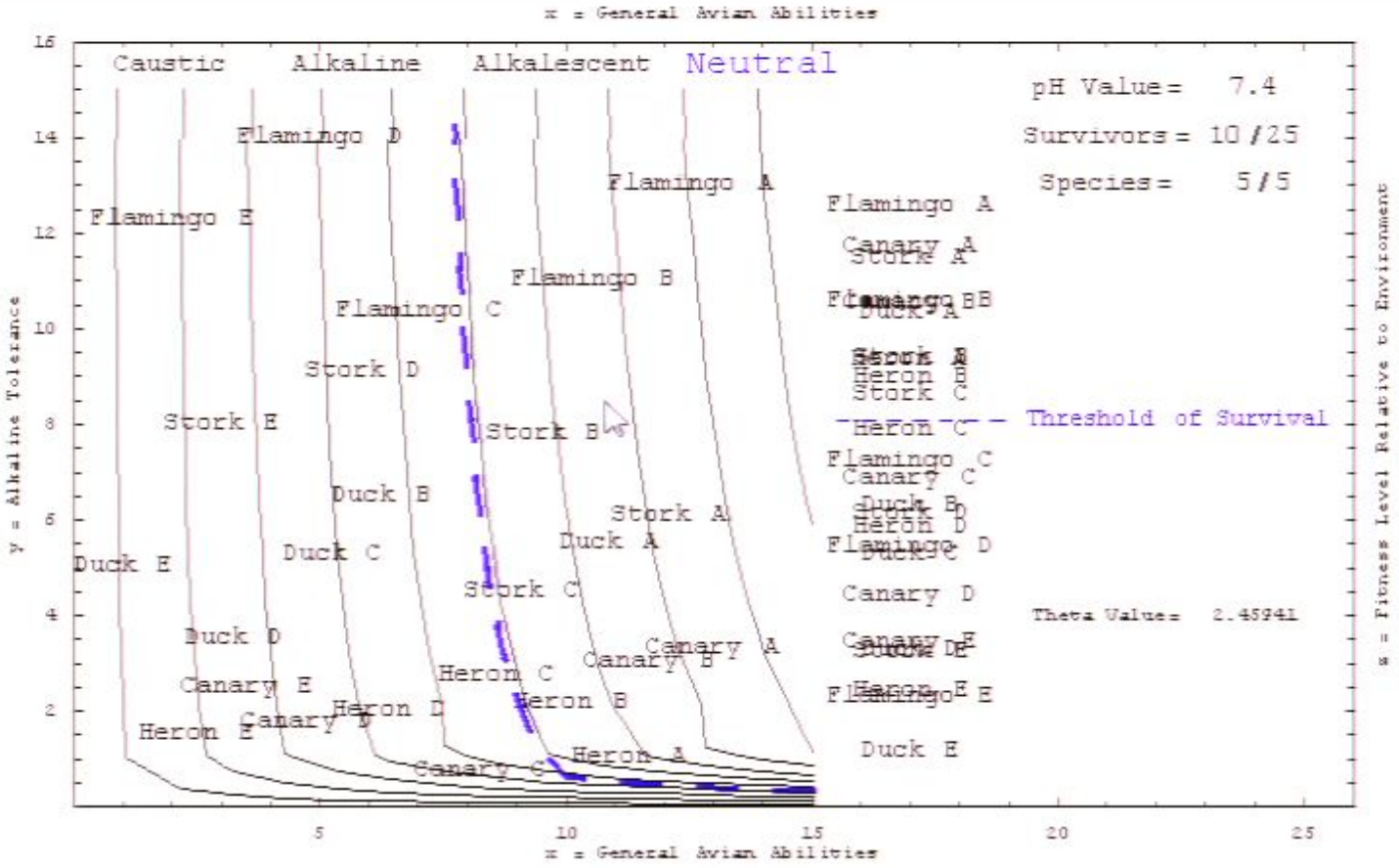

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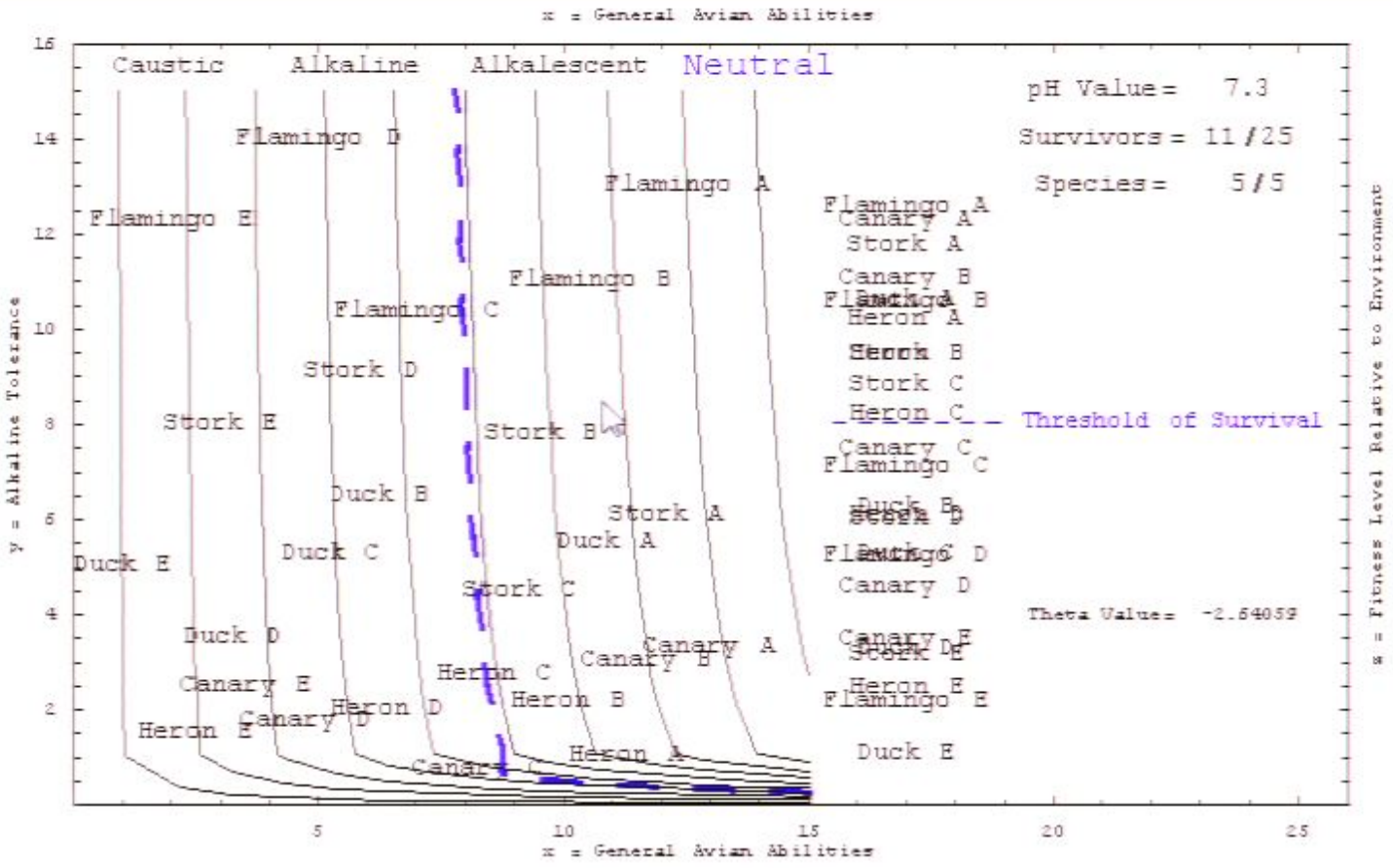

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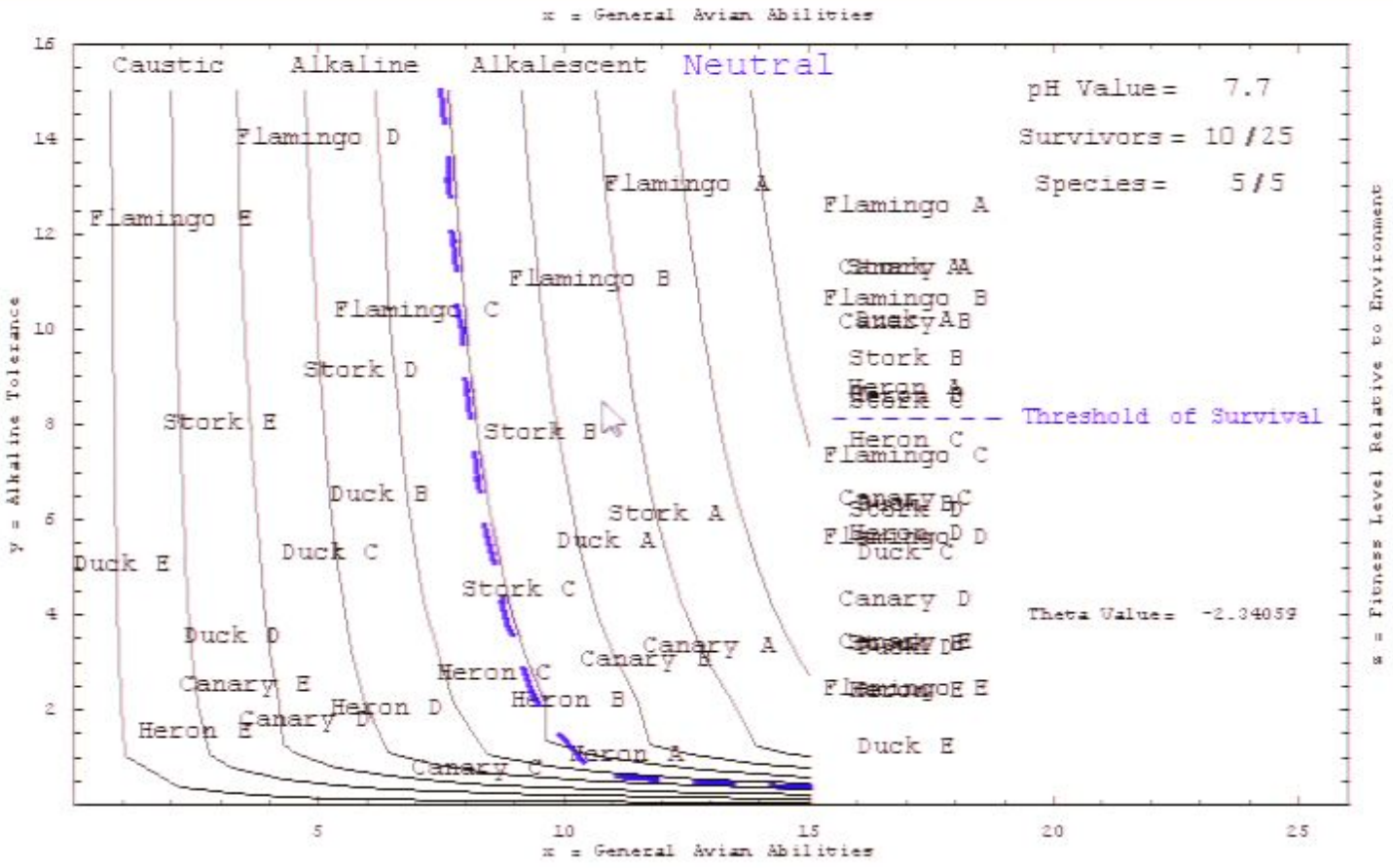

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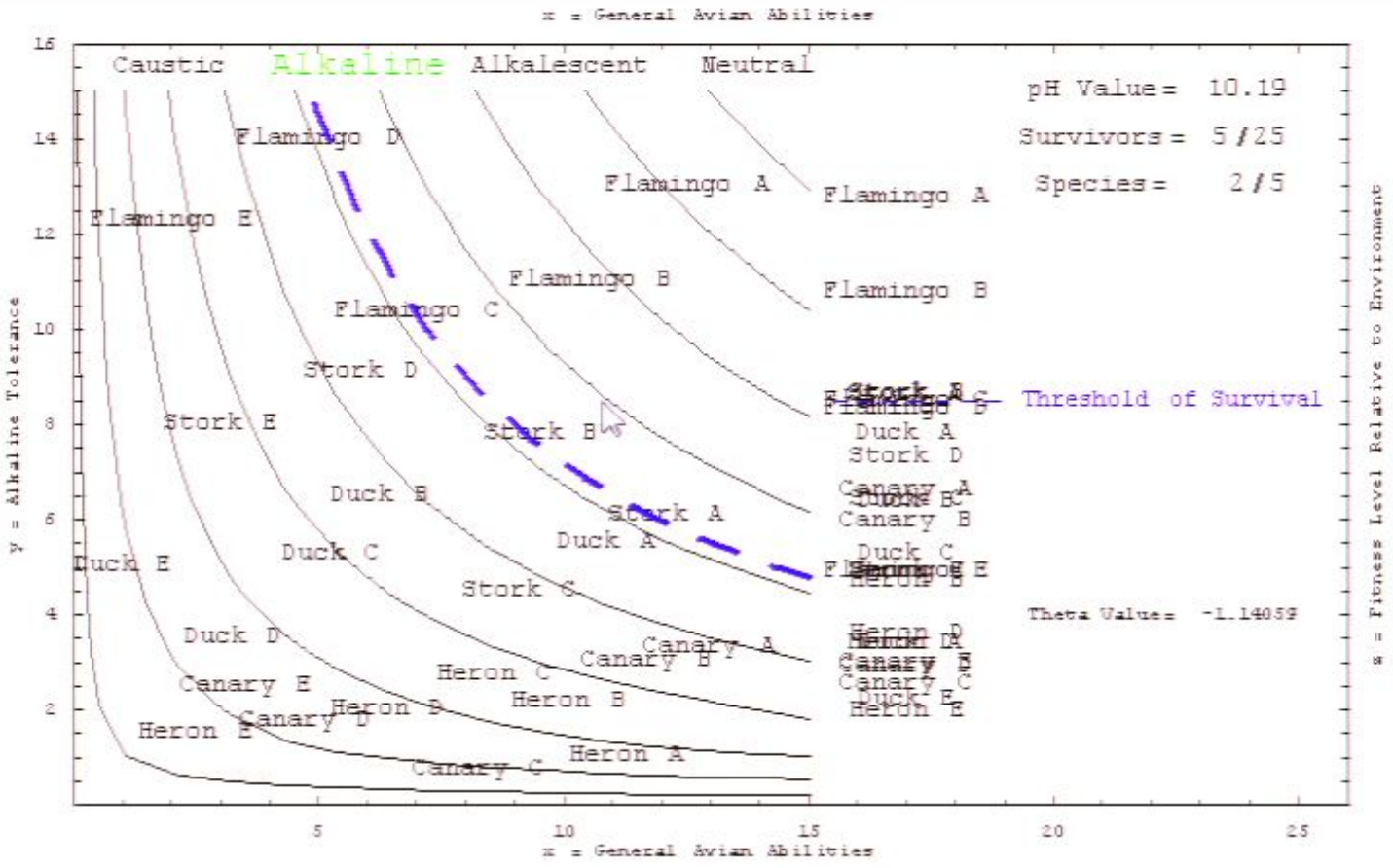

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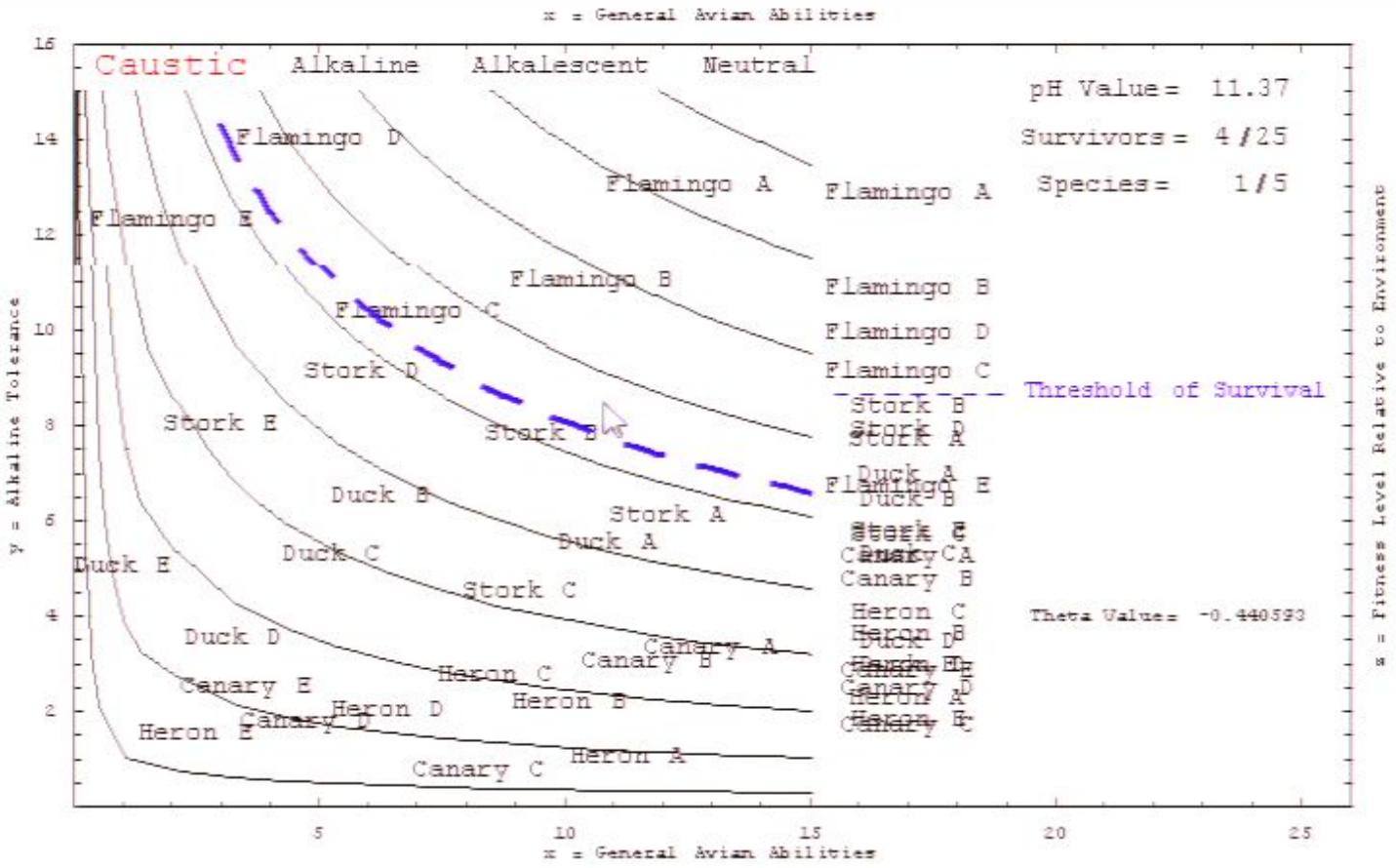

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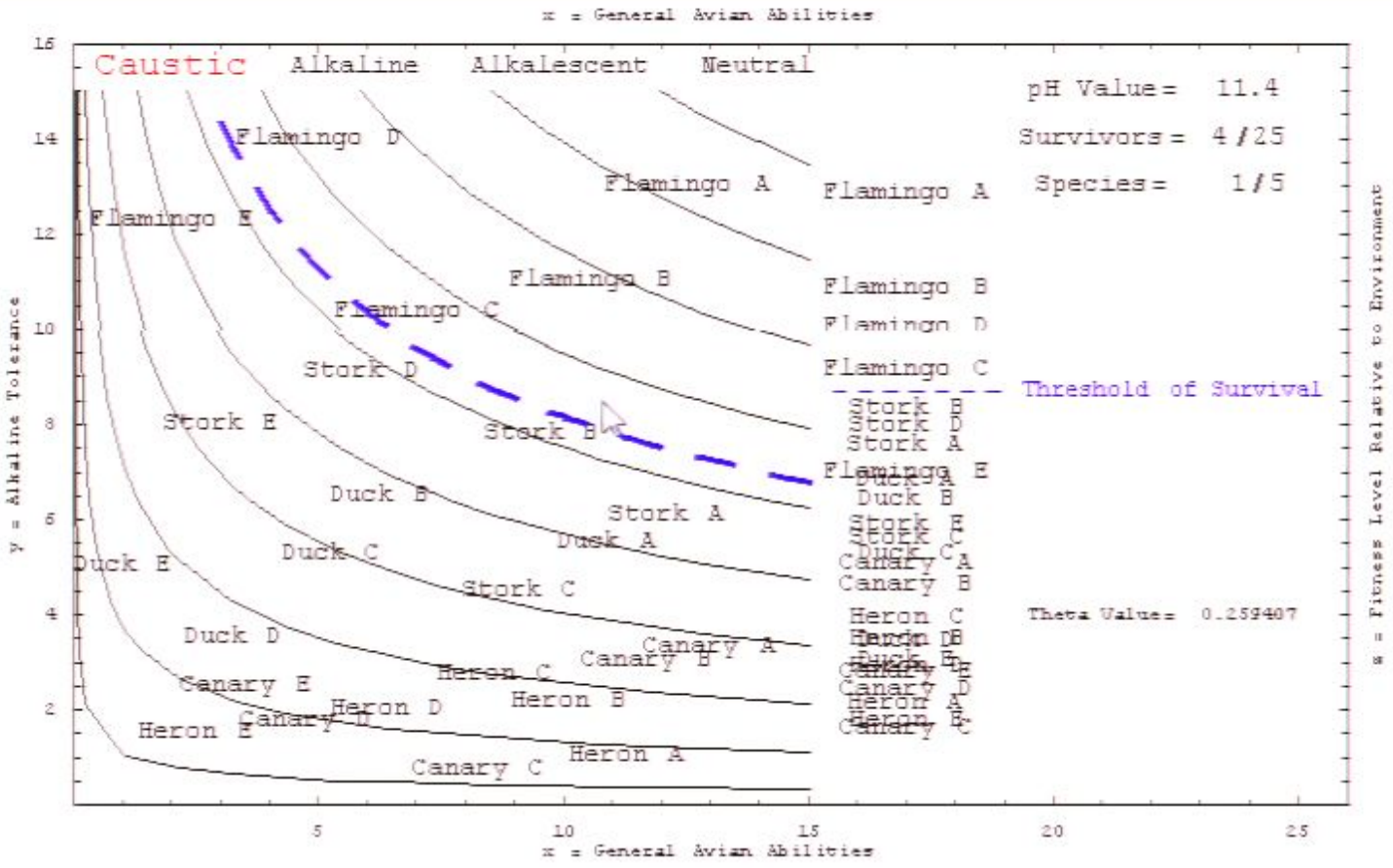

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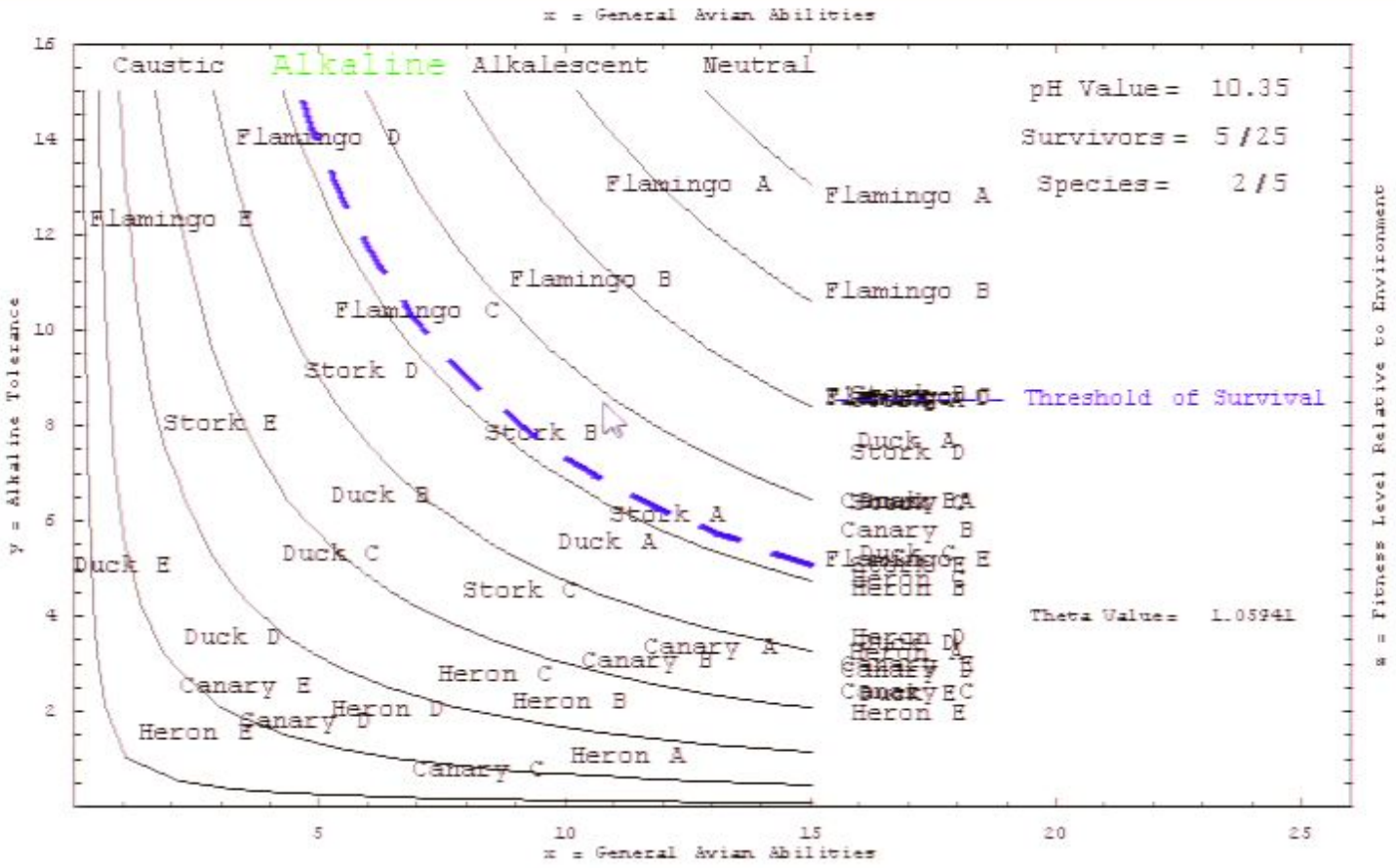

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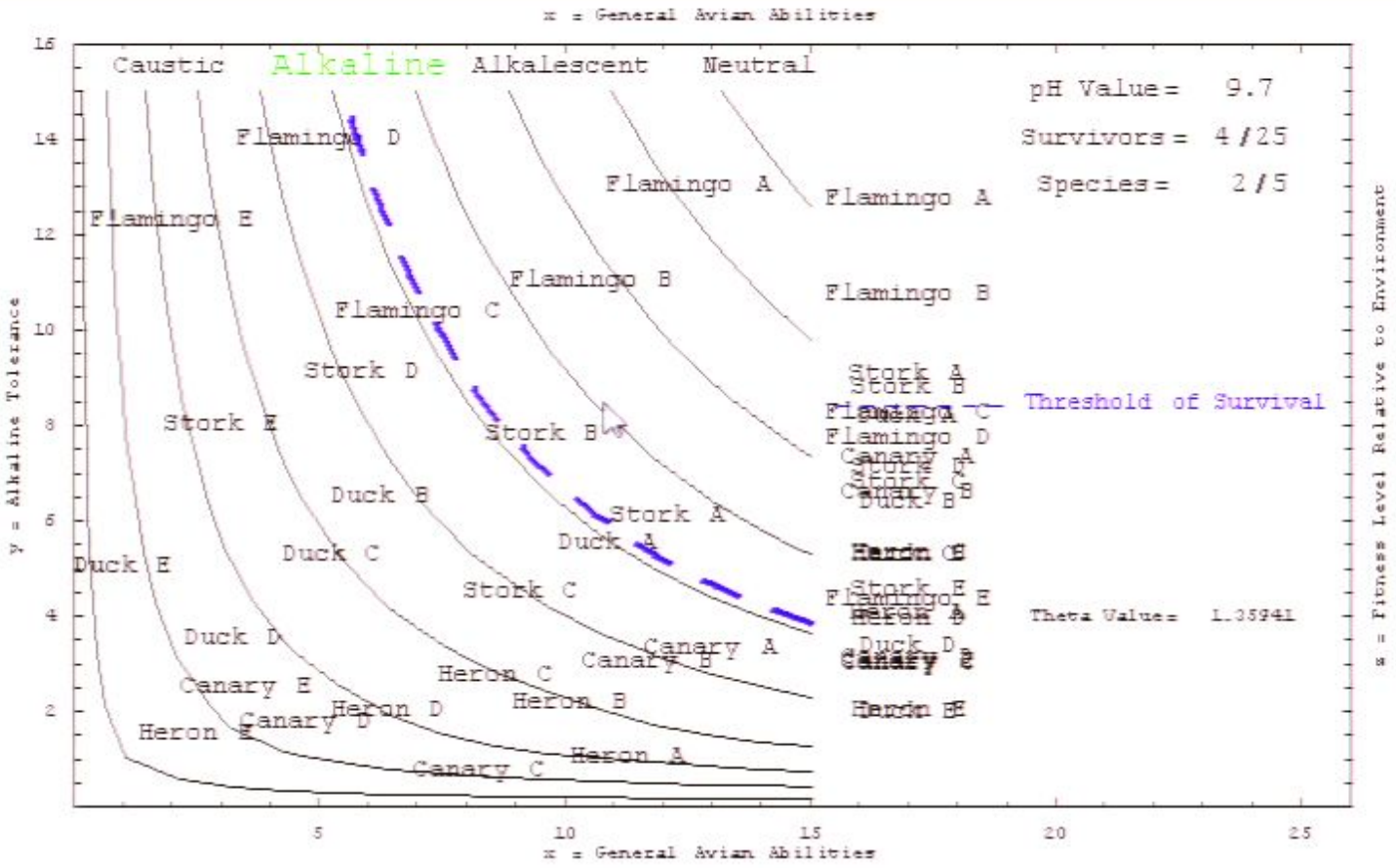

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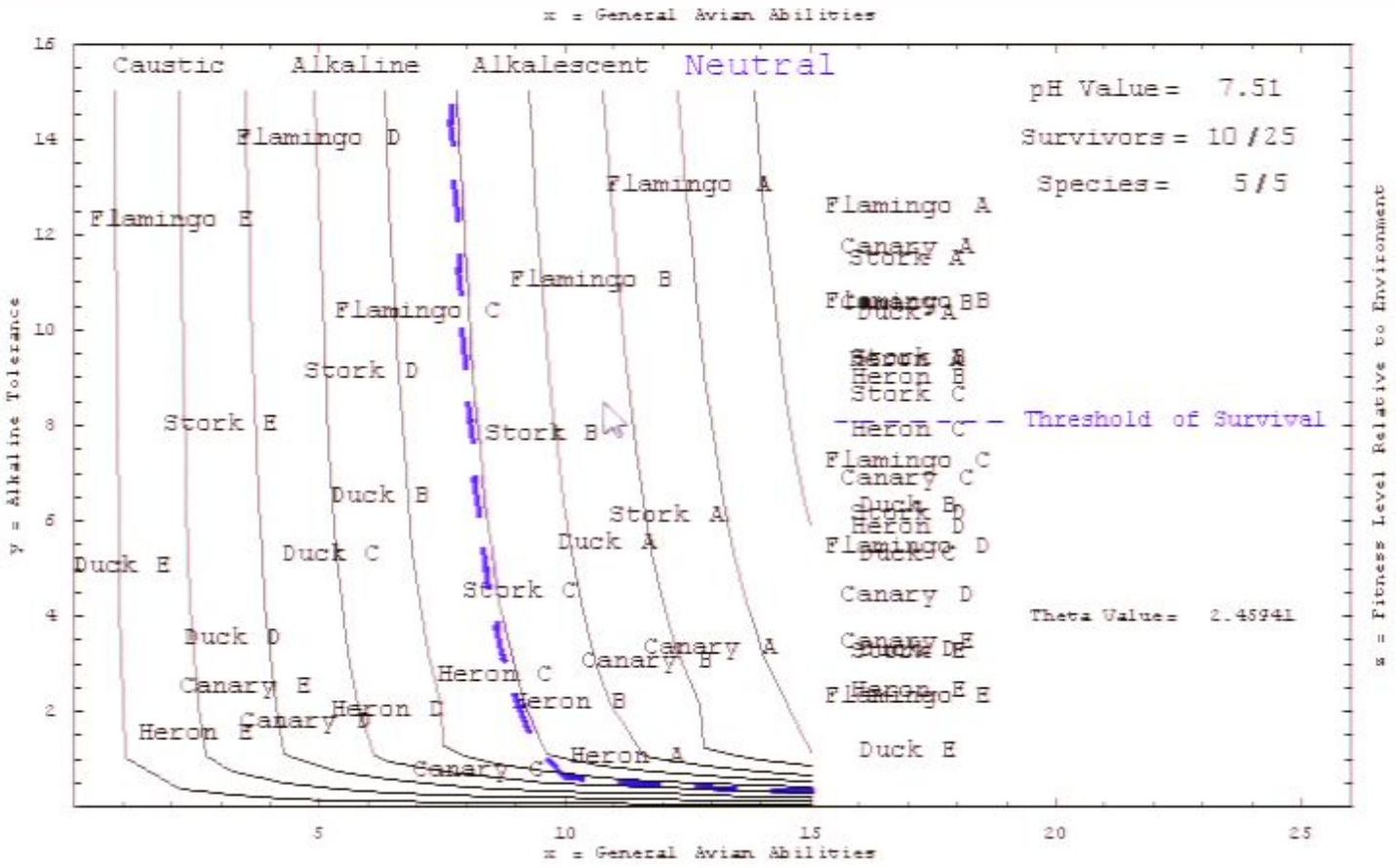

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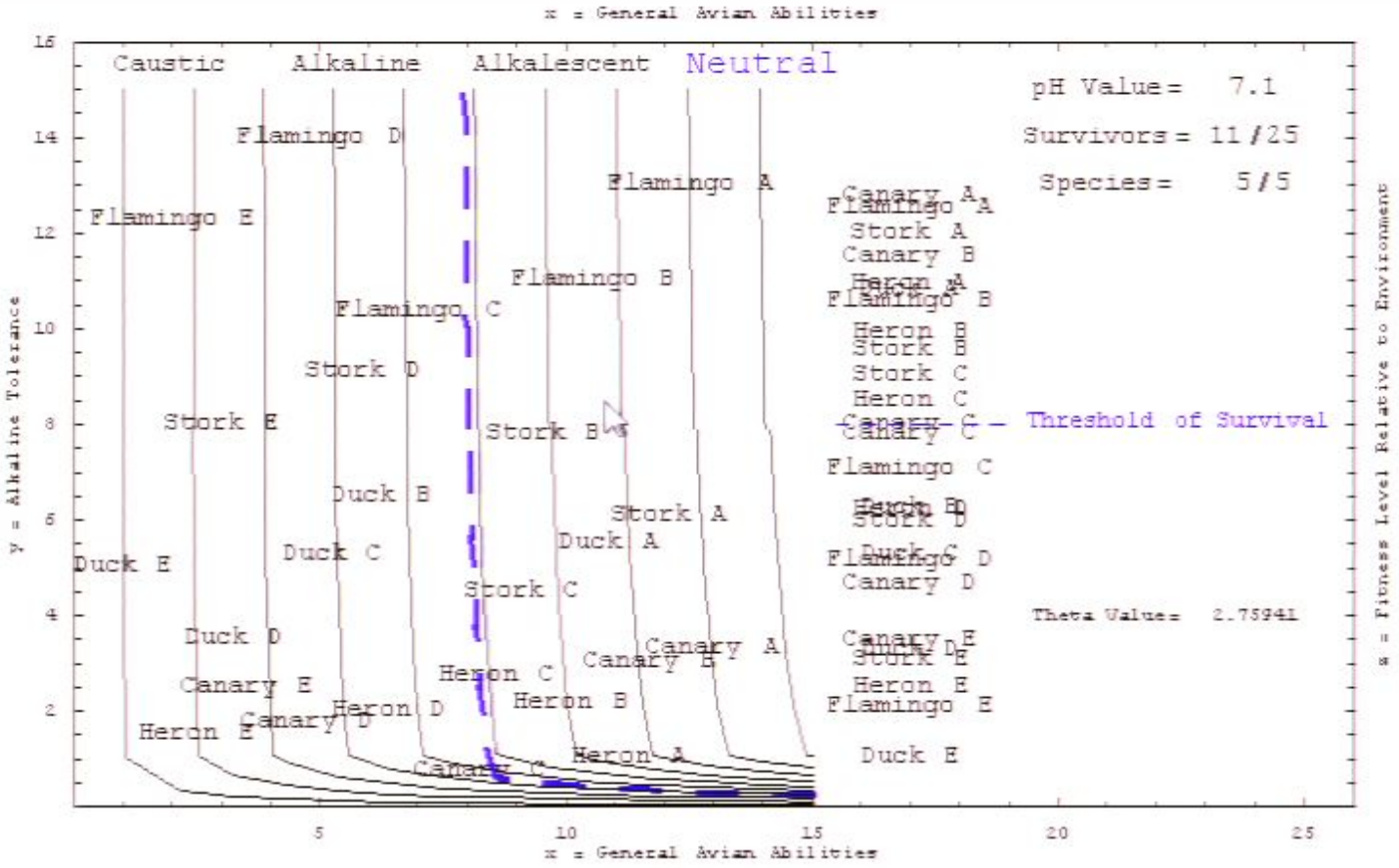

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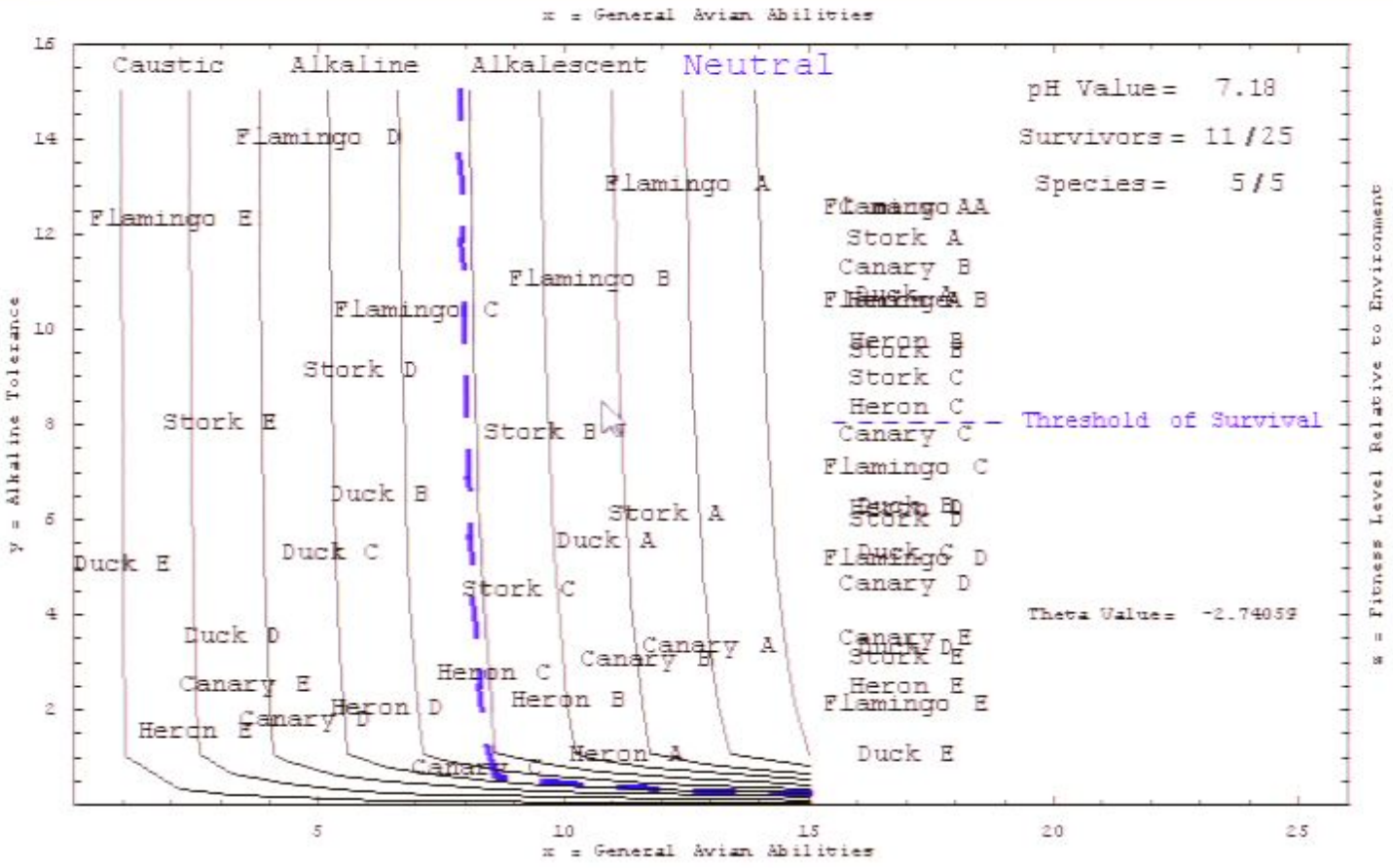

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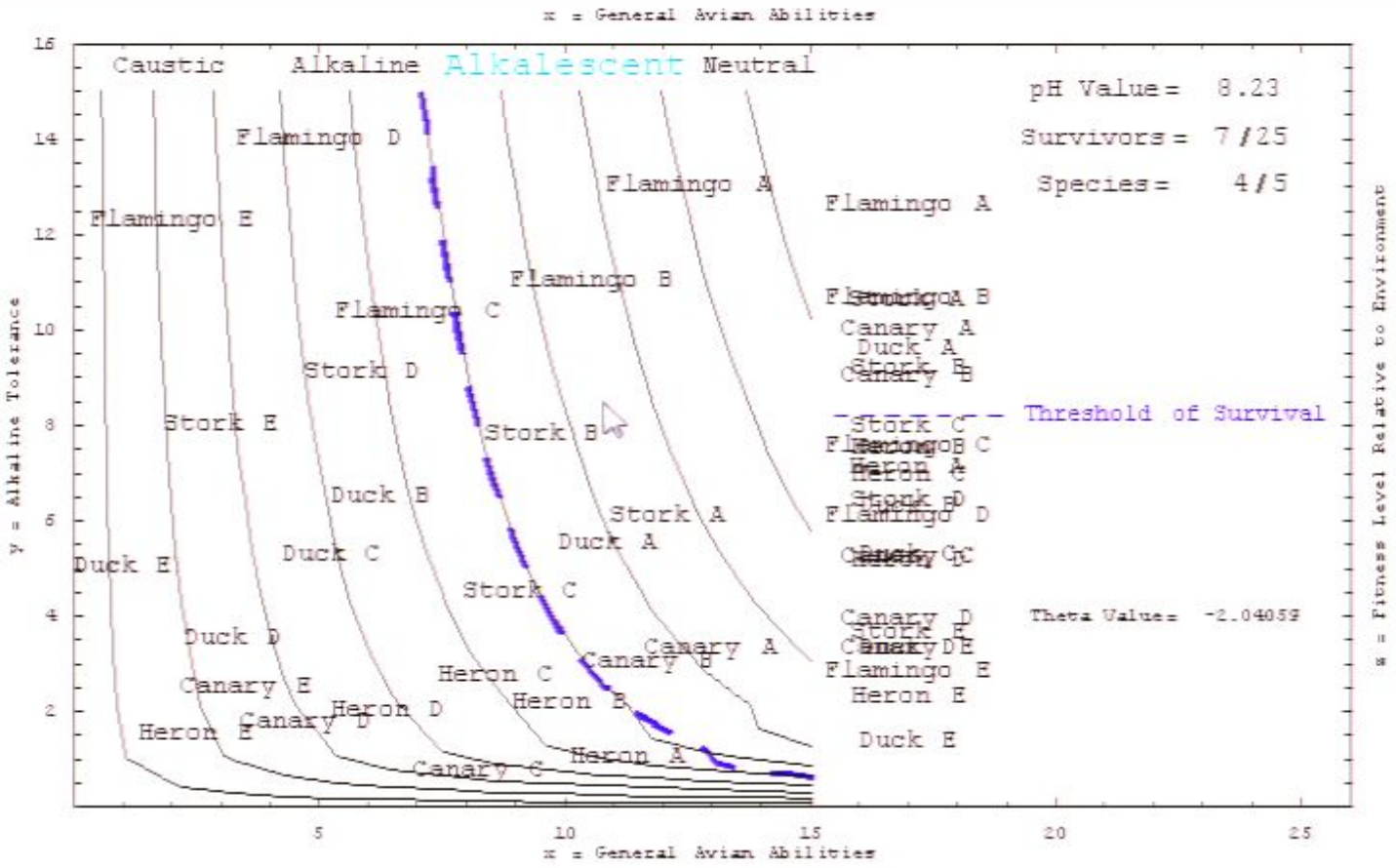

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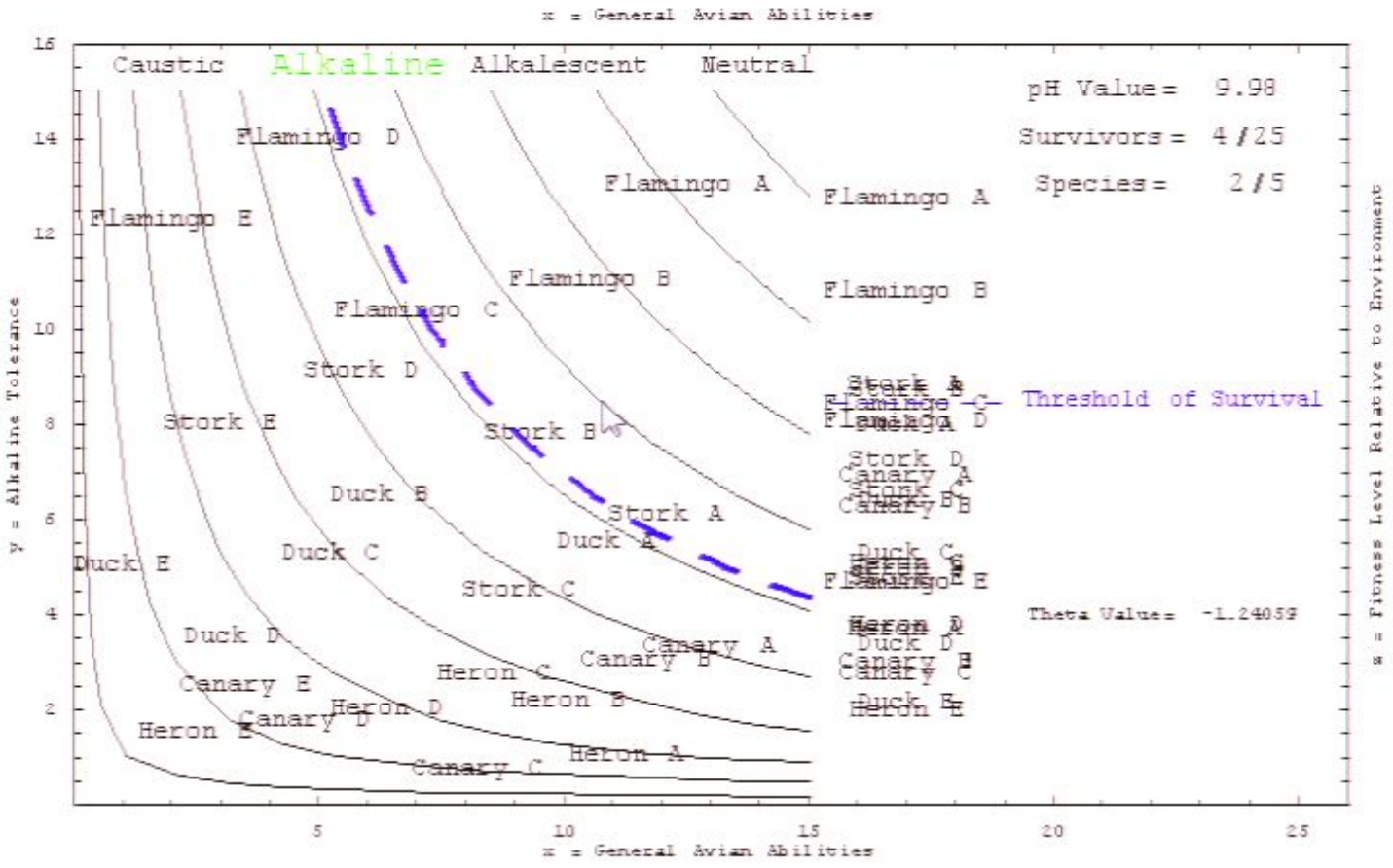

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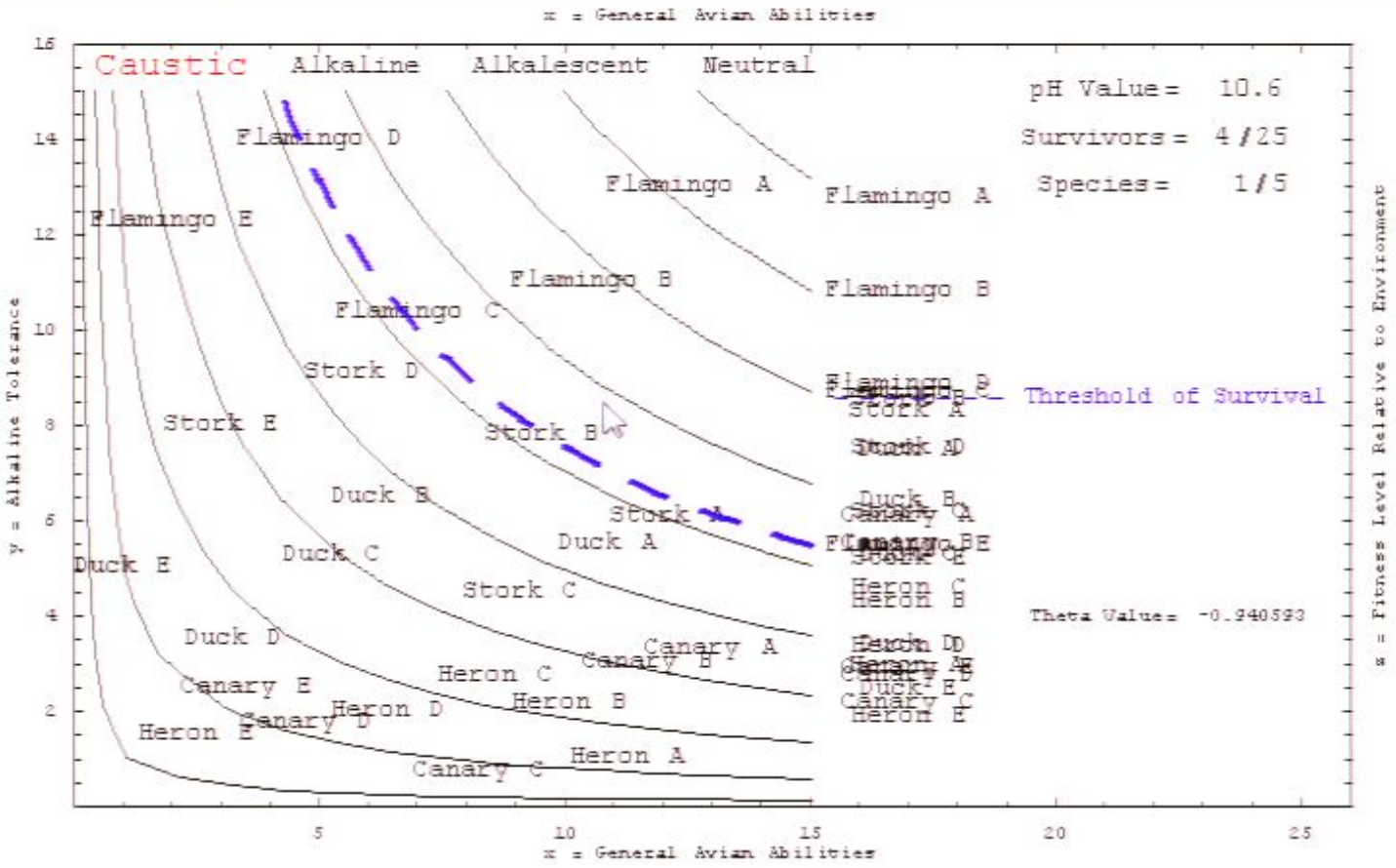

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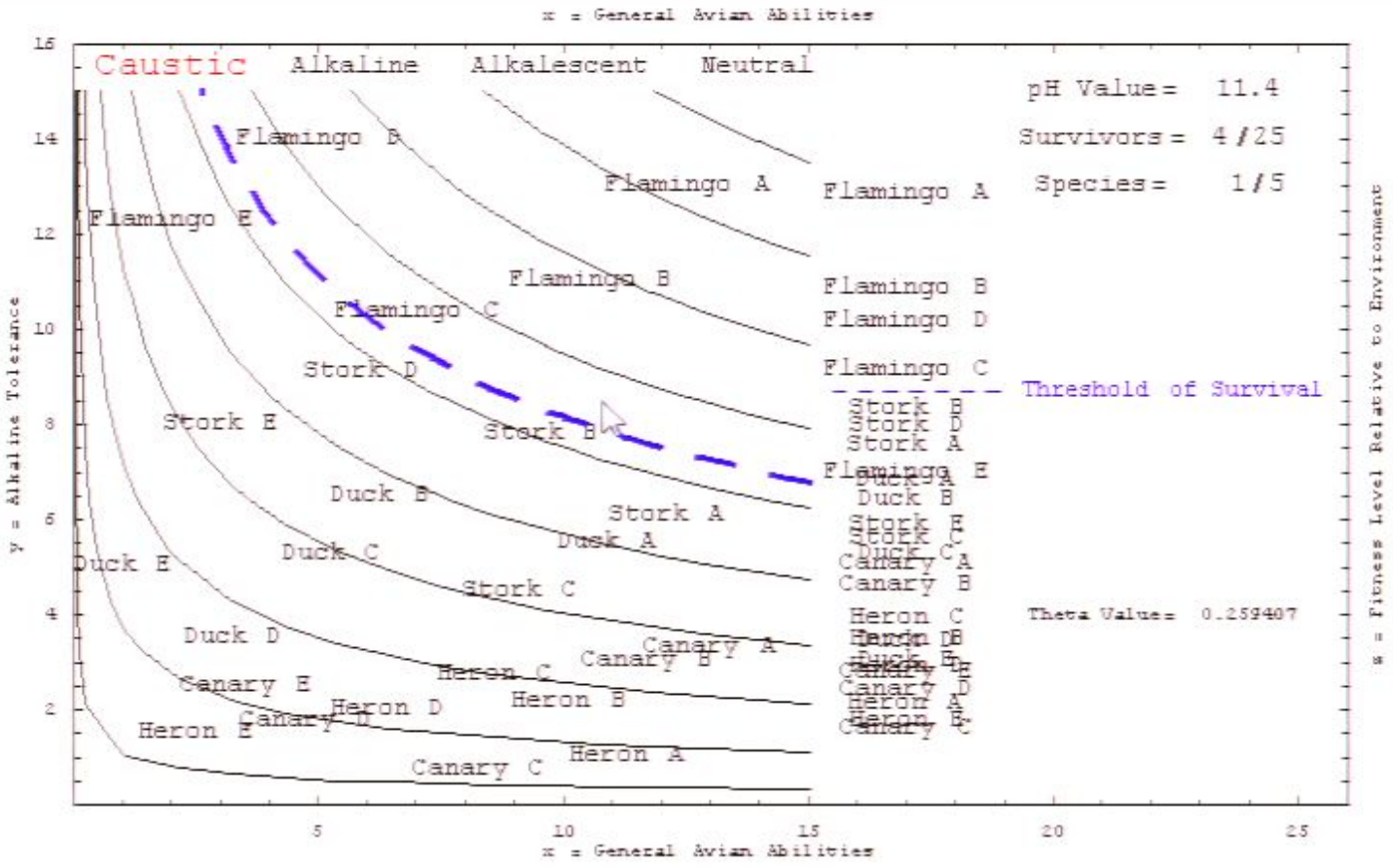

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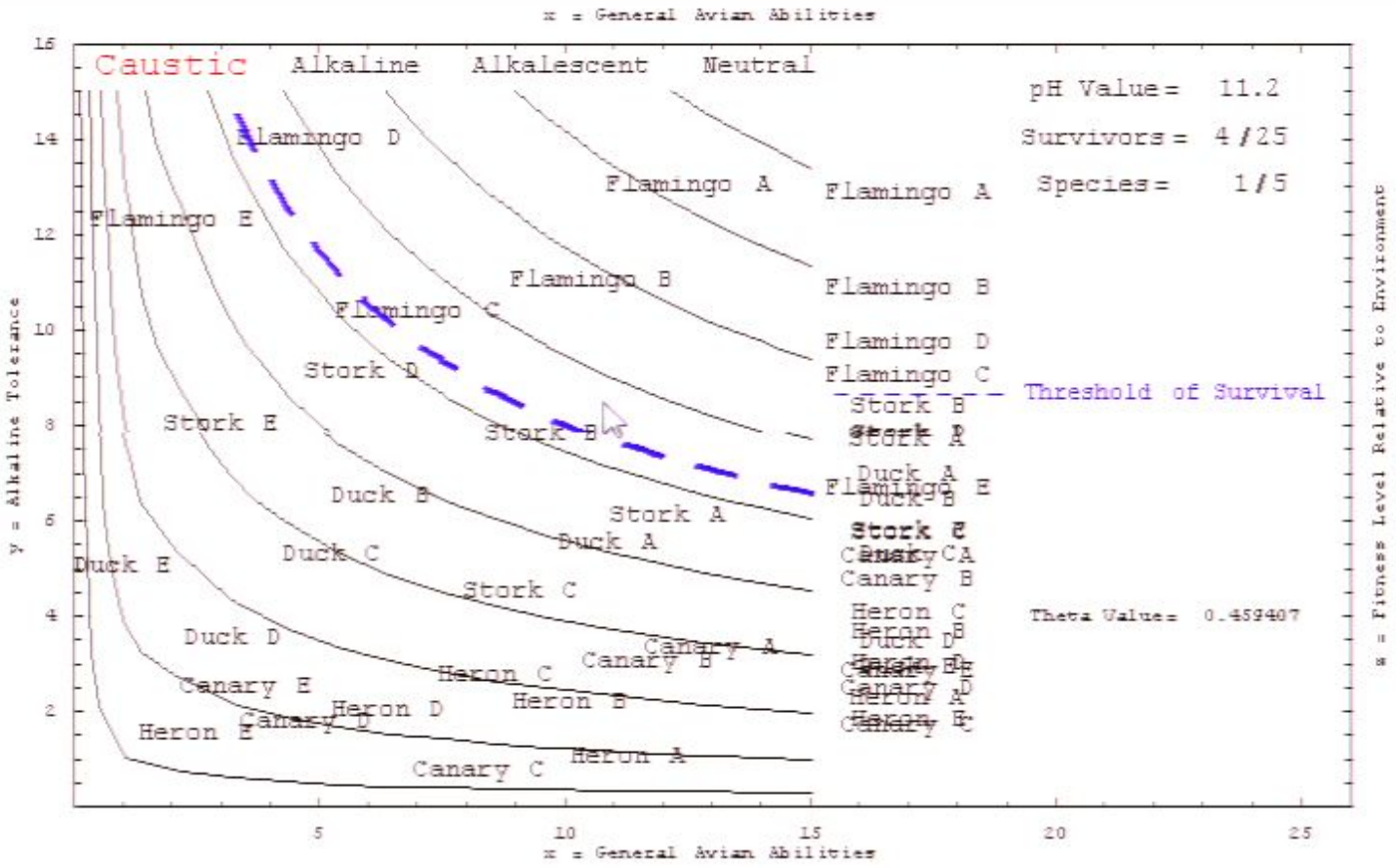

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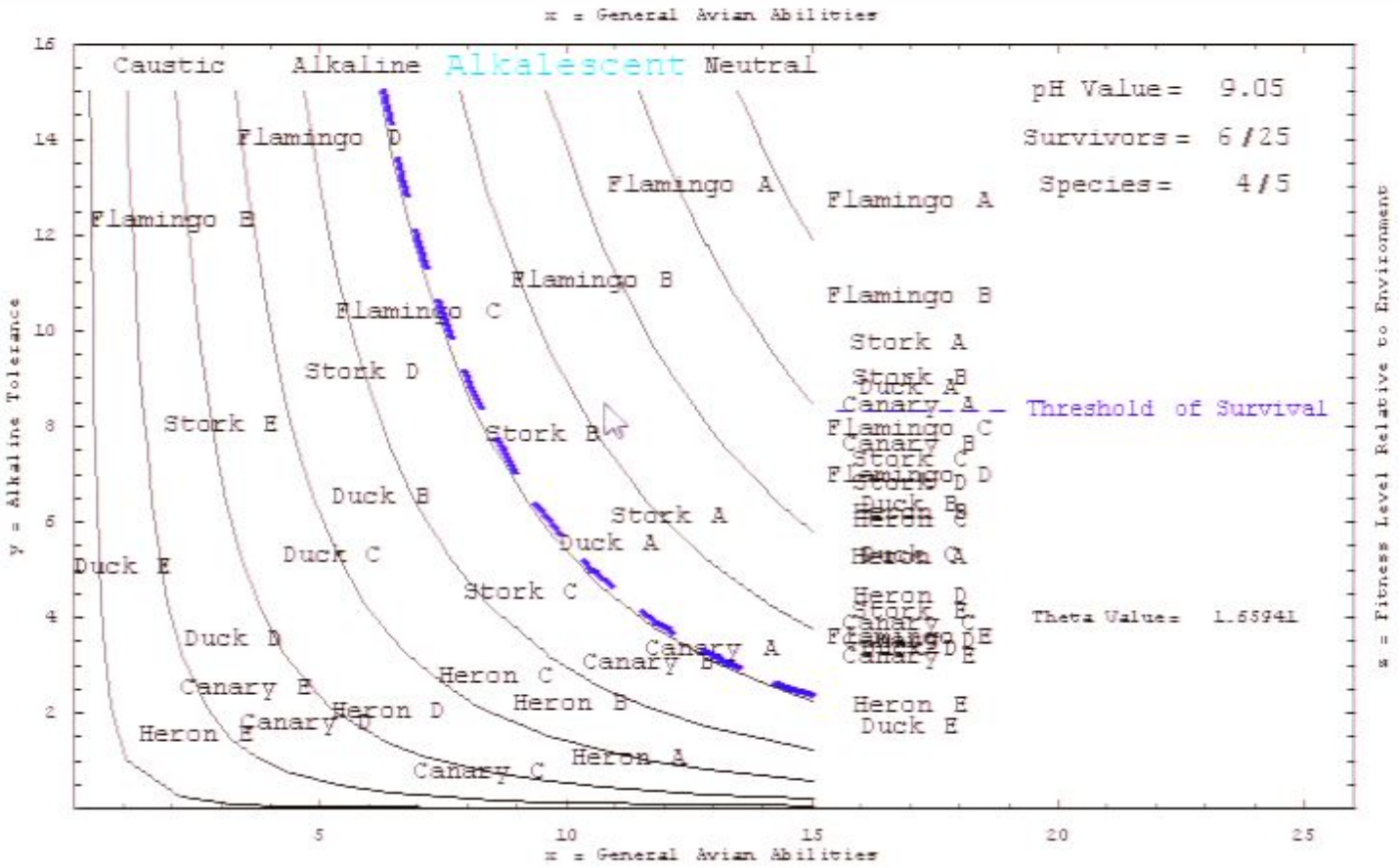

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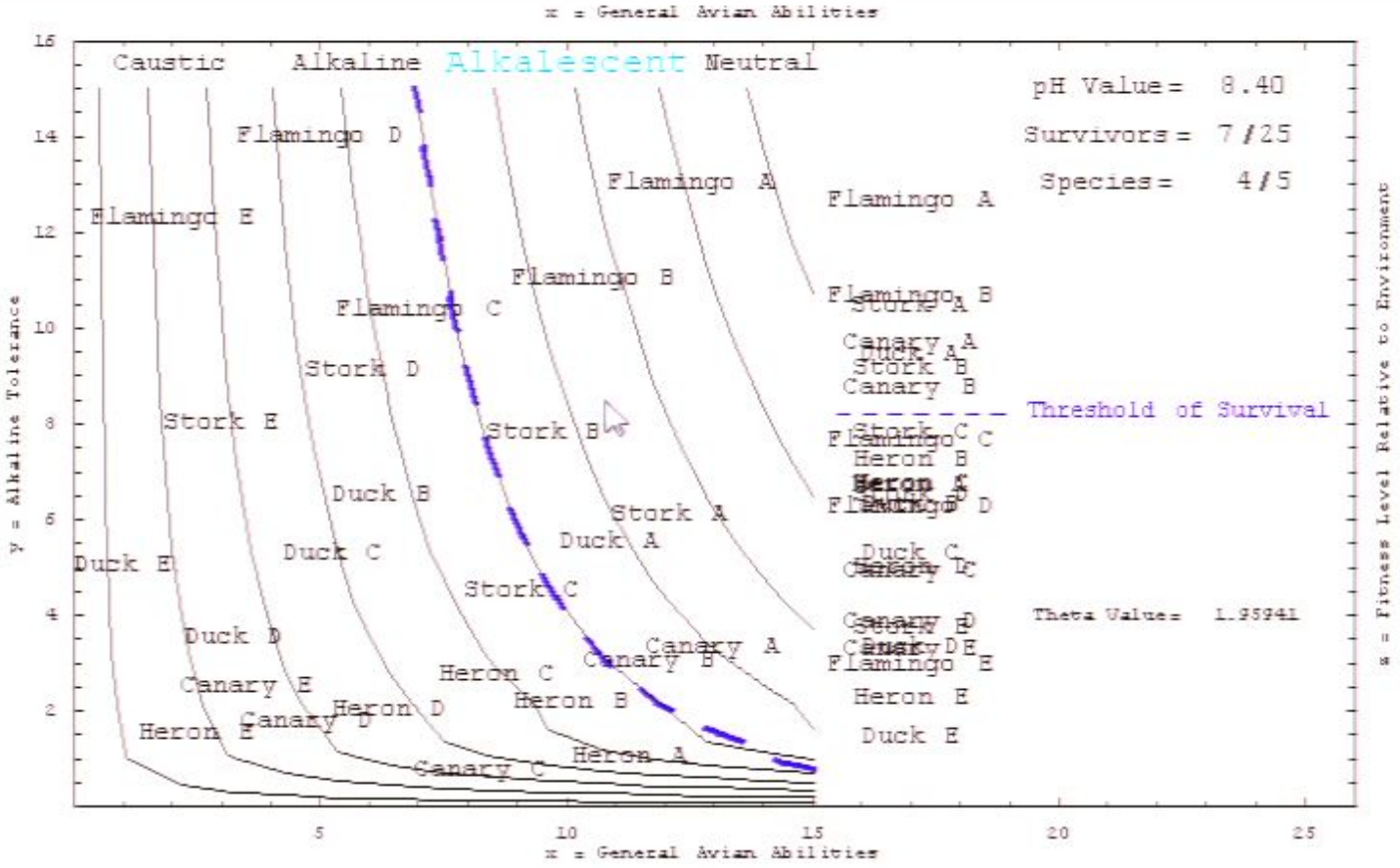

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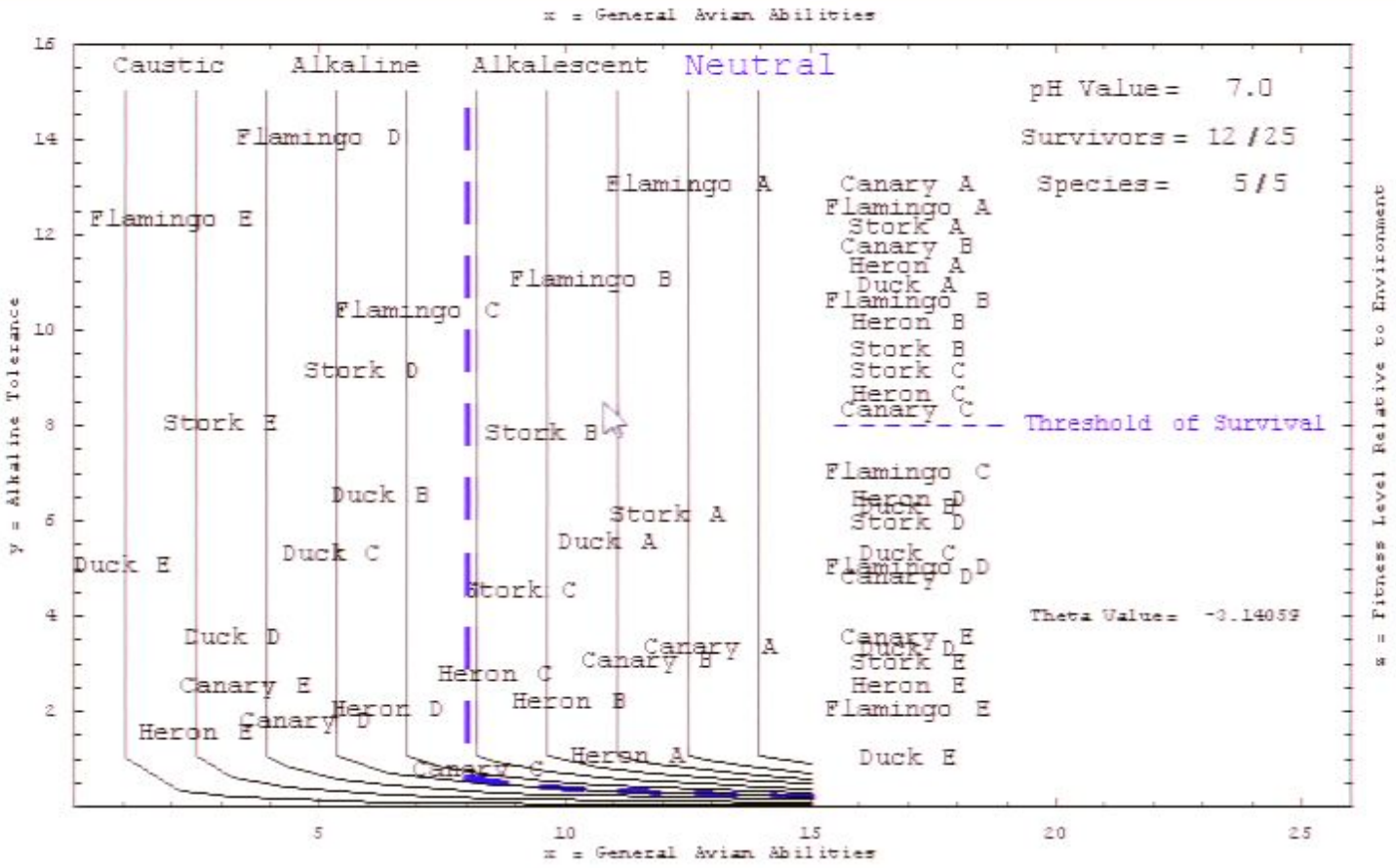

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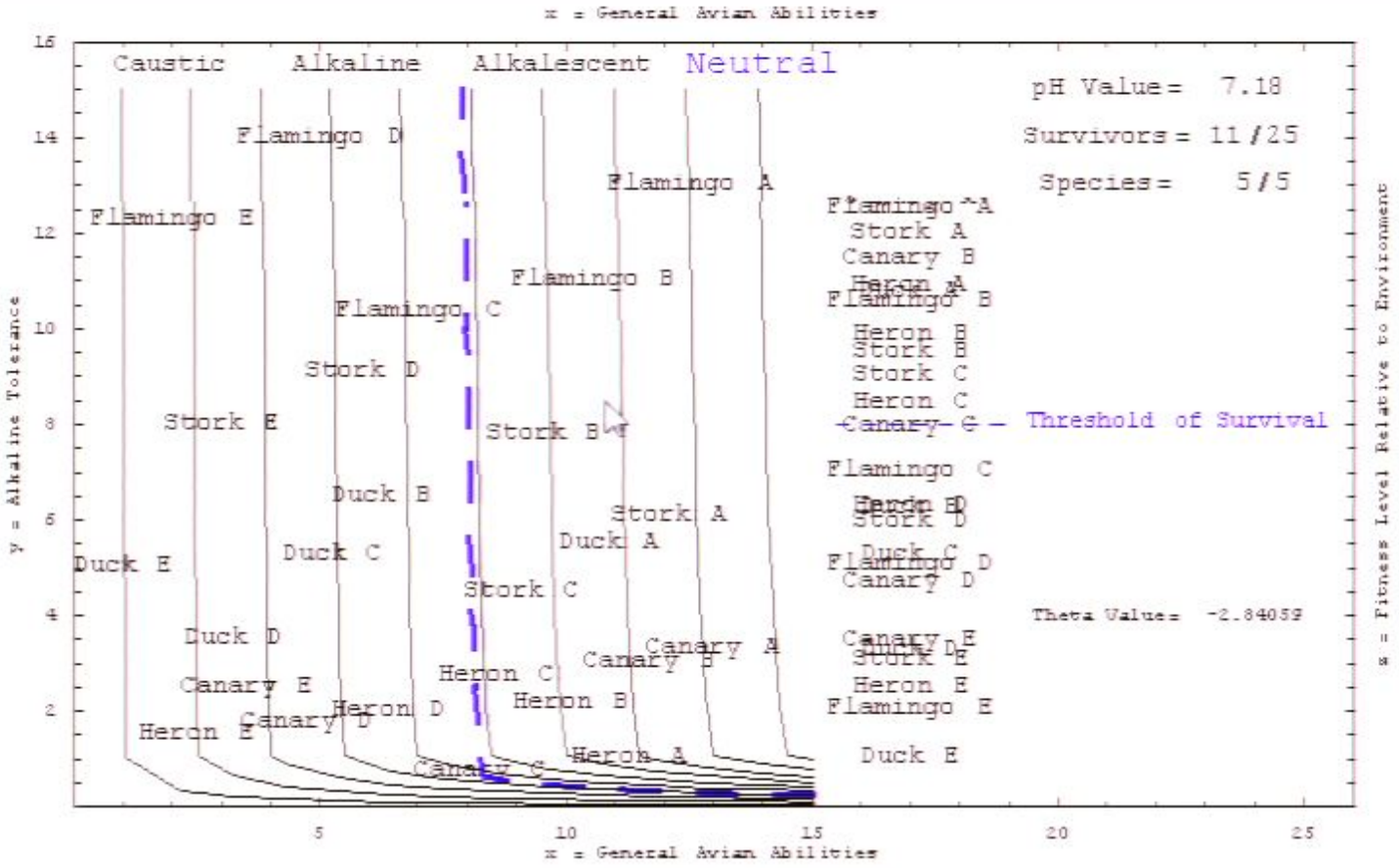

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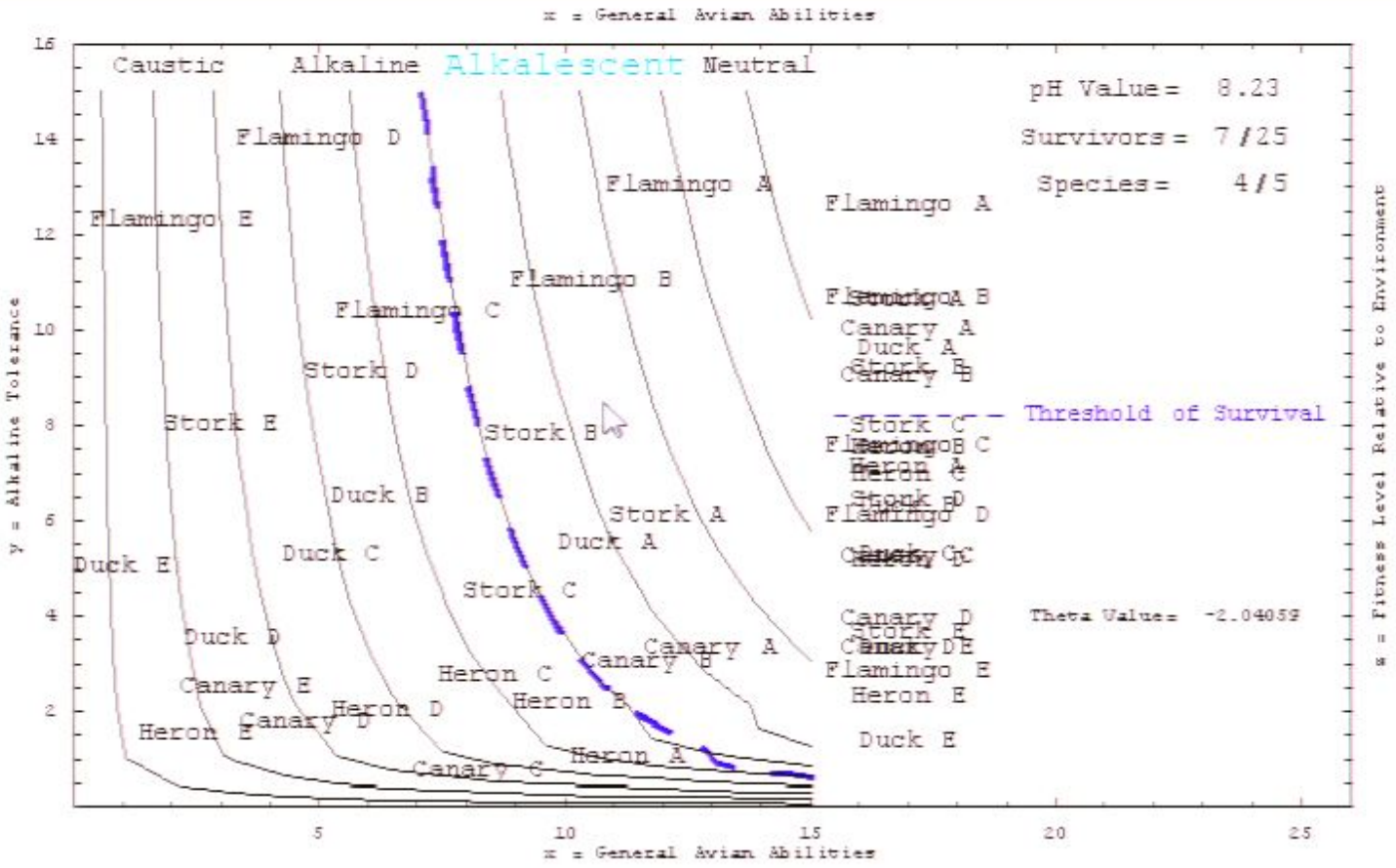

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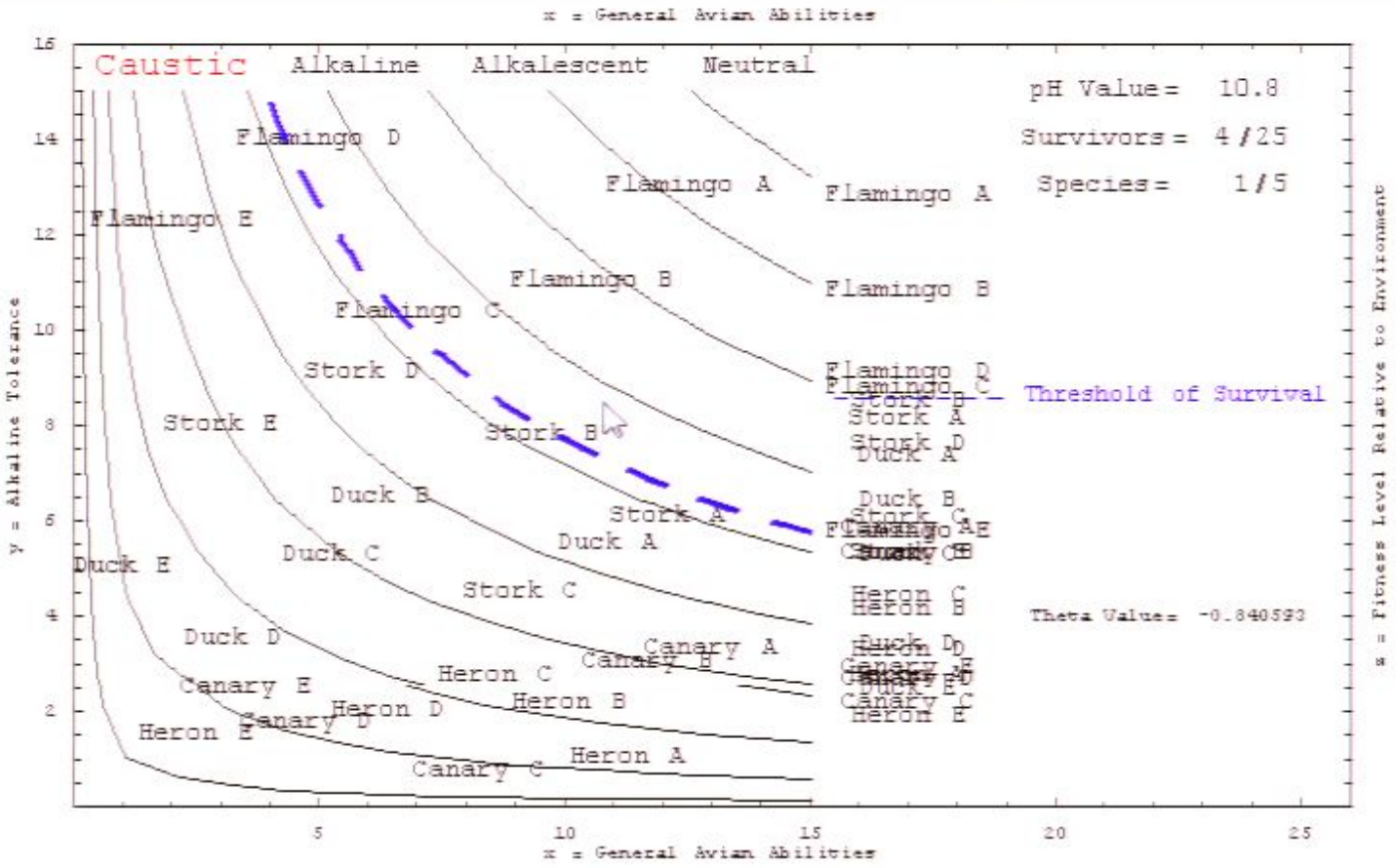

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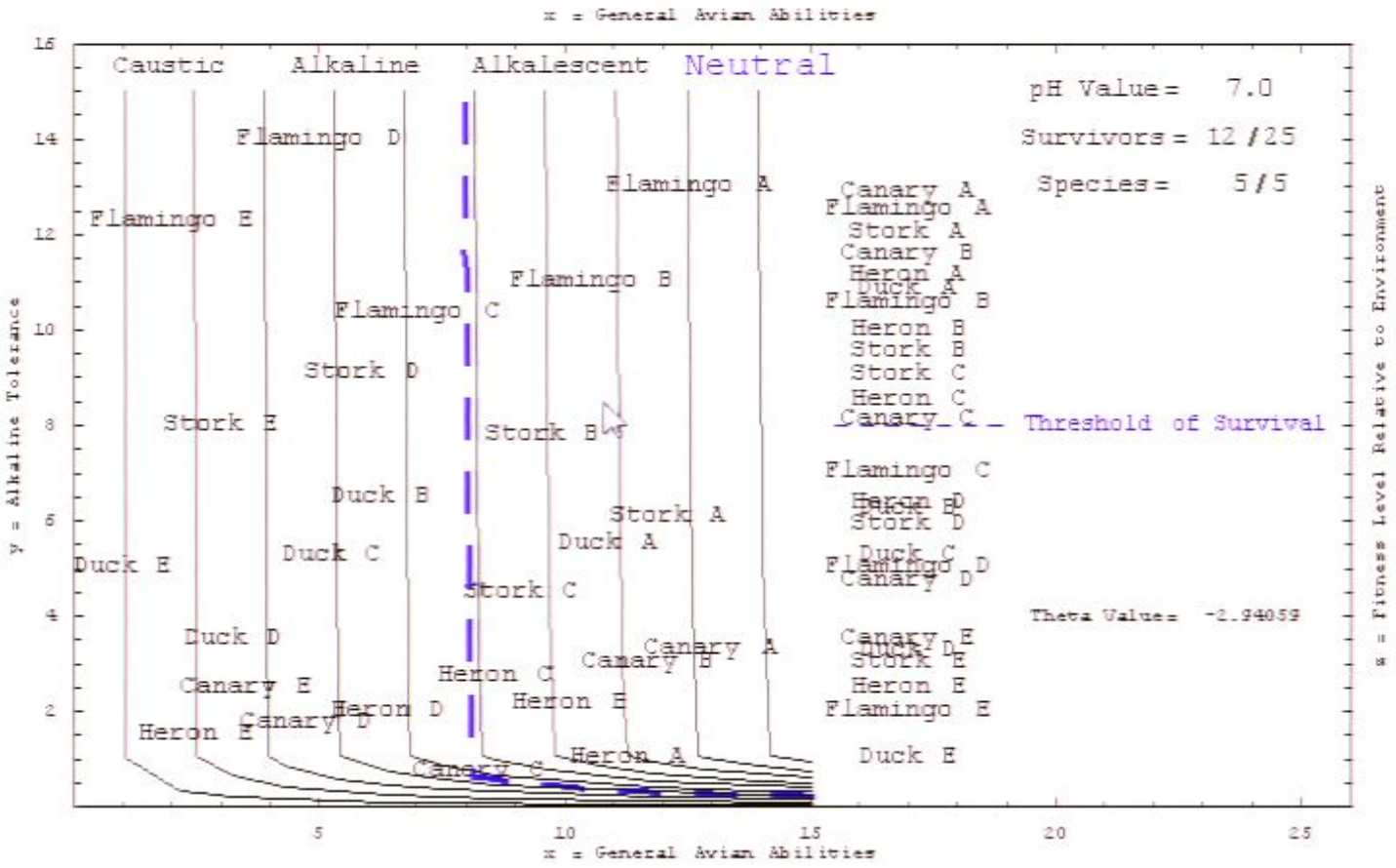

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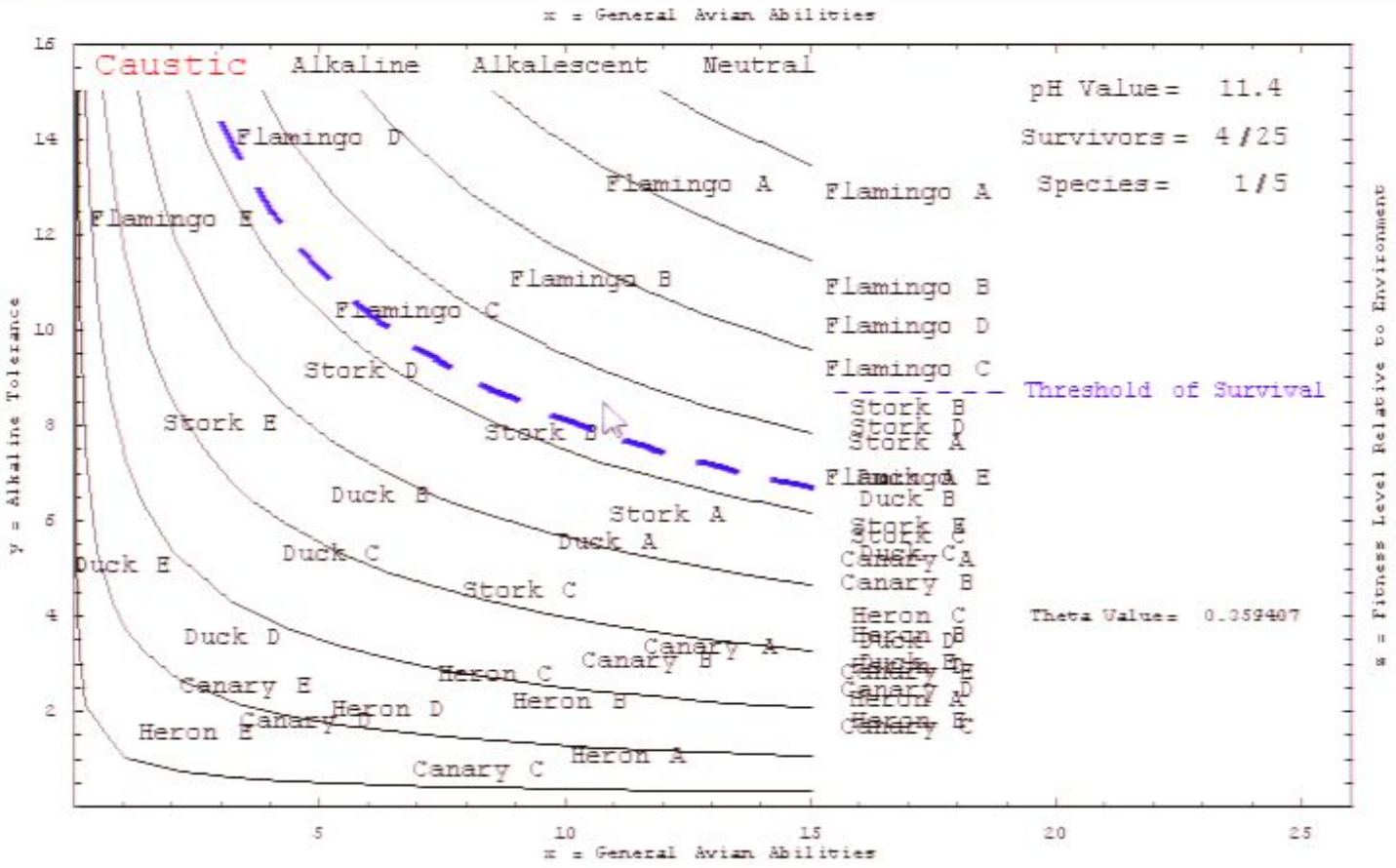

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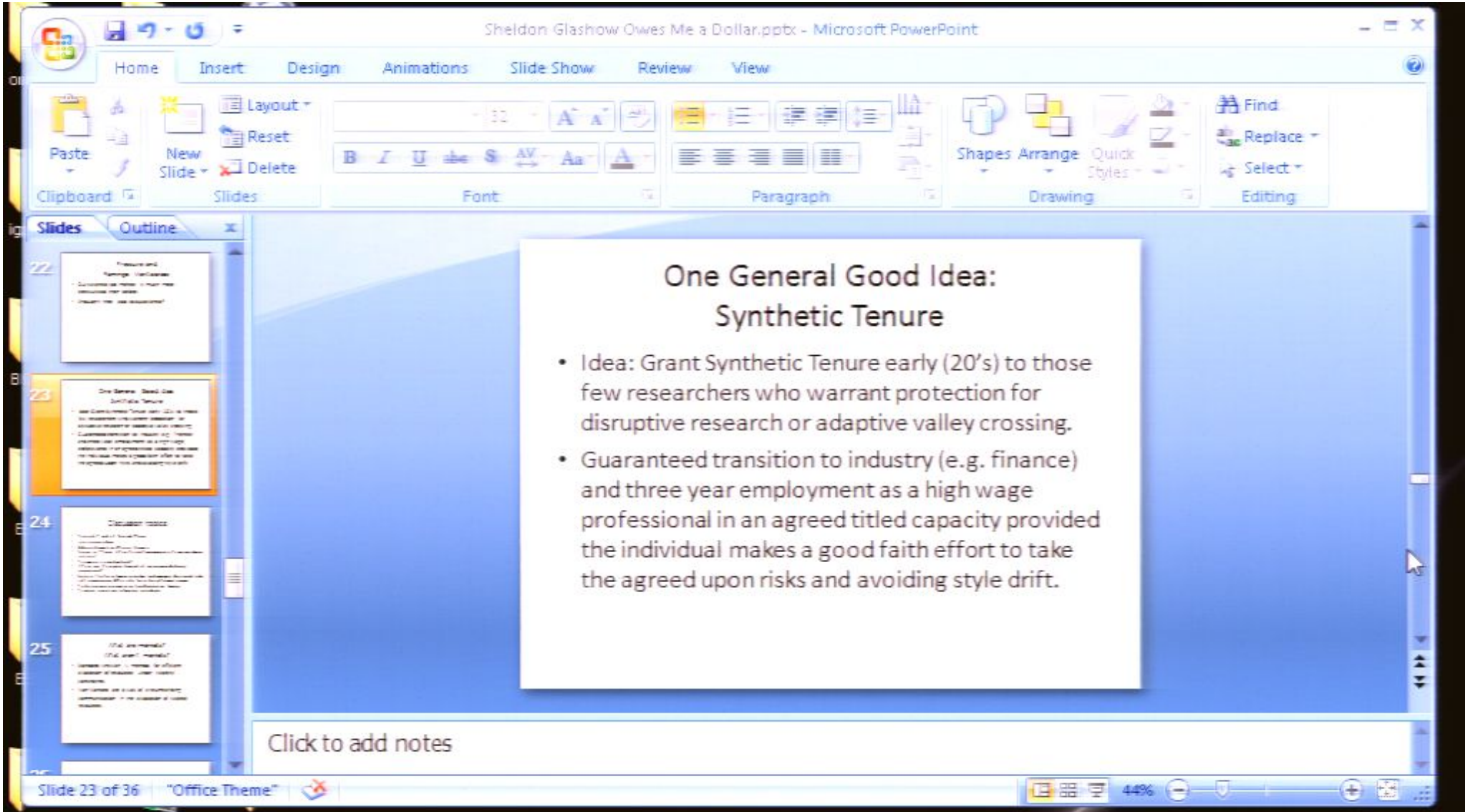
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Drawing
Editing
Slides
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One General Good Idea:
Synthetic Tenure
• Idea: Grant Synthetic Tenure early (20's) to those few researchers who warrant protection for disruptive research or adaptive valley crossing.
• Guaranteed transition to industry (e.g. finance) and three year employment as a high wage professional in an agreed titled capacity provided the individual makes a good faith effort to take the agreed upon risks and avoiding style drift.
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