Polarized Processing: A Case Study and Cognitive Analysis

By Eric Brian Lacy, PhD

July 2026

Polarized Processing: A Case Study and Cognitive Analysis

By Eric Brian Lacy, PhD

July 2026

Preprint — Version 1.0

Copyright © 2026 by Eric Brian Lacy. All rights reserved.

No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the author, except in the case of certain noncommercial uses permitted by copyright law.

Abstract

In *Polarized Processing: A Theory of Exceptional Cognition*, anonymous case subject Participant X provided an introspective account of the internal cognitive process of a prodigious mind. Participant X has claimed that his ability to rapidly produce complex output is the result of an efficient combination of internal dynamic simulation, structural abstraction, associative linking, and extreme levels of systemizing. He has also described his traits as natural, spontaneous, stable across a variety of contexts, and independent of prodigious memory. This analysis will evaluate these claims through several evidentiary approaches including observation, documentation, and conversational data.

Polarized Processing: A Case Study and Cognitive Analysis

By Eric Brian Lacy, PhD

Introduction

Polarized Processing: A Theory of Exceptional Cognition introduced a detailed model of the internal mechanisms of prodigious minds. It was based on the introspective account of a case study with several rare cognitive traits, many of which were addressed in concurrence with the concepts discussed in the paper. This paper aims to document these traits and to demonstrate how they manifest in more tangible ways. Additionally, data from independent sources will be used to evaluate claims of exceptional cognitive processes as reported by the case subject, referred to in *Polarized Processing* as Participant X (also referred to here as PX).

As part of this case study, conversational data will be analyzed to evaluate cognitive processing. Individual statements from conversation transcripts will be examined to determine the cognitive operations used by the participant while engaging in various topics of discussion. Using a methodology adapted for this analysis, the external output from PX will be reverse engineered and deconstructed in order to determine the internal process that produced each statement. Once individual cognitive operations are established, overall trends will be evaluated and analyzed.

Background

Cognitive Traits and Strengths

In *Polarized Processing*, Participant X is described as possessing several skills that can be attributed to the following core traits (definitions derived from https://www.merriam-webster.com/dictionary/):[1]

[1] Eric Lacy, "Polarized Processing: A Theory of Exceptional Cognition," (December 2025): 7. https://www.ericbrianlacy.com/polarized-processing.

Copyright © 2026 by Eric Brian Lacy. All rights reserved.

- Internal Dynamic Simulation – defined here as the spontaneous and persistent tendency to internally simulate complex and layered systems.

- Structural Abstraction – defined here as the spontaneous and persistent tendency to collapse complexity and remove ancillary information, preserving essential features.

- Structural Associative Linking – defined here as the spontaneous and persistent tendency to connect two or more apparently unrelated systems through shared, essential frameworks.

- Extreme Systemizing – defined here as the spontaneous and persistent tendency to maintain and organize concepts into coherent schemes.

- Metacognition – defined here as the spontaneous and persistent tendency to possess post hoc awareness of one's own cognitive processes including the ability to analyze those processes.

These traits seem to function together to rapidly produce complex output without external support while having the appearance of bypassing intermediate steps. Also, these traits appear to be spontaneous, natural, and persistent across a variety of contexts. In *Polarized Processing*, it was also noted that PX was diagnosed with autism spectrum disorder subsequent to the demonstration of these traits.[2] He is an exceptionally high systemizer, scoring as high as 123 on the Systemizing Quotient-Revised (SQ-R), developed by Simon Baron-Cohen. This score is notably higher than the average score for autistic males and far outside the normal distribution for male control groups.[3]

Beyond the core cognitive traits discussed above, PX claims to possess the following derivative traits, meaning they are a more narrowly defined subset of a single core trait or they likely result from the interaction of two or more core traits (definitions derived from https://www.merriam-webster.com/dictionary/):

- System Construction (Synthesis) – Building coherent systems from foundational elements.

---

[2] Lacy, "Polarized Processing: A Theory of Exceptional Cognition," 7.

[3] S. Wheelwright et al., "Predicting Autism Spectrum Quotient (AQ) from the Systemizing Quotient-Revised (SQ-R) and Empathy Quotient (EQ)," *Brain Research* 1079 (January 2006): 50. https://doi.org/10.1016/j.brainres.2006.01.012.

- Advanced Audiation – Imagining and manipulating complex sound systems by means of internal simulation.

- Recursive Reasoning – Evaluating the internal logic of the rules that govern its own rules.
- Structural Synthesis (Cross Domain) – Combining systems across unrelated domains to form a unified concept.
- Rapid Internal Reasoning – Fast assessment of internal systems in order to solve complex problems.
- Self-Reliant Learning – Mastering complex subject matter without external instruction.
- Internal Quality Control – Evaluating and refining ideas internally before committing to external output.

The subtle distinction between some of these traits becomes more obvious through their practical manifestation. This can be seen when Participant X composes music through advanced audiation. He is able to generate a full music score through generative internal modeling. In doing so, he simulates and manipulates sound through his cognitive system before externalizing the output. In this specific case of music creation, advanced audiation is a more specific type of internal dynamic simulation. Similarly, PX is able to find the commonalities between two or more systems or ideas that appear to be unrelated through cross domain structural synthesis, which is a more narrowly defined subset of structural associative linking.

Cognitive Limitations and Tradeoffs

Having a cognitive preference for interacting with, organizing, and maintaining systems comes with a number of inherent tradeoffs. Participant X is prone to having difficulty adjusting to anything that opposes his personal, systemized framework, including an intolerance for any uncertainty that might lead to instability within those systems. When these stable systems are disrupted, they are often followed by high levels of distress as well as strong and sometimes disproportionate reactions.

Because PX is a recursive reasoner—a trait that lacks an intuitive point of cessation while engaging in certain tasks—he will often experience uncertainty in the process of completing

projects. This will often result in unnecessarily extended or unfinished tasks and disappointment in his own efforts; both of which strongly resemble perfectionism. In certain instances, unsuccessful attempts to reach a logical stopping point can result from an unusual degree of hyperfocus to the extent that it can hinder the execution of more pivotal responsibilities.

Participant X's primary means of engaging with information is through associative reasoning. *Structural associative linking* is a fundamentally different mode of reasoning than linear processing. In instances where associative linking is natural and automatic, any type of cognitive operation that relies upon sequential processing can become disruptive to the more intuitive cognitive mechanisms. Failure on the part of PX to adequately adjust to these processing differences often leads to a delay or interference in completing tasks and it can also lead to diminished self-esteem.

Compensatory actions regarding autism, including years of undiagnosed autism, can involve several types of responses, such as mimicking neurotypical behaviors. This can produce high levels of internal conflict that challenge PX on a persistent basis. Overcoming or compensating for these types of challenges can rely on a great deal of cognitive effort, which can be draining, leaving fewer resources for addressing potentially more necessary goals.

Hypothesis

According to self-report and observation, PX is able to rapidly compose complex music directly to score, bypassing intermediate steps—a highly unusual process even by typical professional standards. Participant X has made the following claims about his cognition and his cognitive process:

- He reduces systems to structural invariants. His efficiency of output is based, in large part, on compression of systemic information and data abstraction.
- His traits are automatic, spontaneous, natural, and stable across domains.

- His output does not rely on exceptional memory. His method of processing is based on associative linking, internal dynamic simulation, and systemic compression, all at the structural level.

The participant attributes his cognitive abilities to efficiency of process more than raw processing power. He insists that this efficient use of fewer resources is what maintains stability and consistency over time.

This paper will examine documentation, observation, self-reporting, and conversational data to evaluate these claims, and if possible, the degree to which these claims may or may not be true. Conclusions will not focus solely on any single piece of evidence, but will instead rely on the full aggregate of evidence as it relates to the case subject's claims.

Methods

Participant X claims to compose music directly to score through advanced audiation. Although he claims to be phantasic, this has not been evaluated and is outside the scope of this paper. He has, however, allowed observation of his process of composing music directly to score through audiation, and without the use of drafts or sketches. This will be analyzed, evaluated, and discussed in more detail later.

Through post hoc metacognition, PX has described his own internal process in detail. He has also provided a list of his cognitive traits and the interactions that take place between those traits that result in rapidly produced complex output. These traits will be examined for internal consistency as well as consistency with the supplemental documentation, observation, and conversational data.

For the purpose of this research project, PX has submitted documentation, which includes several score files and music files containing metadata. The metadata from the digital files helps to determine the time duration of his compositional process on individual projects. These documents and the accompanying metadata will be evaluated thoroughly as part of this analysis.

Conversational data has been submitted in order to evaluate cognitive processes used during conversations with artificial intelligence (AI). PX volunteered several conversation transcripts from which eight conversations of varying lengths and varying topics were selected for evaluation. The selection process was semi-random, meaning content was only examined to the extent that the subject matter could be determined in order conduct a broad comparative analysis. The time frame the conversations took place ranged approximately one year in length. Each of the conversations were assigned a letter, and the topic of each conversation was as follows:

- Conversation A: Paradoxes
- Conversation B: Scientific theory
- Conversation C: Aesthetics and beauty of language
- Conversation D: Statistical outliers
- Conversation E: Truth evaluation standards
- Conversation F: Mixed dominance
- Conversation G: Social communication
- Conversation H: Music interests

In this analysis, the primary focus will be on three aspects of the data: individual cognitive operations, overall trends in cognitive operations, and conversational vectors. For our purposes, a *conversational vector* will be defined as the most dominant individual cognitive operations in a conversation that cluster to produce a coherent motion toward a single objective. For example, a typical conversational vector might be based on a series of operations that develop in the following way: Curiosity → Mental Simulation → Causal Reasoning → Concept Formation. Each operation in the chain is based on the dominant operations from the conversation as they move toward a cognitive objective.

The coding scheme used in the evaluation of the conversational data was developed during the analysis. The individual cognitive operations that were applied by Participant X in the conversations can be classified within a broad framework of fifteen terms (see Appendix A for working definitions): (1) structural abstraction, (2) internal dynamic simulation, (3) recursive reasoning, (4) metacognitive awareness, (5) internal error correction, (6) structural associative linking, (7) system construction, (8) constraint analysis, (9) framework shifting, (10) mechanism

identification (11) taxonomy construction, (12) systemizing, (13) deductive reasoning, (14) concept generalization, and (15) structural organization. The tables and analyses for the conversational data can be found in Appendix B.

The coding system was structured as part of a hierarchy, embedded with some overlap of the term definitions. Because rigid partitions do not exist cleanly within cognitive systems and processing mechanisms, the intention was not to create strict boundaries for cognitive operations. The objective was to maintain enough overlap to reflect realism but to also include enough nuance to enable clear, decisive, and consistent coding decisions. This resulted in the existence of several justifiable coding decisions for each cognitive operation, but only one coding decision that defined the *primary* or *dominant* operation for each statement.

Results

Observation

By means of observation, Participant X has demonstrated an ability to compose without external aids such as drafts, sketches, or short scores. While the typical compositional process involves the creation of sketches, which contain musical information such as chord progressions and melodic content, his only method of composition is by means of audiation directly to score. He is noticeably inadequate when attempting to compose through more traditional methods. Instead, through audiation, he has demonstrated the ability to hear the music internally before notating it directly into a music notation program. He does not possess absolute pitch. As a result, he uses notation software for both music engraving and for pitch accuracy. The music he composed under observation was complex, involving mixed meter, non-tonal elements, and nuanced orchestration decisions. Based on peripheral data, his speed of composition was likely rapid by professional standards, but observation was limited due to the participant's comfort level.

His method of bypassing external support and composing music directly to score suggests he is composing by advanced audiation, which is a form of internal dynamic simulation. His inability to compose by means of traditional methods seems to support his self-report that his traits are natural, automatic, spontaneous, and persistent.

Self-Reporting

Participant X reports taking approximately three weeks to compose his first symphony in full, before editing, though there is no direct confirmation of this. However, his composition of an eight-minute piece for string orchestra in fewer than eight days would support this claim. He also reports having composed, recorded, and mixed music for a feature length film in twelve days. Additionally, Participant X reports an innate ability to understand concepts of orchestration—something he demonstrated with early works he composed for orchestra. He further reports a metacognitive understanding of his own internal cognitive process in detail. He has, in fact, described this as part of an introspective account of exceptional cognition (see *Polarized Processing: A Theory of Exceptional Cognition*).[4] He has provided a list of his own cognitive traits and has reported in detail his ability to self-teach complex music composition.

Documentation

Participant X is able to rapidly produce complex output. He attributes his efficiency, in part, to internal dynamic simulation, which in the case of music composition, translates to advanced audiation. He also believes that his efficiency is the result of advanced associative linking and structural abstraction. He has produced time stamped project files that support an eight-day process from start to finish regarding an eight-minute piece composed for string orchestra. He estimates the music taking five days to conceive and notate before editing. By virtue of contract, Participant X presented a score that he composed, orchestrated, and mixed for a feature length film in a twelve to fourteen day time period by himself; something that oftentimes takes several months, for a composer and a staff, to accomplish.

The participant submitted additional folders containing several score files for two projects. The first was for an orchestral concert piece, approximately four minutes in duration. The files were time stamped over a period of nineteen days; the music appearing to be fully composed, orchestrated, and edited in that time frame. The second folder contained files of a concert piece for a solo chordal instrument. The duration of this piece was approximately four minutes in length as well. The music for solo instrument appeared to be completed within a period of

[4] Lacy, "Polarized Processing: A Theory of Exceptional Cognition," 5, 6.

approximately six days, with an extra six days for small adjustments and final editing. While both pieces had elements of sophistication, the piece for solo instrument was particularly complex in terms of meter, rhythm, articulation, and non-tonal elements.

Participant X allowed access to all of his electronic score files. While there were saved iterations of his music scores and projects, they appeared to be created in order to preserve different points of progress while he composed the music. There were no piano sketches, score reductions, or short scores in his files.

Conversational Data

The data from each of eight conversations was evaluated for dominant features, vector data, and trends in cognitive operations. Below are the findings, which were determined from analyzing the results:

- The most frequent cognitive operations were: Constraint Analysis, Structural Organization, Structural Abstraction, System Construction, and Structural Associative Linking. They were the most dominant features in the conversation data analysis.
- The data seemed to indicate a persistent tendency to organize systems, compress frameworks, and reorganize systems.
- The data largely supports the bottom-up input, top-down output information processing reported by Participant X in *Polarized Processing*.[5] The conversational data seems to indicate a cognitive system where the information arrives in full detail during the input stage and structural abstraction is applied to the data during the processing stage in preparation for top-down output.
- The combined, or broad conversational vector diagram appears to show a consistent trend: Constraint Analysis —> System Construction —> Structural Associative Linking —> Structural Abstraction —> Structural Organization. This directional flow appears as a general cognitive construct.

[5] Lacy, "Polarized Processing: A Theory of Exceptional Cognition," 5, 6.

Discussion

Perhaps the most striking outcome from the conversation data analysis is the fact that it seems to support the polarized processing model, in which cognitive systems process information through bottom-up input and top-down output. The analyses suggest an internal process where details have been absorbed before they are compressed and systemized, resulting in rapidly produced complex output. This is the essence of what is described in the Polarized Processing Theory. While the cognitive traits described by Participant X, and analyzed as part of this research, were consistent with the mechanisms described as polarized processing, it was not directly hypothesized prior to the analysis.

In the conversation data analysis, the "Outside of Parameters" numbers are not insignificant. In totality, there were thirty-nine cognitive operations that were outside of the parameters to which high-level coding terms were assigned. There were one hundred and twenty-three total operations in the analysis, eighty-four of which were considered high-level. This means that approximately sixty-eight percent of all cognitive operations observed are considered high-level operations.

Conclusions

The conversational data consists of transcripts from discussions that occurred before the initiation of this project and outside PX's knowledge of their eventual analysis. That makes the conversational data candid in nature, which supports the idea that the cognitive operations used in the conversations were largely instinctual and natural.

The project's broad conversational vector data is consistent with Participant X's self-reporting of his more dominant cognitive traits, which include structural abstraction, structural associative linking, metacognition, and internal dynamic simulation; the former two having shown up as dominant features here. The infrequent occurrence of the latter traits could have been reasonably anticipated. Metacognition, as discussed in the self-report, is typically applied on a post hoc basis and internal dynamic simulation is not easily traced from external output to internal mechanism.

The cognitive operations identified in the transcripts are concentrated around the same cognitive traits despite conceptual differences in the conversations and variations in topics. This seems to align with the idea that PX's traits are natural, spontaneous, and persistent across varying subjects.

The initial results and analysis of the conversational data demonstrate a cognitive preference for identifying and interacting with systems and maintaining structural organization. This would support Participant X's unusually high score on the Systemizing Quotient-Revised (SQ-R) test.

The broad conversational pattern demonstrates a hierarchical structure that often moves from information gathering to system reorganization to system refinement to compression toward structural invariants.

Frequent usage of cognitive operations such as constraint analysis, structural organization, structural abstraction, system construction, and structural associative linking in the conversational data support the observation data and the supplemental information. This also aligns with the submitted documents that demonstrate the participant's ability to rapidly produce complex output; something thoroughly documented in the self-report. Additionally, these cognitive operations and conversational vectors are consistent within a wide range of topics, emotional content, and lengths of discussion. This supports the idea that Participant X's cognitive traits and reasoning preferences are stable across contexts.

An exhaustive evaluation of PX's files reveals that he has no record of creating piano sketches or drafts for any project. This is consistent with his self-report and supplemental data that he does not require external support to compose music and that he is uncomfortable using drafts and sketches. It is also consistent with the idea that he uses audiation as his primary method of composition.

None of the results from the data analyzed, including self-report, submitted documentation, and conversational data, necessitate prodigious memory being part of PX's cognitive process. Further, there is nothing in any data submitted or analyzed that prohibits his ability to rapidly produce complex output from being the result of structural abstraction, associative linking, and

top-down output. This is consistent with both his self-report, the results of the conversation data analysis, and supplemental data.

The agreement between the conversation data analysis and PX's scoring on the SQ-R lends credibility to the conversation analysis in general and the systemizing results derived from both. Each indicate that the participant is an extremely high systemizer.

All of the data submitted and analyzed seem to converge upon a unified outcome. Participant X's ability to rapidly produce complex output appears to be based on a core set of cognitive functions, including internal dynamic simulation (advanced audiation), structural associative linking, structural abstraction, extreme systemizing, and post hoc metacognition, all functioning at a high level. This eliminates the necessity of his output being the result of prodigious memory. Further, the conversational data, his inability to work using traditional methods, and his self-report are consistent with these traits being automatic, spontaneous, and stable across a variety of contexts.

Limitations

When discussing the idea of taking "eight days" to complete a composition for string orchestra and "five days" to compose the raw music before editing, we are neglecting to specifying how many hours were devoted to the actual compositional process. The documentation is not available to narrow the timeframe to that extent. Even if we assume a maximum daily schedule, five days to compose eight minutes of music for string orchestra would still constitute a highly compressed workflow. When we layer this with the complexity of the music—non-tonal, mixed meter, polyrhythms, and syncopated rhythms—we get a more complete picture of the speed of output.

The individual coding decisions were made following strict methods of consistency and boundary constraints. However, further verification checks are needed to maintain quality control and to further evaluate accuracy.

Suggestions for future research include completing conversation data analyses for control groups in order to obtain adequate data set comparisons. Additionally, research is required to determine

the baseline behavior for typical AI conversations in order to understand common trends such as typical conversational topics, length of discussions, variability of topics from individual users, among other areas of interest. Acquiring accurate information in these areas can provide insight into how Participant X's conversational data may differ from what is considered typical.

Obtaining electronic files for music projects that accurately reflect the timeframe of the creative process can be difficult. Unless there is a strict deadline, the composer may extend the timeframe beyond what is actually required to complete the project. If so, this will distort the timeline reflected by the metadata. With the piece for string orchestra, for example, PX presented several notation files and an audio file. The notation files indicated a time period that was twice as long as the self-report according to the metadata. Only examining the project files would have been misleading. However, the audio file of the completed music has a date reflecting a more compressed timeframe. Based on all of the information available, an estimated time period of eight to twelve days of composition time was spent to complete the project, which is more consistent with the participant's self-report. In most circumstances, it is impossible to make these types of inferences because the available data does not allow it.

Bibliography

Wheelwright, S., S. Baron-Cohen, N. Goldenfeld, et al. “Predicting Autism Spectrum Quotient (AQ) from the Systemizing Quotient-Revised (SQ-R) and Empathy Quotient (EQ).” *Brain Research* 1079 (January 2006): 47–56. https://doi.org/10.1016/j.brainres.2006.01.012.

Lacy, Eric. 2025. “Polarized Processing: A Theory of Exceptional Cognition.” Research Paper. December. https://www.ericbrianlacy.com/polarized-processing.

Appendix A: Coding Terms and Definitions*

1. **Structural Abstraction** - The removal of unnecessary details in order to preserve essential features
2. **Internal Dynamic Simulation** - The tendency to internally simulate complex, layered systems
3. **Recursive Reasoning** - Evaluating the internal logic of the rules that govern its own rules
4. **Metacognitive Awareness** - The ability to monitor one's own cognitive process
5. **Internal Error Correction** - The internal evaluation and correction of logical inconsistencies
6. **Structural Associative Linking** - Connecting apparently unrelated systems through shared, essential frameworks
7. **System Construction** - Building coherent systems from foundational elements
8. **Constraint Analysis** - Assessing and defining the appropriate limitations of systems
9. **Framework Shifting** - Alternating from one concept to another when appropriate
10. **Mechanism Identification** - Delineating the features that make a system operational
11. **Taxonomy Construction** - Creating and categorizing functional nomenclature
12. **Systemizing** - Maintaining and organizing concepts into coherent schemes
13. **Deductive Reasoning** - Reaching conclusions based on logical inference
14. **Concept Generalization** - Applying concepts and frameworks to various systems
15. **Structural Organization** - Organization of systems according to function

*Definitions derived from https://www.merriam-webster.com/dictionary/

Appendix B: Tables and Analyses

Conversation A Chart

ID	Statement	Reasoning Method	Cognitive Operation
A1	Can you give me your perspective on resolving…?	Abstraction; identifying the invariant	Structural Abstraction
A2	I think all paradoxes…	Feature extraction; separating surface properties from underlying structure	Structural Abstraction
A3	I'm talking about paradoxes that can exist conceptually…	Feature separation	Structural Abstraction
A4	So can you summarize…	Concept reduction; removing non-essential features	Structural Abstraction
A5	No, that's not what I'm saying. I'm separating…	Reduction to structural invariants	Structural Abstraction
A6	Without the specifics, what you are saying is…	Defining the governing rules of the system	System Construction
A7	Let me provide a good example…	Cross domain connection; examining shared patterns between concepts	Structural Associative Linking
A8	Absolutely correct.		
A9	Now, this isn't my theory…		
A10	Is there a solution to this…?		
A11	Wouldn't the resolution be…	General Knowledge	
A12	Yes, let's say, for example, that someone…	Cross domain comparison	Structural Associative Linking
A13	I'm sure this person could explain his thinking…		
A14	It's a theory. It's valid. It has merit…		
A15	Has this approach for…		
A16	Would there be any value in…		

Conversation A Statistics

#	Cognitive Operation	Count
1	Structural Abstraction	5×
2	Internal Dynamic Simulation	
3	Recursive Reasoning	
4	Metacognitive Awareness	
5	Internal Error Correction	
6	Structural Associative Linking	2×
7	System Construction	1×
8	Constraint Analysis	
9	Framework Shifting	
10	Mechanism Identification	
11	Taxonomy Construction	
12	Systemizing	
13	Deductive Reasoning	
14	Concept Generalization	
15	Structural Organization	
16	Outside of Parameters	8×

Conversational Vector A

Structural Abstraction → System Construction → Structural Associative Linking

Conversation B Chart

ID	Statement	Reasoning Method	Cognitive Operation
B1	What is a unified…?	Establishing the parameters that define the system	Constraint Analysis
B2	So if someone developed…	Constructing the system by determining the necessary elements	System Construction
B3	So, a unified…	Constructing the system by determining the necessary elements	System Construction
B4	But how can a…?	Establishing the limits and boundaries of a system	Constraint Analysis
B5	But you cannot turn the variable down…	Distinguishing the boundary between two systems	Constraint Analysis
B6	But who decides where the limit…?	Defining boundaries and limits of systems	Constraint Analysis
B7	Ok, so what happens if…?	Probing to identify the limit of systems	Constraint Analysis
B8	I believe there are distinct differences…	Comparing several disconnected systems	Structural Associative Linking
B9	Fragmented by nature. Then wouldn't it be solved by…	Defining terms for system fragmentation	Structural Organization
B10	Then why stop at…?	System limits	Constraint Analysis
B11	So what have we concluded here? It seems like…	Expressed frustration at the idea of undefined systems	Systemizing
B12	No, I disagree…	Refusal to accept undefined or fragmented systems	Systemizing
B13	Well, let's put this to the test…	Establishing system boundaries	Constraint Analysis
B14	So do you get what I'm saying? The reason it is…	Suggestion of new taxonomy; constructing boundaries to distinguish between systems	Structural Organization

B15	Yes, science boxes itself in…		
B16	So, what would a unified…	Defining system boundaries	Constraint Analysis
B17	So the theory explains that…	Framework identification and construction	System Construction
B18	That aspect is mentioned…		
B19	Ok, so because I know you lean toward…	Quality control check	
B20	You already played…		
B21	What’s the difference between…	Distinguishing the essential elements that define two systems of the same kind	Structural Abstraction
B22	As far as I can tell, there is no way to…	Cross conceptual synthesis	System Construction
B23	It’s a completely differently structured system…	Differentiating between systems	Structural Organization
B24	Hold on a minute. I just finished…		
B25	I would suppose I would formalize the…		

Conversation B Statistics

#	Cognitive Operation	Count
1	Structural Abstraction	1×
2	Internal Dynamic Simulation	
3	Recursive Reasoning	
4	Metacognitive Awareness	
5	Internal Error Correction	
6	Structural Associative Linking	1×
7	System Construction	4×
8	Constraint Analysis	8×
9	Framework Shifting	
10	Mechanism Identification	
11	Taxonomy Construction	
12	Systemizing	2×
13	Deductive Reasoning	
14	Concept Generalization	
15	Structural Organization	3×
16	Outside of Parameters	6×

Conversational Vector B

System Construction → Constraint Analysis → Structural Associative Linking → Structural Organization → Structural Abstraction → Structural Organization

Conversation C Chart

ID	Statement	Reasoning Method	Cognitive Operation
C1	Does anyone actually consider…?		
C2	What are the distinguishing characteristics…?	Establishing the relevant framework	Constraint Analysis
C3	Are “TH” words…?	Defining the characteristics of the system	Systemizing
C4	What other languages…?	Generalizing; Applying traits beyond initial domain	Structural Associative Linking
C5	How does that affect…	Feature impact exploration	Mechanism Identification
C6	Aren’t there a lot of “s” sounds…	Feature impact exploration	Mechanism Identification
C7	So why wouldn’t people…	Examining inconsistencies; feature impact exploration	Internal Error Correction
C8	For some reason, I’m struggling with…	Seeking clarity in understanding concepts	System Construction
C9	I actually think those types of interruptions…	Defining boundaries of different systems	Structural Organization
C10	You’re right. It might be the irregular…	Defining boundaries of systems	Structural Organization
C11	That makes…		
C12	I’ve always found the characteristics…		
C13	Just a few days since…		
C14	Thanks. I’ll keep a look…	Defining systems based on sound aesthetics	Structural Organization

C15	I would say that it seems to have the…	Defining systems according to structural components	Structural Organization
C16	A lot of people claim that…	Exploring relationships based on common sounds	Structural Associative Linking
C17	Do people often say that…?	Comparison of languages based on sound and sound construction	Structural Associative Linking
C18	Language B: s sh z f th Don’t forget about…	Building systems based on observation	System Construction
C19	So, it’s not just the consonants. It’s the type of consonants…	Identifying the elements that define the system	System Construction
C20	It’s amazing actually, when you listen…	Separating structural elements of a single system	Structural Abstraction
C21	Has anyone…		
C22	I just saw…		

Conversation C Statistics

#	Cognitive Operation	Count
1	Structural Abstraction	1×
2	Internal Dynamic Simulation	
3	Recursive Reasoning	
4	Metacognitive Awareness	
5	Internal Error Correction	1×
6	Structural Associative Linking	3×
7	System Construction	3×
8	Constraint Analysis	1×
9	Framework Shifting	
10	Mechanism Identification	2×
11	Taxonomy Construction	
12	Systemizing	1×
13	Deductive Reasoning	
14	Concept Generalization	
15	Structural Organization	4×
16	Outside of Parameters	6×

Conversational Vector C

Constraint Analysis → Mechanistic Identification → Structural Associative Linking → System Construction → Structural Organization → Structural Abstraction

Conversation D Chart

ID	Statement	Reasoning Method	Cognitive Operation
D1	You are trained to apply patterns…	Defining parameters	Constraint Analysis
D2	I want you to only apply corrective measures…	Adding boundaries to the discussion	Constraint Analysis
D3	From now on, do not make assumptions…		
D4	Go back and point out…		
D5	You assumed that…	Drawing conclusions based on previous statement	Deductive Reasoning
D6	If an outlier…	Defining entities based on treatment	Structural Organization
D7	This is different treatment…	Clarification of terms	Constraint Analysis
D8	You are making distinctions…		
D9	Isn’t that generally the basis for…	Determining boundaries within a system and the resultant impact	Constraint Analysis
D10	Are you elaborating…?		

Conversation D Statistics

#	Cognitive Operation	Count
1	Structural Abstraction	
2	Internal Dynamic Simulation	
3	Recursive Reasoning	
4	Metacognitive Awareness	
5	Internal Error Correction	
6	Structural Associative Linking	
7	System Construction	
8	Constraint Analysis	4×
9	Framework Shifting	
10	Mechanism Identification	
11	Taxonomy Construction	
12	Systemizing	
13	Deductive Reasoning	1×
14	Concept Generalization	
15	Structural Organization	1×
16	Outside of Parameters	4×

Conversational Vector D

Constraint Analysis → Structural Organization → Constraint Analysis

Conversation E Chart

ID	Statement	Reasoning Method	Cognitive Operation
E1	Why do people feel that they have to…	Determining the underlying operational elements of the system	Mechanistic Identification
E2	Ok, so you first examine the claim…	Reduction and separation of essential from the nonessential	Structural Abstraction
E3	I don’t care about institutional…		
E4	Imagine doing an investigation…	Evaluating scenarios and resultant outcomes	Internal Dynamic Simulation
E5	I’m shocked. Your logic and your reasoning…	Evaluating step-by-step logical approaches	Internal Error Correction
E6	Let’s look at each point…		
E7	If a credible lead is defined as internally coherent…	Reducing unnecessary elements from the overall framework	Structural Abstraction
E8	I resist your analysis. Right now, the most relevant…	Reduction of peripheral elements in order to focus on core components	Structural Abstraction
E9	Did I say anything that I hadn’t…	Evaluating internal consistency	Internal Error Correction
E10	Ok. I’m not sure I understand what convinced you…		
E11	I think I already took care of this one…	Reducing unnecessary features	Structural Abstraction
E12a	This one doesn’t hold up logically even without…	Review and evaluation of internal logic	Deductive Reasoning
E12b	You explore credible leads…	Describes method for elimination of extraneous features	Structural Abstraction
E13	That can be evaluated based on the specifics…	Elimination of unnecessary elements	Structural Abstraction
E14	Sure. I’ll show the flaw in your logic just by…	Using logic to demonstrate a point	Deductive Reasoning

E15	Actually, I wonder if it can be evaluated…		
E16	Let’s assume my theory of…	Proposal of level of impact hypothesis; comparison with apparently unrelated concepts	Structural Associative Linking
E17	Are you equipped to handle…?	Probing limitations of reasoning within a system	Constraint Analysis
E18	I think we’ve exhausted all relevant topics…		
E19	How many generative…?	Examining the characteristics and components of the system	Structural Organization
E20	You didn’t answer my question…		
E21	How does this…?	Evaluating the system in order to determine inclusion of additional objects or concepts	System Construction
E22	He’s essentially…	Assessing whether entities qualify for inclusion into the same system	System Construction
E23	Keep in mind that we don’t know that…	Evaluating the difference between what has been demonstrated and what is factual	Recursive Reasoning
E24	I think you mean that…	Evaluating different lines of reasoning to form a conclusion	Deductive Reasoning
E25	Did you say instead of…		

Conversation E Statistics

#	Cognitive Operation	Count
1	Structural Abstraction	6×
2	Internal Dynamic Simulation	1×
3	Recursive Reasoning	1×
4	Metacognitive Awareness	
5	Internal Error Correction	2×
6	Structural Associative Linking	1×
7	System Construction	2×
8	Constraint Analysis	1×
9	Framework Shifting	
10	Mechanism Identification	1×
11	Taxonomy Construction	
12	Systemizing	
13	Deductive Reasoning	3×
14	Concept Generalization	
15	Structural Organization	1×
16	Outside of Parameters	7×

Conversational Vector E

Internal Error Correction → Structural Abstraction → Structural Associative Linking → System Construction → Deductive Reasoning

Conversation F Chart

ID	Statement	Reasoning Method	Cognitive Operation
F1	How common is it…?	System organization; setting boundary parameters	Structural Organization
F2	Do you know what the percentage is…?	Defining boundaries within a system	Structural Organization
F3	What about…?	Defining boundaries within a system	Structural Organization
F4	How common is it for…?	System organization; setting boundary parameters	Structural Organization
F5	Yes, let's talk about that…	Seeking to define statistical limitations within a system	Constraint Analysis

Conversation F Statistics

#	Cognitive Operation	Count
1	Structural Abstraction	
2	Internal Dynamic Simulation	
3	Recursive Reasoning	
4	Metacognitive Awareness	
5	Internal Error Correction	
6	Structural Associative Linking	
7	System Construction	
8	Constraint Analysis	1×
9	Framework Shifting	
10	Mechanism Identification	
11	Taxonomy Construction	
12	Systemizing	
13	Deductive Reasoning	
14	Concept Generalization	
15	Structural Organization	4×
16	Outside of Parameters	

Conversational Vector F

Structural Organization → Constraint Analysis

Conversation G Chart

ID	Statement	Reasoning Method	Cognitive Operation
G1	What is…?	Creating boundaries and parameters for defined attributes	Constraint Analysis
G2	So, is laughing or smiling…?	Defining boundaries of a coherent system	Constraint Analysis
G3	Are these behaviors…?	Narrowing down the internal rules of the system	Recursive Reasoning
G4	When do people learn…?		
G5	So, if a person…?		
G6	Please relate this to…	Structural synthesis	Structural Organization
G7	Can you give examples…?		
G8	What about when…?	Testing system boundaries	Constraint Analysis
G9	Let’s say that someone doesn’t understand…?	Examining the rules within rules of the system	Recursive Reasoning

Conversation G Statistics

#	Cognitive Operation	Count
1	Structural Abstraction	
2	Internal Dynamic Simulation	
3	Recursive Reasoning	2×
4	Metacognitive Awareness	
5	Internal Error Correction	
6	Structural Associative Linking	
7	System Construction	
8	Constraint Analysis	3×
9	Framework Shifting	
10	Mechanism Identification	
11	Taxonomy Construction	
12	Systemizing	
13	Deductive Reasoning	
14	Concept Generalization	
15	Structural Organization	1×
16	Outside of Parameters	3×

Conversational Vector G

Constraint Analysis → Structural Organization → Recursive Reasoning

Conversation H Chart

ID	Statement	Reasoning Method	Cognitive Operation
H1	This may sound random…		
H2	Please do…		
H3	Just an interesting topic…		
H4	Interesting that I recognize…	Asking questions about self	Metacognitive Awareness
H5	I guess what I'm trying to express…		
H6	Actually, you know what…		
H7	I wonder if she may have…	Thinking about internal mechanisms	System Construction
H8	Let me ask this…?	Defining and refining system components	System Construction
H9	This has been an interesting…	Comparison of like systems	Concept Generalization
H10	So, just a point of clarification…	Piecing together system information	Structural Organization

Conversation H Statistics

#	Cognitive Operation	Count
1	Structural Abstraction	
2	Internal Dynamic Simulation	
3	Recursive Reasoning	
4	Metacognitive Awareness	1×
5	Internal Error Correction	
6	Structural Associative Linking	
7	System Construction	2×
8	Constraint Analysis	
9	Framework Shifting	
10	Mechanism Identification	
11	Taxonomy Construction	
12	Systemizing	
13	Deductive Reasoning	
14	Concept Generalization	1×
15	Structural Organization	1×
16	Outside of Parameters	5×

Conversational Vector H

System Construction → Concept Generalization → Structural Organization

Conversational Vector Summaries

Conversational Vector A: Structural Abstraction → System Construction → Structural Associative Linking

Conversational Vector B: System Construction → Constraint Analysis → Structural Associative Linking → Structural Organization → Structural Abstraction → Structural Organization

Conversational Vector C: Constraint Analysis → Mechanistic Identification → Structural Associative Linking → System Construction → Structural Organization → Structural Abstraction

Conversational Vector D: Constraint Analysis → Structural Organization → Constraint Analysis

Conversational Vector E: Internal Error Correction → Structural Abstraction → Structural Associative Linking → System Construction → Deductive Reasoning

Conversational Vector F: Structural Organization → Constraint Analysis

Conversational Vector G: Constraint Analysis → Structural Organization → Recursive Reasoning

Conversational Vector H: System Construction → Concept Generalization → Structural Organization

Combined Conversation Stats

#	Cognitive Operation	Count
1	Structural Abstraction	12×
2	Internal Dynamic Simulation	1×
3	Recursive Reasoning	3×
4	Metacognitive Awareness	1×
5	Internal Error Correction	3×
6	Structural Associative Linking	8×
7	System Construction	12×
8	Constraint Analysis	18×
9	Framework Shifting	
10	Mechanism Identification	3×
11	Taxonomy Construction	
12	Systemizing	3×
13	Deductive Reasoning	4×
14	Concept Generalization	1×
15	Structural Organization	15×

Most Frequent Cognitive Operations: Constraint Analysis, Structural Organization, Structural Abstraction, System Construction, and Structural Associative Linking

Combined Conversational Vector Summary

Constraint Analysis → System Construction → Structural Associative Linking → Structural Abstraction → Structural Organization